TECHNISCHE UNIVERSITÄT DARMSTADT

Social Egg Freezing

Attitudes, Perceived Social Norms, Control Factors and Experiences in Germany

at the Department of History and Social Sciences of the Technische Universität Darmstadt

submitted in fulfilment of the requirements for the degree of Doctor philosophiae (Dr. phil.)

Doctoral thesis
by Barbara Keglovits

First assessor: Prof. Dr. Cornelia Koppetsch
Second assessor: Prof. Dr. Sandra Niedermeier

Darmstadt 2024

Keglovits, Barbara: Social Egg Freezing Attitudes, Perceived Social Norms, Control Factors and Experiences in Germany
Darmstadt, Technische Universität Darmstadt,
Year thesis published in TUprints 2024
Date of the viva voce 28.02.24

Acknowledgements

I would like to thank my advisor, Prof. Dr. Cornelia Koppetsch at the Technical University of Darmstadt, for seeing the potential in my research and for her academic support throughout the years. I'm also grateful for Prof. Dr. Sandra Niedermeier at Kempten University of Applied Sciences for taking the time to review my dissertation. Many thanks to Dr. Susanne Schneider for the inspiring discussions and for her feedback, to Dr. Philipp Holz, who offered to read chapters from the medical point of view, to Michael Benford (Sandstone Lektorat) for proofreading my dissertation, as a native English speaker, and to all the motivated interview-partners who contributed their time, shared thoughts and experiences on social egg freezing. I would like to express my special thanks to my university teachers, Dr. Mónika Kovács and sadly belated Dr. Mónika Szabó at the Eötvös Loránd University in Budapest, whose academic work and lectures inspired me to focus my research on gender equality. Furthermore, I really appreciate the support of my family, especially my husband, Jan Kinder, who always believed in my research project. Gender equality has not remained theoretical in our family: We have always shared the care-giving responsibilities of our son, which enables me to also pursue my academic work.

Table of Contents

Abbreviations

ART	assisted reproductive technology
BMFSFJ	Bundesministerium für Familie, Senioren, Frauen und Jugend (Federal Ministry for Family Affairs, Senior Citizens, Women and Youth)
CLBR	cumulative live birth rate
ESHRE	European Society of Human Reproduction and Embryology
FAZ	Frankfurter Allgemeine Zeitung
IVF	in vitro fertilisation
OC	oocyte cryopreservation
RQ	research question
SEF	social egg freezing
US(A)	United States (of America)

List of Figures

List of Tables

Abstract

Objective: Social egg freezing (SEF) is an assisted reproductive technology whereby women cryopreserve their oocytes to extend female fertility for non-medical reasons. This study aimed (1) to investigate the potential target group's attitude towards SEF, women who opt for SEF and SEF as an employee benefit. Furthermore, it intended (2) to understand the perceived social norms and behavioural controls involved in the decision to opt for SEF and (3) to learn about the experiences of women who had undergone SEF, and their control factors in opting for it.

Methods: Semi-structured interviews were conducted with female (n=10) and male (4=0) university students and young graduate professionals with no personal experience of SEF (non-SEF participants), and with women (n=4) who had chosen SEF (SEF participants) in Germany.

Results: Non-SEF participants did not reject SEF, but showed both curiosity and concerns about the medical opportunity. Male participants would support their female partners in opting for SEF if they wished it. Non-SEF participants sympathised more with women opting for oocyte cryopreservation for medical reasons than for social reasons. Participants would welcome SEF as an employee benefit, even though they gave a partially negative description of companies' perceived intentions in providing financial support. Non-SEF participants described SEF as a free choice and a potential tool to balance motherhood and career, but called out social structures that SEF alone cannot eliminate. Should they personally be interested, they believed that they could gather sufficient information on SEF and be able to finance the procedure by themselves, with their families' support or later, after entering the labour market. SEF women mainly chose this method between the age of 27 and 39, either because they lacked a partner or were pursuing academic studies. They aimed to return to their cryopreserved oocytes should they not be able to fulfil their wish for a child naturally.

Key words: social egg freezing, oocyte cryopreservation, fertility prevention, attitude, employee benefit, freezing experience

1 Introduction

The challenges mothers face on the labour market have been both scientifically endorsed and internationally validated, as Claudia Goldin was recently awarded the Nobel Prize "for having advanced our understanding of women's labour market outcomes" (The Nobel Prize, 2023, title). She argues that the gender pay gap mostly arises when women become mothers and refers to the phenomena as the "parental gender gap" (Goldin et al., 2022, p. 10). On the other hand, from the local perspective, the German Cabinet announced its plan to cut the parental allowance for higher earning families[1] (BMFSFJ, 2023). This may largely affect higher educated individuals and couples, especially women, as they are the allowance's main beneficiaries (Destatis, 2023d). Women with higher education have already tend to postpone childbearing to the end of their reproductive period in Germany (BMFSFJ, 2021; Destatis, 2023b), and many of them may wait far too long and remain unwillingly childless (BMFSFJ, 2021). Could social egg freezing (SEF) be a solution for more of these women?

With the advances in medical science, SEF has been offered as a medical solution to cryopreserve oocytes, thereby extending female fertility and potentially postponing motherhood, and the number of women opting for this method is increasing (Varlas et al., 2021): 1,688 women are recorded as having opted for SEF in 2022 in Germany, whereas this number was only 910 in 2019 (Deutsches IVF-Register, 2023). As a new local perspective, alongside to several employers in the USA, a German DAX-company, Merck, has recently announced to provide financial support for fertility treatments to their employees also in Germany (Merck, 2023), and SEF belongs also to these benefits (Hoffmann, 2023). Whether the number of women opting for SEF will increase further depends on many factors, as their decision is made in a complex sociological context comprising their personal relationships, aspirations, responsibilities, financial possibilities and the given society's norms and expectations. With my research, I therefore aim to understand the local target groups' attitude towards SEF and the experiences of those women who have already chosen SEF.

1.1 Research problem

Oocyte cryopreservation (OC) is a modern assisted reproductive technology whereby women cryopreserve their oocytes, stopping their reproductive cells' aging process, thus preventing the increased risk of genetic disorders in their children, which generally rises in parallel with

[1] If their taxable income is at or above €150,000 for couples or single parents.

the age of the oocytes. Furthermore, women have a higher chance for a pregnancy in a more advanced age, which might not even be possible without OC. After thawing the cryopreserved oocytes, they can be in-vitro fertilised and placed into the uterus. The primary purpose of the OC is self-donation, which means any fertile woman can reproduce at a more advanced age and have biologically related children (Argyle et al., 2016; Oktay et al., 2006; Stoop, et al., 2014a). Originally, OC arose from a medical reason: to enable women with serious diseases (e.g., cancer) requiring treatments that could damage the patient's reproductive cells to cryopreserve their oocytes. After the treatment of their disease and recovery, these women would have a chance to use their cryopreserved oocytes for reproduction (Petropanagos, 2010). OC has become relevant also in the social sciences because it is offered by medical centres not only for medical but also social reasons (Hudson et al., 2019; Inhorn, 2020). This means that women who wish to delay childbearing until the end of their forties for social reasons, such as their career or the lack of a suitable relationship or financial stability, might decide to engage in egg freezing. This case is referred to as *social egg freezing* (SEF) or *non-medical*, *elective,* or *social oocyte cryopreservation/egg freezing* or *egg freezing for lifestyle reasons*, *egg freezing because of age-related infertility*. All these expressions are accepted in scientific journals and refer to the same phenomenon.

SEF has lately become available[2] to prevent age-related infertility in Germany and there are no restrictions regarding the age of women, the number of oocytes retrieved, the length of the cryopreservation or the reason for cryopreservation (age-related or disease-related), though these restrictions may exist in other countries[3]. Both the number of women who have opted for SEF and number of medical centres that offer the technology of SEF is increasing in Germany (Deutsches IVF-Register, 2023). As delayed childbearing and childlessness are widespread among graduate professionals in Germany (BMFSFJ, 2021), the initial focus of this dissertation is an understanding of **graduate professionals' attitudes towards SEF and towards women who opted for SEF**.

[2] OC is available to all women at the following institutions in Germany, for example: Kinderwunschzentrum München (https://ivf-muenchen.de/social-freezing/, retrieved: 03.07.2023); Kinderwunsch und Hormonzentrum am Palmengarten in Frankfurt (https://www.kinderwunschzentrum-frankfurt.de/leistungsschwerpunkte/social-freezing, retrieved: 03.07.2023); Kinderwunsch und Hormon Zentrum an der Oper in Frankfurt (https://www.kinderwunschzentrum-an-der-oper.de/de/social-freezing.html, retrieved: 03.07.2023);
Die Kinderwunschärztin München (https://kinderwunschaerztin.de/kinderwunsch/social-freezing/, retrieved: 03.07.2023) Pan Institute (Cologne), Kinderwunschzentrum (Darmstadt), Praxis für Fertilität (Berlin), Kinderwunschzentrum Mittelrhein in Koblenz (https://www.kinderwunsch-mittelrhein.de/behandlungsmethoden.html, retrieved: 03.07.2023).

[3] See section 3.1.2.4.

In 2015, the companies Apple and Facebook[4] introduced an employee benefit package with the aim of attracting more female talent to the male-dominated IT sector (Srinivas, 2014; Taube, 2014). Among other benefits, female employees receive financial support for accessing modern assisted reproductive technologies which can delay childbearing until a more advanced age. Given that graduate professionals' thirties are considered the most important period for career development, there is a conflict with the timing of childbearing and childcare, which is also common during this period. Thus, numerous women may partially or entirely exit the labour market and focus on their role in the home during this time (Bertram, 2017; Koppetsch & Speck, 2015). Alternatively, many women stay voluntarily childless if they do not wish to take on the double burden of being both mothers and employees at the same time (Procher et al., 2018; Utasi, 2011). Women, especially when they become mothers, are affected more than men by this double burden and face a greater conflict of career planning and parenthood (Goldin et al., 2022). This is not only because they have a physically greater role in reproduction, but also because they are seen as the more competent, and therefore more responsible, gender for childrearing due to cultural ideologies (e.g., Brüggmann, 2020; Kitterød, 2016; Lutter & Schröder, 2020; Samtleben & Müller, 2022). Therefore, the second focus of this dissertation is to assess professional graduates' **attitude towards SEF as an employee benefit**.

The questionns of whether this assisted reproductive technology provides a viable solution to the challenges of delayed childbearing, childlessness, and work-life balance in modern societies, and whether it supports gender equality in reproduction and in general have been the topic of international debate (e.g., Baldwin et al., 2018; Bühler, 2022; Feiler, 2020; Inhorn et al., 2022; Martin, 2010). Further discussions focus on whether slowing the ticking of the so-called biological clock is a sustainable approach to attracting more female talent to the male-dominated sectors of the labour market and the associated higher management levels (e.g. Baylis, 2015; Vieth, 2016; Wunder, 2013). Moreover, there are disputed legal restrictions related to SEF that may either protect individuals or reduce their reproductive rights (ESHRE, 2020). Due to the high costs, SEF is labelled a luxury product and these ongoing debates address the question of affordability and the social privilege of the individuals who can access SEF (e.g., Cattapan et al., 2014; Ikemoto, 2015; Inhorn, et al., 2017; van de Wiel, 2020a). These dialogues all revolve around the core hypothesis that if SEF becomes a widely applied way to preserve fertility and a preferred means of reproduction among graduate professionals, then it

[4] As of 2021the company is called Meta. https://about.fb.com/news/2021/10/facebook-company-is-now-meta/

is important to focus on how this assisted reproductive technology can be used for the benefit of both the individual and of society in general. This dissertation seeks to understand the potential demand for this assisted reproductive technology and adds to the scholarly conversation by assessing the **perceived social norms and behavioural controls involved in the decision to opt for SEF.**

Last, but not least, there is limited information on **the experiences of women who have undertaken OC for social reasons in Germany**. Therefore, a further aim of this thesis is to understand the **actual control factors in opting for SEF**, i.e., the costs, their support networks, the **experience** of the medical intervention, and their future plans for the cryopreserved oocytes.

1.2 Structure

The Introduction is followed by *chapter 2*, which aims to set the scene for the dissertation by providing the reader with the foundational theoretical background of the research. It describes the theory of attitude and planned behaviour, as well as the sociological context of SEF, including the definition of social norms, gender stereotypes and the division of paid and unpaid work. Furthermore, this chapter gives insight into the current reproductive trends in Germany, such as demographics on birth rate, postponed motherhood and childlessness, the use of social egg freezing, and the division of paid and unpaid work between parents.

Chapter 3 summarises the global scientific research and discussion related to SEF, by introducing the medical process of OC, including the process of cryopreservation, its history, the current success rate of the method, its medical advantages and risks, its legal aspects and the financial costs. Following this medical introduction, this chapter presents the sociological and ethical context of SEF by summarising which women actually make up the target group for SEF, how the women who opt for SEF are seen in society, and how this perception changes according to the reasoning for the cryopreservation, i.e., age-related or disease-related fertility concerns. Additionally, SEF is introduced in the context of gendered division of labour and as the product of the neo-liberal feminism. This chapter discusses SEF in relation to social norms, such as ageism, the value of genetically related children, and the control over female bodies. The control factors of SEF are highlighted, which might enable or hinder women to opt for SEF. Finally, this chapter summarises the internationally conducted empirical studies and this dissertation's preliminary research.

The research Methodology is described in *chapter 4* by highlighting the study's objectives, questions, and design. Furthermore, this chapter introduces the applied methods and the

interview design including the recruiting, the interview itself, and the qualitative content analysis.

Chapter 5 provides the detailed description and analysis of the research questions. First, in *section 5.1*, the empirical study's participants are introduced. Following this, *section 5.2* analyses their attitude towards SEF by focusing on their beliefs, feelings and behaviours towards the attitude object, i.e., their first information source, their preliminary medical knowledge about SEF, the curiosity they show towards this possibility, the potentials and concerns they perceive, the feelings they share about SEF and whether they would consider opting for this procedure. *Section 5.3* analyses the participants' attitudes towards women opting for SEF, their motivations for cryopreservation, and how the reasons for cryopreservation (age-related or disease related) impact the overall perception of women. This section also relates the reported feelings about the women choosing SEF to whether respondents would support regulating their reproductive freedom, for example, by setting an age-limit in the application. *Section 5.4* focuses on SEF as a benefit offered by employers, looking at the participants' view on whether this benefit would support gender equality and how they assess companies' intention to provide financial support for their employees. This section then goes on to explore whether an employer's offer of SEF as a benefit could influence career decisions, for example if respondents would prefer to choose the employer with an SEF policy. *Section 5.5* analyses the social norms affecting the choice of SEF, including how participants perceive SEF in the context of neo-liberal feminism and in relation to certain social norms linked to reproduction and how they perceive the meta-perception of SEF. Next, *section 5.6* describes how participants with no personal SEF experience perceive the behavioural control factors relating to the decision of whether or not to opt for SEF. Then *section 5.7* presents the same aspects based on the data gathered among women who have already opted for SEF. Finally, *section 5.8* gives an analysis of the experiences of the women who opted for SEF, i.e., their motivations for undertaking this opportunity, how they experienced the medical- consolations and process itself, and what their future plan is with regard their cryopreserved oocytes.

The discussion in *chapter 6* links the concluded results of the analyses to the existing scientific studies by comparing outcomes and defines the current research's relevance, achievements and position within the research landscape conducted on SEF.

Chapter 7 concludes the research and gives a critical reflection on the results.

2 Setting the scene: Theoretical background of social egg freezing

2.1 Theory of attitude and planned behaviour

An attitude is the cognitive representation of beliefs, feelings, and behavioural intentions towards an attitude object. The tripartite or ABC model (*Figure 1*) enables research into attitude formation processes, i.e., how attitudes are formed towards an attitude object from affection (emotions), from behaviours, and from cognition (beliefs). The evaluative abstractions towards the attitude object also vary in their direction and in their strength (Allport 1935; Fishbein & Ajzen, 1975). The attitude's affective component includes one's verbal statements of their emotional response or feelings. The attitude's cognitive component originates from an individual's information about the attitude object, and their verbal statements of beliefs as to whether the attitude object in question leads to desired or undesirable outcomes or attributes. The behavioural component of the attitude is the individual's verbal statements regarding their intended behaviour (Allport 1935; Fishbein & Ajzen, 1975; Jain, 2014).

Tripartite / ABC model of attitude
(Haddock & Maio, 2004; Wicker, 1969; Allport 1935; Fishbein & Ajzen, 1975)

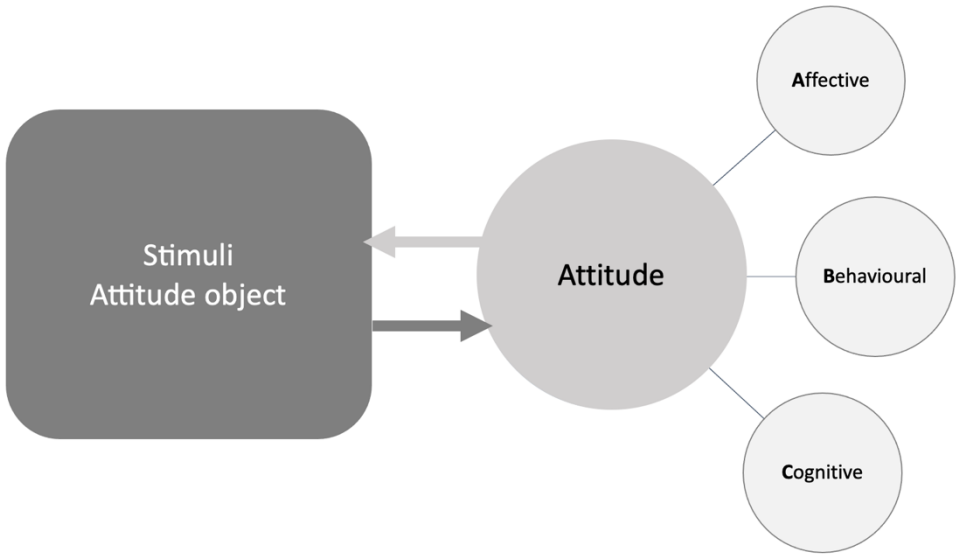


Figure 1 Tripartite / ABC model of attitude

The individual's intention to perform a behaviour can be assessed by the Theory of Planned Behaviour (Ajzen, 1985; Ajzen, 2005) as presented in *Figure 2*. It relies on the theory of reasoned action (Ajzen & Fishbein, 1980; Fishbein & Ajzen, 1975) and assumes that the intention to perform a behaviour is influenced by three factors; the *attitude, the subjective*

norms, and the *perceived behavioural control* towards the behaviour in question. The *attitude* refers to the positive or negative evaluation of the behaviour. The *subjective norms* describe the perceived social expectation or pressure to opt or not to opt for the behaviour. The *behavioural control* is the perceived existence of factors to facilitate or impede the performance of the behaviour. In general, the more positive the individuals' attitude towards the objects, the more positive their perceived subjective norms and the greater their perceived behavioural control, the stronger the individuals' *intentions* to perform the behaviour. Furthermore, the performance of the behaviour doesn't just depend on the individual's intentions, but the *actual controls*, such as the availability of resources and the opportunity (Ajzen, 1985; Ajzen, 1991; Ajzen, 2005; Ajzen & Cote, 2008).

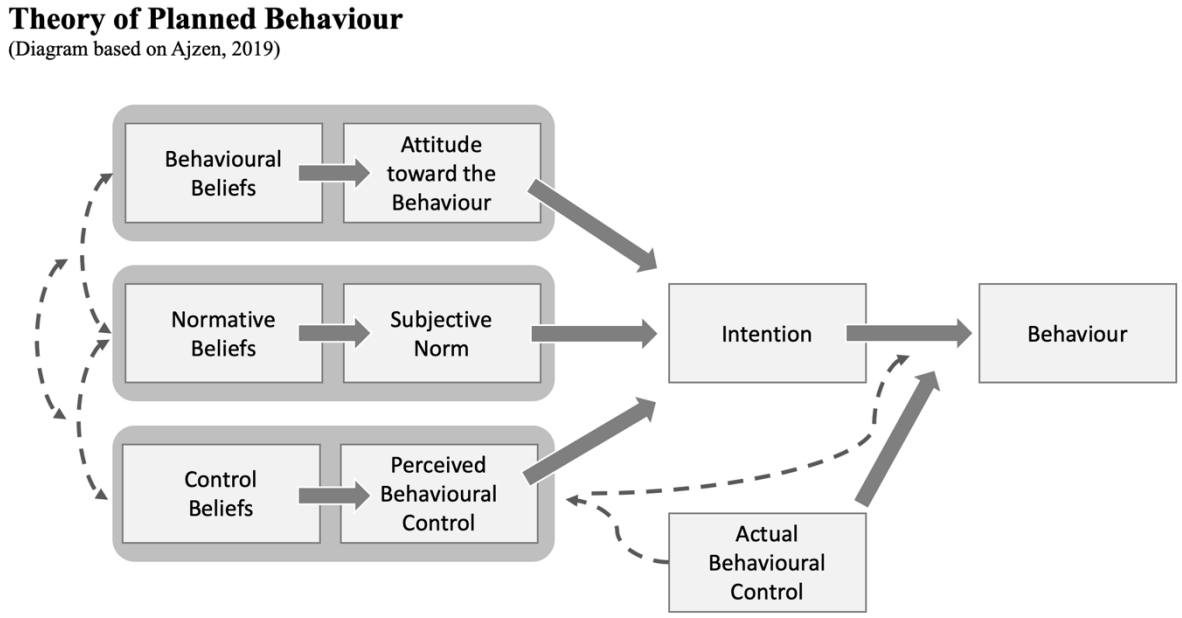


Figure 2 Theory of Planned Behaviour

2.2 The sociological context

2.2.1 Social norms

Social norms are invisible standards, which rule our interactions with other individuals. "Social norms are the informal, mostly unwritten, rules that define acceptable, appropriate, and obligatory actions in given group or society" (Cislagi & Heise, 2018, p. 2). Norms can be further classified as descriptive norms, which are beliefs regarding what other members of the group do, or injunctive norms, which are what the other members of the group approve or disapprove (Cialdini et al., 2006, p. 4). Young (2015, p. 361) defines the key characteristics of social norms, as a) they have a self-enforcing effect, thus if the individual expects others to live

up to the norms, the individual will adhere to them, too, b) they emerge through the interaction of the individuals, and c) they may have alternative forms depending on the culture. Although these social norms can be harmful for the individual's psychological or physical safety, individuals may still adhere to these norms. Young describes four mechanisms which support normative behaviour: 1) *coordination*, which is when the group members follow norms to achieve their common goal, 2) *social pressure*, like disapproval or loss of status, ensures that individuals are not prioritising their self-interest over the group's interest, 3) *signalling and symbolism*, such as dress code or flags, deepen the individuals' membership in a group, 4) *benchmarks and reference* points serve as indicators in the decision-making process and also a mean for their justification, as these are widely applied in the social group. One of these reference points is age, i.e., at what age a behaviour is accepted and expected. (2015, pp. 361-362) Cislagi & Heise (2018) highlight, that social norms are not to be conflated with personal attitudes. The two constructs are connected but are on a different level; whereas the social norm are beliefs regarding what other people do and approve, attitudes are judgements based on internal motivations (p. 3).

2.2.2 Gender stereotypes

Gender is a complex social system that defines individuals' social roles, practices, responsibilities, and rights while influencing their identities. In every culture, men and women learn these set of gendered beliefs through ideologies during socialisation (Eckes & Trautner, 2012, pp. 4-6). Gender ideologies can be defined along a spectrum from traditional to modern with multidimensional aspects (Grunow et al., 2018, p. 43). Whereas traditional ideologies argue that men are generally worth more than women in society, therefore men are entitled to control and dominate women, modern ideologies tend to support the idea that neither of the genders should dominate the other (Best & Williams, 2006, p. 253; Davis & Greenstein, 2009, p. 100).

Bem (1993) argues that gender itself is observed through certain invisible "lenses" which not only make males and females different, but also reproduce male power. Bem defines three lenses of gender: *biological essentialism* (explains and legitimises male dominance by highlighting biological differences), *androcentrism* (declares males and the male experience as the normative way of life, or the reference point, whereas females and their experiences are treated as sex-specific deviations from the male normative), and *gender polarisation* (describes and prescribes how the two, and only two, genders are to act regarding their social roles, how they dress, how they express emotions and sexual desires, with individuals not following the

predefined scripts branded as deviants). Gender stereotypes refer to psychological attributions strictly linked to gender categories. These stereotypes are also used to justify gender ideologies (Best & Williams, 2006). Sexism is the combination of cognitive stereotypes, which affect prejudice and discriminatory behaviour (Eckes, 2008, p. 172). The lenses of gender and gender stereotypes help us understand the connection between the role of society and socialisation, cultural heritage, the development of gender identity, and their influence on women's role in parenting and in the labour market including their decision-making regarding career choices and career planning (Bem, 1993).

Gender stereotypes can be both descriptive and prescriptive. The descriptive component portrays how both genders, male and female, look, act, feel, and behave. The prescriptive component stipulates how males and females should look, act, feel, and behave (Eckes, 2008, p. 171; Fiske and Stevens, 1993, as cited in Koenig, 2018). Furthermore, these prescriptive stereotypes may be positive if they encourage either gender to a certain behaviour, or they may be negative if they discourage certain behaviours for males or females (Eckes, 2008, p. 171). For example, women are encouraged to be communal, but discouraged to practice dominance, whereas men are expected to be agentic and to avoid weakness in order to fulfil their gender stereotypes (Koenig, 2018).

The Stereotype Content Model (Fiske et al., 2002) reflects on the social cognition of individuals or social groups, which can be related to gender as well. This Stereotype Content Model defines two dimensions: *warmth* (friendly, trustworthy) and *competence* (capable, assertive), both with *low* or *high* scales. There are individuals or groups who are perceived to be stereotypically *warm*, but at the same time, they might be perceived to have either having *low competence* (e.g., the elderly, disabled people, children) or *high competence* (e.g., active citizens, members of the middle class). Also, other individuals or groups are not perceived to be *warm*, while having *low competence* (e.g., the poor, homeless people, immigrants) or with *high competence* (e.g., the rich, professionals, technical experts). Thus, the Stereotype Content Model argues that all individuals or groups may be grouped into one of the four combinations of warmth and competence. This categorisation also predicts the emotions evoked by each group. For example, individuals or groups perceived to have a) high warmth and high competence may evoke pride and admiration, b) high warmth and low competence may evoke pity and sympathy, c) low warmth and low competence may evoke disgust and contempt, d) low warmth and high competence may evoke envy and jealousy. Based on the Stereotype Content Model women are usually categorised in one of the mixed segments: women are mostly not perceived as having low competence and low warmth, or not as having high

competence and high warmth, but the ambivalent relation of the dimension. Women fulfilling the traditional gender prescriptive stereotype, such as housewives, are perceived to be warm and less competent, but women who do not follow the gender stereotypes, such as feminists or women pursuing careers are perceived to be less warm but more competent (Connor, R. A. & Fiske, S. T, 2018).

2.2.2.1 Prescriptive gender stereotypes and motherhood

> Reproductive rights "[…] rest on the recognition of the basic right of all couples and individuals to decide freely and responsibly the number, spacing and timing of their children and to have the information and means to do so, and the right to attain the highest standard of sexual and reproductive health. It also includes their right to make decisions concerning reproduction free of discrimination, coercion and violence, as expressed in human rights documents. In the exercise of this right, they should take into account the needs of their living and future children and their responsibilities towards the community." (United Nations, International Conference on Population and Development, Cairo, 1994, p. 60)

Formal reproductive rights ensure that individuals are free to make their own reproductive decisions and they are formally not discriminated against. However, society may apply informal discrimination directed towards an individual's decisions and actions. Within the concept of gender stereotypes, with regard to its descriptive and prescriptive character, women are expected to become mothers. Furthermore, these stereotypes do not just prescribe becoming a mother, but also *when* they opt for a pregnancy (Baldwin et al., 2014; Cavaliere & Fletcher, 2022; Guedes & Canavarro, 2014) and *how* they become mothers, e.g., conceiving naturally, with assisted reproductive technologies (René et al., 2022; Ullrich, 2017), or adopting a child (Goldhahn, 2021). Social prescriptions are also directed towards *what* else a woman might do or do not do while mothering, such as participating at the paid labour market (Aarntzen et al., 2023). The "good mother" ideology (Christopher, 2012; Johnston & Swanson, 2006; Zhou, 2017) highlights the intense and child-focused motherhood and is aligned to the traditional gender roles, which may cause tension for women when they become mothers and try to fulfil the expectations (Williamson et al., 2023).

2.2.2.2 Childlessness

Involuntary childlessness refers to the situation when individuals are willing to have children, but due to certain external circumstances they are not able to do so. When women delay childbearing to the less fertile period of their lives, and subsequently their attempt for a pregnancy is unsuccessful, they can become involuntarily childless as well (Devine, 2015, p. 1447; Lockwood, 2011, p. 339). Voluntary childlessness, on the other hand, is when individuals

consciously decide to pursue a life without having children. Childlessness, especially for women, is often viewed as a negative phenomenon and less as a choice to remain childfree, such as in the case of voluntary childlessness (van de Weil, 2014, pp. 8-9). Therefore, the stigmatisation of (future) infertility and childlessness may cause fear, as women and their bodies are strongly linked to motherhood and to reproduction. Thus, women may seek medical help to avoid potential infertility and involuntary childlessness (Martin, 2010).

2.2.2.3 Postponed motherhood and ageism

It is challenging to define the "right", "adequate", or "ideal" time for having a child considering all the biological, social, and individual aspects of reproduction (Dougall et al., 2012; Olafsdottir et al., 2011; Perrier, 2013). Given that an average woman's biologically most advantageous timeframe for childbearing ends in the beginning of her thirties, there is only a short period of time, when childbirth is socially approved. Younger women might be labelled as "irresponsible teenage mothers", whereas women in advanced age might face the criticism of being "pushy older mothers" (Baldwin et al., 2014, p. 176). This means that women may face age-based social judgement and challenges (Guedes & Canavarro, 2014). Women who delay childbearing until an advanced maternal age may become "risk-producing subjects, as unnatural mothers and irresponsible reproductive citizens" (Scala & Orsini, 2022, p. 149), which leads to ageism and ableism. Furthermore, these women may be seen responsible for their age-related infertility and for their difficulties giving birth to a healthy child (Scala & Orsini, 2022, p. 149). Whereas women face judgement to become mothers in a more advanced age, postponed fatherhood isn't perceived to be that negatively (Hens, 2017).

Ageism is defined as the stereotypes, prejudice, and discrimination based on age (WHO, n.d.). Ableism refers to the stereotypes, prejudice, and discrimination towards disabled people (Jóhannsdóttir et al., 2022).

It is not only women who can be victims of ageism, but also their children, indirectly. Children, whose parents opted for parenthood at a more advanced age might face emotional difficulties (Harwood, 2009) or internalise the negative perception of the society and could be ashamed of their parents, who might be mistaken for grandparents (Wunder, 2013, p. 4). Although children from elderly parents have better socio-economic status, show better language development and less social and emotional challenges, and overall have better life expectations, they might face the fear of their parents becoming sick or of losing them earlier in life. They also might need to take on a caregiving role for their parents earlier than usual. In

many cases, these children must face these challenges alone, as they don't have siblings or grandparents (Thorn, 2017, pp. 27-28).

2.2.2.4 Assisted reproductive technologies and alternative parenthood

Families are becoming more diverse as unmarried couples, stepparents or stepfamilies, adoptive children and same-sex couples are now more common. Since 1978, over 9 million people's lives have been made possible with assisted reproductive technologies (ART) (Kuhnt & Passet-Wittig, 2022), and yet social norms still favour traditional families, i.e., having a partner, having nuclear (heterosexual) families with genetically and gestationally related children, and other family structures might be discriminated against (Petropanagos, 2010; van de Wiel, 2014, p. 8). Assisted reproductive technologies also support individuals and couples who identify as gay or lesbian or are in a non-heterosexual relationship, and thus face "social infertility" (Daar, 2017, as cited in Kuhnt & Passet-Wittig, 2022). Family formation with ART is complex, but nevertheless enables parenthood for more people as genetic and social parenthood is changing. However, it creates legal and ethical questions, especially regarding egg donation or surrogacy and the ethical boundaries of artificial intervention in reproduction and the profit-oriented aspect of medicalisation (Beck-Gernsheim, 2016).

Women who have internalised social norms about nuclear families are less likely to opt for non-traditional family formation, such as adoption, with or without a partner, or single motherhood with sperm donation, egg donation or surrogacy (Goldhahn, 2021; Petropanagos, 2010; Rattay et al., 2017). The latter two options are not available in Germany[5], so women who wish to have a pregnancy with donated eggs or surrogacy face further costs and emotional pressure if they opt for a family planning option that is illegal in their own country.

2.2.3 Gendered division of unpaid and paid work

Unpaid caregiving and household work, which comprises taking care of children and elderly in the family, cleaning, cooking and other activities in the household for no or very low financial compensation, and the participation of the paid labour market is unevenly distributed between the genders. As women typically spend more time doing unpaid work than men, this phenomenon leads to the *gender care gap*. At the same time, men tend to participate in the labour market for financial compensation more than women (Kitterød, 2016; Samtleben and Müller, 2022). The division of unpaid and paid work between the genders can also be observed within the labour market. The concept of the *gendered division of labour* (Browne, 2006;

[5] As per Embryonenschutzgesetz - ESchG, §1 Missbräuchliche Anwendung von Fortpflanzungstechniken.

Charles, 2003; Nguyen, 2005) rests on the theory of biological essentialism, androcentrism and gender polarisation and argues for two dimensions of labour. Horizontal segregation means that men and women are not equally employed in different areas of the labour market. This leads to the development of typically female and male professions. The so-called typically female professions usually grant lower prestige, lower pay, and less social respect. Vertical segregation describes the unequal representation of the genders in the organisational hierarchy. Although women are more educated and successful in their careers these days and can be seen breaking through the glass ceiling and reaching the management level (Dreyer, 2011; Nguyen, 2005), they are still underrepresented in high-profile decision-making roles, such as on corporate boards and at the executive level, and they continue to earn less than men (Baumann, 2017; Strauss, 2014). The underrepresentation of women in leadership positions is mostly justified by the reproductive role of women, rather than the masculine organisational culture or by social norms (Baumann, 2017; Nagy, 2007; Vida & Kovács, 2017).

The theory of a *motherhood penalty* (Benard & Correll, 2010; Burgess, 2013; Correll, et al., 2007; Lutter & Schröder, 2020; Zamberlan & Barbieri, 2023) argues that mothers' careers are influenced by the cultural interpretation of the role of motherhood and the definition of the *ideal worker.* The concept of the *ideal worker* originates from the masculine working culture of the breadwinner and it is still androcentric: an ideal worker is flexible and always available, committed to their work, and preferably not committed to anything else. Most employers' demands towards the employees are not in keeping with the gendered stereotype of the caring, homemaker woman. Women in western cultures are still seen as the more competent gender in caring roles, and therefore also as the responsible one, for managing the family and the household, raising the children, and taking care of the elderly generation. These family challenges have a negative influence on being an *ideal worker*. Thus in their career planning, women might entirely or partially exit the labour market and focus on the role of homemaker (Brüggmann, 2020; Hartl, 2003, p. 19; Koppetsch & Speck, 2015, pp. 235-236; Neely, 2020; Steele, 2019). The *motherhood penalty* can be observed in wages and in the evaluation of workplace performance. Mothers are seen as being less committed and less competent at their job, but fathers do not experience this kind of disadvantage, because our cultural understanding of a good father is not incompatible with the definition of an *ideal worker* (Benard & Correll, 2010; Burgess, 2013; Correll, et al., 2007; Lutter & Schröder, 2020; Zamberlan & Barbieri, 2023). Goldin et al. (2022) observes the *motherhood penalty*, the "price of being female" in addition to the "fatherhood premium", which sum up to the inequality at the labour market,

called “parental gender gap”, which is reported to be very high, especially when children are still young (p. 9).

In some cases, women might fulfil the expectations of the homemaker role and a career role, but they are likely to face the so-called *double burden* (Procher et al., 2018; Utasi, 2011). Friedman (2013) highlights that the phenomenon of late childbearing and childlessness is based on the fact that motherhood must compete with social consciousness. The structure of career plans and policies define one’s thirties as the most important period for career development. Meanwhile, this period is also defined as the most common age for childbearing and childcare, especially when we consider graduate professionals (Hartl, 2003, p.19, Statistisches Bundesamt, 2013, p. 31). Brehm (2017) has observed that female and male life courses typically take different paths when women become mothers, since the challenge of reconciling parenthood and employment is still mainly faced by women. Kearny (2014, as cited in Bertram, 2017, p. 32) presented similar results in the German DAX companies: young (age 30) male and female talents with potential for future leadership positions can be equally observed in companies, but at the age of 34 the number of women considered in line as future leaders drops by 50%. When these employees reach their mid-40s and take up senior leadership positions with potential to join the managing board, we can observe only 2-3% female representation. Similar representation was found in the public services (Bertram & Deuflhard 2014, as cited in Bertram, 2017, pp. 32-33). This highlights that careers begin to take a different direction when most of the women are having their first children and begin taking care of them. Men can postpone parenthood to their 40s, but it is not easily possible for women (Bertram, 2017, pp. 32-33). Bertram (2017, pp. 33-34) argues that scientific and political approaches are needed to integrate care responsibilities into the career path. Without these approaches, there will always be candidates who do not have caring responsibilities and can qualify for the definition of *ideal worker* (Betram, 2017; Correll et al., 2007).

Miller (2006, p. 5) argues that the existence of the male-dominated leadership and masculine organisational culture in western countries through discriminating and undervaluing female employees is illegal. This organisational attitude leads to institutional sexism, which implies that despite the fact women are more educated and successful in their careers, breaking through the glass ceiling and into management continues to be a struggle (Deyer, 2011, p. 127; Nguyen, 2005). Thus, women are underrepresented in elite decision-making roles, on corporate boards, and at the executive level, and continue to earn a lower salary than men (Strauss, 2014, p. 41).

2.2.4 Concluding remarks

Based on the above theoretical overview, it can be concluded that social norms may influence an individual's role within the society based on their gender, and these internalised norms may be reflected in our attitudes and behaviour. Although our society is a dynamic construct and is constantly changing, the descriptive character of women's role is still primarily as a caregiver or mother rather than as a career worker in the paid labour market. Furthermore, its prescriptive character defines how best to be a mother, e.g., having biologically related children conceived naturally in a nuclear family at a certain age. Any deviation from the descriptive and prescriptive gender roles may lead to judgement in the society and discrimination. The postponement of motherhood with SEF is aimed at fulfilling the expectation of motherhood, or at least enabling the possibility of it, but in a less traditional way. Thus women opting for SEF are not necessarily fulfilling the descriptive character of a woman as they are not prioritising motherhood at a certain period, i.e., when it would be biologically ideal. As SEF is an ART, these women may not conceive naturally, and these children may not be born in a nuclear family. Additionally, by extending female fertility, women become mothers in a more advanced age and they and their children may face ageism.

2.3 Reproductive trends in Germany

The local context of SEF is complex. The following section focuses on the demographic characteristics and statistics of the society regarding the current birth rate, postponed motherhood, childlessness, assisted reproductive technologies, and the division of paid and unpaid work between the parents. These aspects have been chosen for relevance to oocyte cryopreservation specifically for the social reasons.

2.3.1 Birth rate

The current (2022) birth rate per woman between the ages of fifteen and forty-nine, is 1.46 (Destatis, 2023a) in Germany. Although this number has risen between 2011 and 2016 from 1.36 to 1.59, the birth rate has remained stable since 2016 until 2021, when it declined from 1.58 (2021) to 1.46 (2022) (Destatis, 2023a). The German birth rate of 1.57 (2018) is slightly over the average in the EU (1.56 per woman) (BMFSFJ, 2021, pp. 77-78).

A survey, conducted by Allensbach Institute (Institut für Demoskopie Allensbach, 2019) asked young childless Germans, between the ages of sixteen and twenty-nine about their wish to have children. In 2019, 63% of the survey expressed a wished to have a child, 27% answered maybe, and 10% responded that they did not wish to have a child. The percentage of adolescents and young adults who wish to have a child, has risen by fourteen percentage points

compared to 2003, but it has then declined by five percentage points since 2011. For almost two-thirds of the participants (59%) a family with two children would be ideal, for 14% one child would be preferred, and 22% want three or more children. The report, issued by the Federal Ministry for Family Affairs, Senior Citizens, Women and Youth (BMFSFJ), also highlights that while the perceived ideal family of two children would be the most attractive for the majority, the actual birth rate is lower, at 1.57 (2018) per woman in Germany (BMFSFJ, 2021 pp. 73-74). This state issued report names three trends behind the birth rate development: more women are having a second or further children, meanwhile the childlessness rate hasn't risen and children are born in a fairly short period of time within the families. These trends are supported by the family policy measures, such as parental allowances and childcare. Fathers' participation in parental allowances rose as well as the percentage of children younger than three in childcare (BMFSFJ, 2021, p. 78).

2.3.2 Postponed motherhood

Postponing parenthood has been a growing trend in the recent decades in Germany. Statista (2023) provides an overview on mothers' and fathers' ages at the time of their first child's birth, born between 1991 and 2022 in Germany. For example, for children who were born in 1991 their mothers' age in average was 27.9 and their fathers' age in average was 31. Overall, the average age of parents has risen to 31.7 for mothers and 34.7 for fathers of children who were born in 2022 (Statista, 2023). The Federal Ministry for Family Affairs, Senior Citizens, Women and Youth (BMFSFJ) has published statistics stating that in 2018, the average age of women giving birth to their first child was 30, whereas in the 1970s this age was 24 in West Germany and 22 in East Germany. In 2018, the age range in which women most frequently gave birth to their children was between 28 and 35; this timeframe was, in 1978, between 21 and 29. Since 2006, women older than thirty years old give birth to more children than women under thirty years old (BMFSFJ, 2021, p. 81).

Based on the state databank (Destatis, 2023b) there were 738,819 live births in 2022 in Germany: 1,973 babies were born to mothers under the age of 18 (0.3%), 690,096 babies were born to mothers between the ages of 18 and 40 (93.4%), and 46,750 babies were born to mothers older than 40 (6.3%). The number of babies born to mothers at the age of forty or older has been rising in recent years, not just in absolute numbers, but also in the percentage of live births in Germany (2021: 6.2%; 2020: 5.9%; 2019: 5.6%; 2018: 5.4%; 2017: 5.2%[6]).

From a biological perspective, the optimal timeframe for female fertility is between the

[6]Percentage calculations conducted by the author.

age of 18 and 31. From the age of 31, a woman's fertility is decreasing and by 41 women are considered to be reaching the end of their fertility window (Fertiprotekt an der Oper 2018, as cited in Feiler, 2020, p. 132; Nawroth, 2015, p. 3). Based on the above statistics, it can be concluded that women in Germany tend to postpone motherhood to a biologically less advantageous timeframe for their fertility.

2.3.3 Childlessness

Not only has postponing parenthood been an increasingly common phenomenon of the last decades, but also the number of childless women has risen. In Germany, childlessness is considered definite for women between the age of 45 and 49. The Federal Statistical Office of Germany (Statistisches Bundesamt) reported that in 2018 21% of women between the age of 45 and 49 were childless. While the percentage of childless women born between 1937 and 1976 has doubled (11% vs. 22%), the current rate seems to be stable (Statistisches Bundesamt, 2019, p. 16). In general, it can be stated that the childlessness rate is higher in the urban region than in the countryside. Especially high childlessness is observed in Hamburg (31%), Berlin (27%), and Bremen (25%). The childlessness rate rises to 26% for women with an academic background between age of 45 and 49. Women with bachelor's degrees, master's degrees (or equivalent), or PhDs are considered as having an academic background as other forms of educations are perceived as non-academic. The highest childlessness rate could be observed among academic women born between 1959 and 1963 with 28%. For graduate women born between 1969 and 1973, who were between the age of 45 and 49 during the recent statistics, the childlessness rate has declined to 26%. For the same cohort, but for the non-academic women the childlessness rate is 21% in 2018. Therefore, the difference in the childlessness rate between academic and non-academic women is five percentage points (Statistisches Bundesamt, 2019, pp. 18-19). Childlessness is not just more common among academic women, but even if they have children, they have fewer children than their non-academic peers. Whereas academic women have 1.4 child per woman in average, non-academic women 2.0 children in average (Statistisches Bundesamt, 2019, p. 22).

A further demographic characteristic is the residency within Germany, which shows a difference in the childlessness rate, as visualised in *Figure 3*. In West Germany (such as in Hesse) the childlessness rate for academic women, born between 1969 and 1973, is 26%, in East Germany it's 17%, and in the city states (Hamburg, Berlin, Bremen) it's 33% (Statistisches Bundesamt, 2019, pp. 18-19).

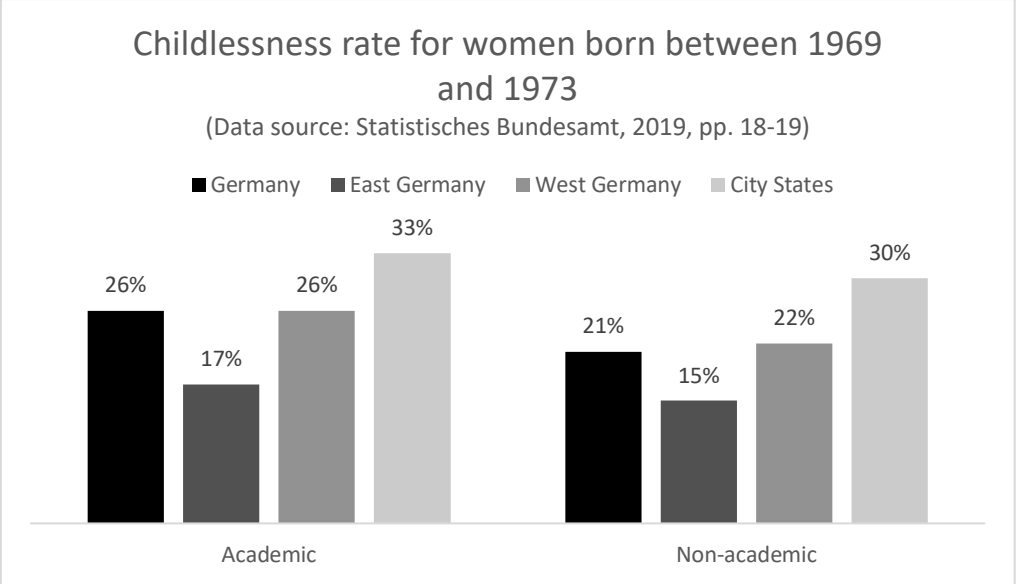


Figure 3 Childlessness rate

The reasons for childlessness were named as infertility, not wishing to have a child, or postponing motherhood until the woman has become infertile. Only about 4-5% of women are infertile, independently of their age, and a minority of women consciously chooses not to have a child (BMFSFJ, 2021, p. 91). Postponed motherhood due to economic, cultural, structural, and relationship factors raises the risk of unwanted childlessness. Additionally, the later women have their first pregnancies, the more likely they are to have a smaller family size (Stoop, et al., 2014a, p. 1316).

In comparison to the EU in general, Germany has the highest childlessness rate, with 23.1% of German women born in 1968 (50 years old in 2018) remaining childless. In the ranking Germany is followed by Italy (19.8%), Finland (19.7%), Ireland (18.8%), and Austria (18.4%). The lowest childlessness rate was observed in the Czech Republic (7.8%), Bulgaria (7.8%), Lithuania (9.3%), and Hungary (10.9%) (BMFSFJ, 2021, p. 91).

The rate of voluntary and involuntary childlessness differs between age groups. Based on the German statistics, only 27% of the 20-24 year old age group consider themselves "currently involuntarily childless". This rate rises to 43% among 25-29 year olds, and to 45% among 30-34 years old, and then starts to decrease again to 36% among 35-39 year olds, to 20% among 40-44 year olds, and finally to 7% among 45-50 year olds. The remaining childless people described their childlessness as "currently voluntarily childless" (BMFSFJ, 2020, p. 40). Half of women facing involuntary childlessness are in an unmarried but stable relationship, 23% are married, 1% are in a registered relationship, 26% are single or in a non-stable relationship, and 2% are divorced or separated (BMFSFJ, 2020, p. 45). These involuntarily childless women had, on average, their first wish to have a child at the age of 24.8 (BMFSFJ, 2020, p. 62). They

reported being involuntarily childless on average for six years (BMFSFJ, 2020, p. 63) and describe their childlessness as due to the lack of a fitting partner (35%), stress at work (39%), stress in the family (27%), and to their age (16%) (BMFSFJ, 2020, p. 51). Finally, 50% of involuntarily childless women report perceived stigmatisation of childlessness by the society and view involuntary childlessness as a taboo topic (BMFSFJ, 2020, p. 98).

Based on the above statistics, it can be concluded that women with higher education and living in urban areas are more likely to become childless, either due to a conscious decision or unwillingly.

2.3.4 Assisted reproductive technologies and social egg freezing

The first child was born in Germany with ART in 1982, and since 1990 ART has been regulated by law (Bundeszentrale für politische Bildung, 2017; Trappe, 2017). Childbearing with ART has increased over the last twenty-five years. As long as in 1977, only 6,577 children were born with ART, and in 2020, 22,209 children are reported. In total, 363,940 children have been born with ART between 1977 and 2020 (Deutsches IVF-Register, 2022). In Germany, 22.7% of childless women could imagine opting for ART, and this rate is higher in certain areas of the country with higher rates of childlessness. Also, women with higher income show higher readiness for ART compared to women with lower income, based on a study conducted in 2020 (Zava, n.a). Presumably, the high costs of ART may play a role in this survey result, as the state mandated health insurance companies only partially cover the costs of in-vitro-fertilisation by law, and thus the patients usually expect high expenses as well. The financial support mentioned above also has certain conditions, such as that the female and male patients must be married, and the women must be between the age of twenty-five and forty (Krankenkassen Deutschland, n.d.). Among involuntarily childless women, the high costs (56%), the uncertain outcome of the treatment (39%), the mental (38%) and physical stress (32%) and the limited case studies (34%) are some of the reasons they state as concerns related to ART (BMFSFJ, 2020, p. 131).

The German IVF register (Deutsches IVF-Register, 2023) published 140 German reproduction clinics' data among other aspects of ART, also on social egg freezing. In 2022 117 clinics conducted SEF with all in all 2,338 recorded cycles for 1,688 women, whereas in 2019 only 89 clinics cryopreserved 1,200 recorded cycles for 910 women. Therefore, it can be observed, that not just more clinics offering SEF, but the number of women opting for SEF has

rose by 85% and the recorded cycles are almost doubled in four years[7]. The average age of the women, who opted for SEF, is 35.6. This age shows no change throughout the four years. The average oocytes aspired within one cycle was 11.0 in 2022, which shows a slight development compared to 2019, as it was only 10.6. Also, the percentage of cryopreserved oocytes from the retrieved oocytes rose, from 76.7% in 2019 to 77.1% in 2022. The report does not share details on the pregnancies and live-births as outcome of SEF, however it indicated that a few of them are recorded (Deutsches IVF-Register, 2023, p. 231).

2.3.5 Gendered division of paid and unpaid work between parents

Based on the Federal Statistical Office (Destatis, 2023c), the current (2022) unadjusted gender pay gap is 18% in Germany, which is the pay gap per hour between the two genders. The origin of this gap may be caused by the fact, that women are employed in jobs with lower prestige thus with lower financial compensation, or they are paid lower than their male peers, although they have similar qualifications and experience.

Sharing paid work in employment and unpaid caregiving and household responsibilities between parents is common in the traditional organisation of families. Women in their role as mothers take care of the children, elderly and the household, while men typically provide the financial livelihood of the family. This traditional concept has begun to change in recent decades, though it varies between countries. In Germany, 71% of survey respondents disagree with the statement that women's major responsibility is to care for their households and families. This result makes Germany a more egalitarian country than the EU average, though France, The Netherlands, Denmark, and Sweden all reported a greater percentage who disagreed with the statement. On the other hand, countries like Bulgaria (17%), Hungary (20%), Poland (21%) and the Czech Republic (21%) seem to be less egalitarian (BMFSFJ, 2021, p. 127; European Commission, 2017).

The gender roles for mothers and fathers have changed in Germany, as more people perceive that employment and paid work are compatible with the role of the mother and fathers have taken on more caregiving responsibilities in their families. More than two thirds (69%) of surveyed fathers said they take over more caregiving responsibilities for their children, compared to their own fathers a generation before (BMFSFJ, 2021, pp. 128-129; BMFSFJ, 2018). Based on one survey (Institut für Demoskopie Allensbach, 2019, p.27), 28% of the participants state that the ideal sharing of responsibilities between parents would be if the father

[7] In the US the number of OC cycles has rose by 79% from 6,090 cycles in 2014 to 10,936 cycles in 2017 (Peyser & Herslag, 2019, p. e119).

is employed full-time with the mother employed part-time and taking the major responsibility for the children and household. For 24%, the ideal set-up would be if both parents have paid work full-time and equally share the caregiving responsibilities, which is similar to the 22% who said it would be ideal for both parents to have part-time paid work and equally sharing the caregiving responsibilities. Only 2% said that women should have full-time paid work with men taking part-time paid work and women still taking the major caregiving responsibility. None of the survey participants (or so few that statistically the result was rounded to 0%) said that women should be employed in full-time paid work and men should be ideally responsible for the household and children in their families.

According to BMFSFJ report (2021), individuals spending more time on unpaid work than on paid work are more likely to face poverty or increase the risk for poverty within their families. Families with single parents are more likely to face poverty than families with two parents. In Germany, the poverty risk quote for single parents was 41.2%, and if they have more than one child, then it is even higher at 55.6%. At the same time, for families with two parents, this risk quote is significantly lower, 8.6% with one child, 10.4% with two children, and 34.4% with three or more children. In addition to family type and number of children, the type of the employment (full-time or part-time) also has an influence on the poverty risk quote. Furthermore, families with a sole breadwinner, where one of the parents has the only or main financial income for the family, have higher risk of poverty compared to families where both parents are equally employed (BMFSFJ, 2021, pp. 105-106). BMFSFJ (2020) also reported, that in 2018, 69% of mothers with underaged children were employed, whereas in 2006 this was only the case for 60% of mothers. Also, the part-time paid working hours has risen among mothers, as in 2006 they had an average of 24.7 hours of paid work a week and in 2018 this number was 26.7 hours per week. Most mothers with paid work return to their employment after their child first birthday. In 2018, 9% of women who had a child younger than one year had paid worked, but 42% of the mothers who had a child between year one and two reported working. When their child was a year older, between the ages of two and three, 61% of mothers were in employment. From these mothers with children between the age of two and three, 13% were in full-time employment, 16% had part-time employment with 28-36 working hours per week, 18% had part-time employment with 20-28 working hours per week, 5% worked 15-20 hours per week in paid employment, 10% had less than 15 hours of paid work per week, and a further 39% reported not having any paid work. As the youngest child of the family grows older, the more mothers return to employment and with higher paid working hours. Additionally, the fewer children the family has, the more likely that the mothers will have paid

work. In 2018, 72.5 % of mothers with one child were employed, 70.2% of mothers with two children, but only 52.7% of mothers with three children and 30.4% of mothers with four or more children were employed. Furthermore, it can be observed that single mothers were more likely to have paid work (71%) compared to mothers with a partner (68%) (BMFSFJ, 2020, pp. 12-17). According to BMFSFJ, having children has a stronger effect on the mothers' employment than on the fathers' paid working arrangements. When mothers with children under the age of 18 have part-time employment their reasons for not working full-time were given as childcare responsibilities (62%), other personal or family responsibilities (16%), a full-time job not being available (5%), and pursuing a qualification (1%). For fathers the following reasons were concluded: childcare responsibility (23%), full-time job not being available (22%), other personal or family responsibilities (9%), sickness or disability (6%), and pursuing a qualification (6%) (BMFSFJ, 2020, p. 24). On the other hand, 40.4% of the fathers whose child was born in 2017 made a claim of state financed parental leave. This percentage has almost doubled in the last decade, as it was only the 21.2% of fathers with children born in 2008 (BMFSFJ, 2021, p. 131).

While society's attitude towards the traditional financial provision and family caregiving responsibilities are becoming less strict over time in Germany, nevertheless, the above statistics show that mothers are still more likely to bear the responsibility of unpaid caretaking work than fathers. Even if mothers return to their paid work after having children, they are less likely to have a full-time employment than fathers. Moreover, working fewer hours for payment increases the chances of poverty and overall, single parents face more economical challenges.

Therefore, postponing motherhood to continue in paid employment might not be due to a concern for career advancement, such as pursuing promotion within the organisational hierarchy as well as more appreciation and financial compensation, but also could be motivated by a desire to ensure economic stability for the family.

2.3.6 Employee benefit

In the USA several companies, such as Meta (n.d.) or Uber (n.d.) offer SEF as an employee benefit. According to a US-based survey, conducted by Mercer, 19% of the larger companies (at least 20,000 employees) offered SEF as benefit in 2020, and only 6% in 2015 (Dowling, 2021). In Germany companies either do not finance SEF or they do not communicate or advertise this benefit publicly. Recently, Merck Group released the information to the press that they will also provide financial benefit for fertility treatment for their employees in Germany (Merck, 2023; Schäder, 2023). The company's head of human resources confirmed

in an interview, that SEF belongs to the benefits (Hoffmann, 2023).

Further benefits, which support family planning and work-life balance, are offered by numerous employers. Companies, such as SAP and Hewlett-Packard offer financial support for parents if they take over caregiving responsibilities for their children. Flexible working models have gained more relevance and become even more attractive since the Covid-19 crisis, not just for mothers and fathers, but also for employees without caregiving responsibilities (BMFSFJ, 2021, p. 134). Work-life balance has a high value for the younger generation, with 77% of surveyed people between the ages of 18 and 29 said bad work-life balance would be a reason them to change their jobs. This rate is similar for the cohort between the ages of 30 and 39 with 76% reporting this same view, but only 68% of respondents between the ages of 40 and 49 gave this response (Beruf und Familie Service, 2020). Of employed parents, 30% reported that they work more from home than from the office, distributed equally between fathers (31%) and mothers (29%). The more qualified the parents are, the more they work from home, with highly educated parents working 45% partially from home, and parents with lower education only 12%. Also, employees of a bigger organisation (more than 300 employees) work more from home (38%) than employees of a small organisation (less than 10 employees) (22%) (BMFSFJ, 2021, p. 137; Institut für Demoskopie Allensbach, 2021). Additionally, employer-supported childcare has a positive impact on mothers' participation in the paid labour market, with women returning to work sooner after childbirth and with a higher volume of working hours if they receive childcare from their employer (Schneider, 2017).

2.3.7 Concluding remarks

Based on the overview of the reproductive trends in Germany, it can be concluded, that women tend to postpone motherhood from the first half of their fertility window to the second half. The biologically, personally, and sociologically optimal time to become a mother is getting shorter, and if other factors, such as a partner, financial stability, other life plans or current health conditions do not support parenthood at that time, women might stay involuntarily childless. At the same time, assisted reproductive technologies are gaining more relevance and acceptance in family planning, and can help women to overcome involuntary childlessness. Therefore, SEF may provide an additional option to women who are planning to postpone motherhood, by enabling the use of ART with cryopreserved oocytes.

While the perception of traditional gender roles may be changing, the German statistics still confirm that becoming a mother has a great effect on women's paid work, more so than for men becoming fathers. This is because women tend to have the primary caregiving role in

families, and they might exit the labour market or reduce their working hours. Employers also play a significant role in supporting work-life balance and providing benefits for families, such as childcare to help re-integrate mothers into the labour market. Currently no German employer has publicly communicated SEF as an employment benefit, except the recent press release from Merck (Hoffmann, 2023; Merck, 2023), however the need might arise if employees express a wish for more employer support of ART and SEF in particular.

3 Literature review: Social egg freezing as a potential solution

As described in the previous chapters, women face a number of social challenges related to having children at the biologically most ideal time of their lives, and they tend to opt for a pregnancy towards the end of their fertility lifespan. This trend is especially true for academic women living in the urban areas of Germany. Could SEF give these women the possibility to extend their fertility and enable them to postpone motherhood even further? In order to understand the holistic picture around SEF, this chapter provides an overview of the medical aspects of SEF and the current sociological and ethical discussions.

3.1 Oocyte cryopreservation: The medical process

The method of oocyte cryopreservation is the long-term freezing of female oocytes, which enables women to be their own oocyte donor for their future pregnancies. This section provides an overview of SEF, starting with the medical process of OC, including the method's history, its success rate, the medical advantages and risks, the legal aspects and the financial costs involved. Given the purposes of this dissertation, the medical description of SEF aims to be informative based on current publications and may not include all medical aspects of the procedure.

3.1.1 Oocyte cryopreservation

3.1.1.1 Overview in six steps

An oocyte cryopreservation and a pregnancy with these oocytes can be attempted in six medical steps.

Step 1 The patient receives hormone substitution within the first half of her cycle (follicular phase) meaning from the second or third day of her cycle for approximately ten to twelve days. During this treatment usually two ultrasound checks take place. (Bernstein & Wiesemann, 2014; Nawroth, 2015; von Wolff, 2013b)

Step 2 The retrieval of the oocytes is carried out through the vagina in a five- to ten-minute long operation under anaesthesia (Nawroth, 2015, p. 9), called follicle puncture.

Step 3 The retrieved oocytes get frozen into the fluid nitrogen at -196° Celsius and are stored in containers. As the oocytes are viable at 37° Celsius, -196° Celsius ensures that no biological activity can happen (Jain & Paulson, 2006).

Step 4 When a pregnancy is desired, the oocytes get thawed.

Step 5 After thawing, the oocytes get fertilised using assisted reproductive technology (ART), e.g., intracytoplasmatic sperm injection (ICSI) (Bernstein & Wiesemann, 2014, p. 284;

Nawroth, 2015, p. 17; von Wolff, 2013b, p. 16) and get cultured for several days (3 to 5 days).

Step 6 The embryos were transferred into the uterus, where they implant into the endometrium.

3.1.1.2 History

Originally, the method of OC was primarily used for medical reasons to ensure an opportunity for women with serious diseases (e.g., cancer) and requiring treatment procedures that may damage their reproductive organs to cryopreserve their oocytes. After the treatment of the disease and their recovery, women had a chance to use their cryopreserved oocytes for reproduction (McClam & Xiao, 2022; Petropanagos, 2010, p. 209).

Overview of the history of cryopreservation of human reproductive cells (Gook, 2011; Practice Committees of the American Society for Reproductive Medicine and the Society for Assisted Reproductive Technology, 2013):

- 1953: First human birth from frozen sperm.
- 1984: First human birth from a frozen embryo.
- 1986: First human birth from frozen oocyte.
- 1994: First oocyte bank in the Royal Women's Hospital, Melbourne (for women with malignant diseases).
- 2013: American Society for Reproductive Medicine (ASRM) declares oocyte cryopreservation as non-experimental (Argyle et al., 2016, p. 441).

For cancer patients, as the focus has shifted from considering cancer as a "death sentence" to providing patients a holistic quality of life after survival, similar to the one they had before their sickness and treatment, having children with oocyte cryopreservation has gained more importance (Oktay, et al., 2010). Althought, the European Society of Human Reproduction and Embryology, does not disapprove its application for non-medical reasons (Robertson, 2014), OC for non-medical reasons triggers controversial medical and ethical discussions because this medical process, including hormonal treatment, oocyte retrieval and in-vitro-fertilisation, has risks, which healthy women must accept if they opt for SEF (Ravitsky, 2014).

Although the cryopreservation of the ovary tissues is not yet a common process for the treatment of the age-related fertility decrease, it could get more attention in the future. This method could ensure the cryopreservation of hundreds or thousands of eggs (Liebenthron, 2017, p. 17). Quinn et al. (2012) even reported the ovarian tissue cryopreservation for a 2-year-old child due to medical reasons.

3.1.2 Current medical and legal position

3.1.2.1 Success rate

Estimating the success of OC and chances of a live birth is challenging, as both general and individual factors influence the results. In the scientific literature, the most commonly mentioned aspects include: the maternal age, the reason for the cryopreservation, its method (slow freezing versus vitrification), and the experience of the performing embryologist. In addition, numerous individual aspects, such as genetics and health conditions, may influence the success. The parental age may affect the development of the embryo. Ultimately, the question arises as to how many oocytes a woman should freeze in order to have a realistic chance to get pregnant.

3.1.2.1.1 Maternal age

The success of the treatment depends on the woman's age at the timepoints of the cryopreservation and embryo transfer, and on the amount of the oocytes that have been cryopreserved. Based on studies, on average ten oocytes can be retrieved after the hormone stimulation in one female cycle, under the age of 35. After freezing, storing, thawing and fertilizing the oocytes, on average three embryos can be developed (von Wolff, 2013b, p. 16). Based on Cil et al.'s (2013) analysis, 36 years of age is the most optimal borderline to define for success versus failure for oocyte cryopreservation; however, he does not consider this as the age limit, as the value of childbearing cannot be defined and individual differences exist. Mesen et al. (2015) conclude that opting for cryopreservation at the age of 37 has better chances to have a child, than not opting for it at the same age and try to achieve a pregnancy later naturally. Balasch & Gratacos (2012, pp. 191-192) mention also a "best-before date" both for female (35 years) and for male (40-45 years) fertility, and he highlights the risk for pregnancy, regardless of a natural or assisted conception. Furthermore, Li et al. (2022) also observed that ART has lower efficacy, if women opted for OC at the age of 35 or older.

3.1.2.1.2 Paternal age

While male reproductive function is less influenced by advanced age, Dain et al. (2019) argue that the quality of sperm in advanced age (i.e., 40 year and old) declines. Various studies have found that advanced paternal age has no effect on embryo quality, but rather a decrease in embryo formation. Dain et al. (2019) conclude that there is insufficient evidence of the negative effect of advanced paternal age and the outcomes of assisted reproductive technologies.

3.1.2.1.3 Reason of the cryopreservation

In Cobo et al.'s study (2018) women with fertility loss participated, 1,073 women experienced loss due to oncologic disease and 5,289 due to age. 80 women with oncologic disease returned to their oocytes to attempt pregnancy, with a 41.1% success rate. In addition, 641 women who cryopreserved their oocytes due to age-related fertility loss had a success rate of 68.8%. Thus, not just increasing age, but also the reason for oocyte cryopreservation was observed to impact the cumulative live birth rate (CLBR). Higher success rates (CLBR 95%) can be observed for women who cryopreserve their oocyte before the age of 35 (24 oocytes), however, the same age group has less success (42.8%) if they only have ten oocytes cryopreserved. Women deciding for cryopreservation after age 35 achieved only 50% CLBR with twenty or more oocytes and only 25.2% CLBR with ten oocytes (ESHRE, 2020, p. 94).

In a US study, 282 reproduction centres reported the two main reasons for cryopreservation: 18% cancer and 66% age-related fertility loss. Out of 857 thawing cycles, 337 live births were reported, which means a 39.3% success rate (ESHRE, 2020, p. 93; Rudick et al., 2010). Almeida Ferreira Brage (2016, p. 615) also concludes that although oocyte vitrification and fertilisation with ICSI has a lower success rate compared to fresh insemination methods when it comes to embryo development, its pregnancy rates are higher due to the more receptive environment in which they are implanted. On the other hand, Garcia-Velasco et al. (2013) report similar success results among women opted for cryopreservation due to oncological and non-oncological reasons.

3.1.2.1.4 Method of freezing

Slowly frozen oocytes have lower chances for live births than the more advanced method of vitrification. Cil et al. (2013) go as far as to define the advised age limits for oocyte cryo-preservation based on the method of freezing: 42 years for slow freezing and 44 years for vitrification.

3.1.2.1.5 Experience of the embryologists

Cohen et al. (2012) observe that the success rate is also influenced by the embryologists conducting the treatment at the clinics. That is, the vitrification of unfertilised eggs has cell survival rates of nearly 80%, whereas in some clinics the rates are almost 100%. It has to be noted, that the survival rate also depends on the age of woman at the time of the cryopreservation.

3.1.2.2 Suggestions regarding the number of oocytes to be cryopreserved

Cobo et al. (2016) suggests vitrifying at least 8-10 oocytes, however, women older than 36 should have an individual assessment. On the other hand, a meta-analysis (Otkay et al., 2006) summarizing the various risks and measurements of effectiveness regarding OC and the different methods available today, concludes that a woman under the age of 35 should cryopreserve 22 oocytes to have the greatest chance for a pregnancy. Kakkar et al., (2023) conclude OC shows encouraging results if at least 15 oocytes are banked at a young age. Brower et al. (2014) suggest a woman at the age of 42 would need to store 103 oocytes (approximately at least 11 stimulation cycles) to create a single embryo. Goldman et al. (2017) were also working on a consulting tool, which predicts live birth in order to provide guidance for medical experts and patients.

Von Wolff (2013a, p. 224) underscores two facts: 1) an unassisted pregnancy under age 35 is the safest and most certain way for childbearing, and 2) pregnancy after the age 35 with the method of OC is a more unsafe and uncertain means of childbearing.

3.1.2.3 Medical advantages and risks

Medical advantages and risks are described by scientific studies. Although infants born from previously cryopreserved oocytes, do not show more birth anomalies than their peers, who conceived naturally (Noyes et al., 2009), longitudinal studies are required to conclude the outcomes of reproductions with ART (Graham et al., 2023). Below are the advantages categorised in relation to whether women opt for the OC with the aim to use their own oocytes in the future or to donate them to another woman.

Advantages for women for self-donation:

- The realisation of a pregnancy in a more advanced aged, when women might no longer be fertile (Bernstein & Wiesemann, 2014, p. 288; Nawroth, 2015, pp. 35-36).
- Women can preserve their own younger oocytes, while reducing the risk of genetic disorders in the child, because these risks are defined by the age of the oocytes, not by the age of the uterus or by the woman (Bernstein & Wiesemann, 2014, p. 288).
- Women can opt for prophylaxis preserving fertility for the future in case of any potential fertility-related illnesses (e.g., endometriosis, cancer, etc.) (Benaglia et al., 2023; Nawroth, 2015, pp. 35-36).
- Women are able to freeze oocytes instead of embryos in order to avoid legal and ethical challenges associated with embryo freezing (Konc et al., 2014; Oktay et al., 2010). Furthermore, the father of the future child is not yet defined.

- For women undergoing IVF, they have the possibility to cryopreserve oocytes instead of undergoing several stimulation and retrieval cycles for fresh oocytes (Robertson, 2014, p. 116), while using cryopreserved and thawed oocytes are reported be comparably successful to fresh oocytes (Doyle et al., 2016) or cryopreserved embryos (Ho et al., 2016).

Advantages for third-party oocytes donation[8]:

- Oocyte cryopreservation also makes easier oocyte donation for clinics and patients, as women's cycles do not necessarily have to be synchronised, which is a costly and inconvenient process, but use cryopreserved oocytes (Oktay et al., 2010).
- Oocyte banks offer a wider selection of oocytes and less complication for patients than the usage of only freshly available oocytes (Oktay et al., 2010).

Some of the **potential disadvantages and risks** for women and their oocytes undergoing OC are summarised below based on the steps of the medical process. This list does not include all risks, but provides an overview about the main considerations.

Step 1: Ovarian stimulation

- Ovarian Hyperstimulation Syndrome (Nawroth, 2015).

Step 2: Retrieval of the oocytes

- Risks related to the surgery, such as injury, infection, anaesthesia.

Step 3: Frozen into liquid nitrogen at -196 Celsius and stored in containers

- Based on current medical knowledge, preservation of the oocyte itself and the length of the preservation in -196 Celsius do not affect the cells.

Step 4: Thawing

- During the process of thawing the loss of one or more oocytes may occur. (Deutsches IVF-Register, 2023, p. 11; Doyle et al., 2016)

Step 5: Fertilisation

- As the oocyte's cumulus cells are removed before cryopreservation, traditional in-vitro-fertilisation is no longer possible and intracytoplasmic sperm injection (ICSI) is performed instead. However, infants born from cryopreserved oocytes and ICSI do not have a higher rate of abnormalities than infants born after natural conception (Nawroth, 2015).

Step 6: Transfer and pregnancy

[8] Oocyte donation is currently not allowed in Germany. However, regulations might change and enable this in Germany in the future.

- Higher chance of multiple births, as the transfer of two embryos is the standard process. Such pregnancies have higher risks of complications (Nawroth, 2015, p. 36).
- Pregnancies in women's forties have higher risks of preterm birth, lower birth weight, gestational diabetes, hypertonus, etc. Consultation about higher risk pregnancies in advanced aged should therefore be a necessary part of the social egg freezing process (Nawroth, 2015, pp. 35-36).
- Borini et al. (2003) report a 22.5% success rate per egg retrieval for 69 couples, and 13 children were born with no observable chromosomal abnormality. (No data were reported on the three aborted pregnancies.)
- Argyle et al. (2016, p. 442) reports similar birthweight and abnormalities for infants born from cryopreserved oocytes than from spontaneous contraception or regular IVF, based on 165 pregnancies and a total of 200 infants.

Additionally, consideration must also be given to the high financial costs for stimulation and retrieval, the yearly fees for storing cryopreserved oocytes and the medical costs of the fertilisation itself.

3.1.2.4 Legal aspects

There are different legal regulations globally when it comes to assisted reproductive technologies such as OC. There is wide variation, as in some countries assisted reproductive technologies are strictly regulated while other countries allow for a wide range of assisted reproductive technologies, including OC, oocyte donation, embryo cryopreservation and surrogacy. However, most countries' domestic legislation is rather patchy, and legal differences exists amongst the main assisted reproductive procedures such as embryo freezing, oocyte donation and surrogacy (ESHRE, 2017).

FertiPROTEKT is a network of approximately 90 medical centres in Germany, Austria and Switzerland. Since there are no specific legal and medical regulations for oocyte cryopreservation, FertiPROTEKT created its own guidelines in 2012 and the network's medical centres act based on them. For instance, the guidelines state that patients should have individual consultations and be informed about the expected successes of their cases; patients should be provided information about the risks of pregnancy in advanced age; and the re-transplantation of the gametes after the age of 50 is not advised (Nawroth, 2013; von Wolff, 2013a).

3.1.2.4.1 Treatment eligibility

The treatment eligibility criteria for state financial support can also vary widely, based on

the motivation for the treatment (e.g., age-related versus disease-related infertility for oocyte cryopreservation) and social characteristics such as marital status or sexual orientation. In the European Union, oocyte cryopreservation is not allowed for age-related fertility loss in countries like Austria, Czech Republic, France, Hungary, Lithuania, Poland and Slovenia. Other countries may allow it with additional restrictions such as age restrictions in Belgium or having the procedure only offered by private clinics as in Finland and Portugal. Other EU states allow oocyte cryopreservation, but no financial state support is offered in EU countries for oocyte cryopreservation due to age-related fertility loss (ESHRE, 2020, p. 36).

OC for transgender men is allowed in most of the countries with certain restrictions, but is forbidden or unregulated in the Czech Republic, Hungary, Lithuania, Poland, Slovenia and Turkey. Certain states offer financial support for the treatment such as Denmark, France, the Netherlands, Norway, Portugal, Spain and Sweden (ESHRE, 2020, p. 35).

Patients with cancer or with benign diseases are allowed to opt for oocyte cryopreservation, with the single exception of the Czech Republic where benign disease is not a reason that qualifies for the treatment. Also, several countries offer some financial support for disease-related oocyte cryopreservation (ESHRE, 2020, pp. 33-34).

Although there are different regulations within the EU, patients are free to travel to other EU states if their planned reproductive care is not allowed by their own country's legislation (ESHRE, 2017). It is also important to note that the oocyte cryopreservation is just the first phase of concept. Once women decide to opt for a pregnancy with their cryopreserved oocytes, they must take into consideration their country's legislation governing IVF. Certain states might allow oocyte cryopreservation, but IVF is often allowed only with certain restrictions such as marital status.

In Germany, oocyte cryopreservation is allowed for age-related fertility loss, but the state does not provide any financial support (ESHRE, 2020, pp. 33-35).[9]

3.1.2.4.2 Storage of the cryopreserved oocytes

Frozen oocytes are stored, usually for a fee, in so-called egg banks (Quaas et al., 2013; Waldby, 2015a). Whereas some countries, such as the UK may define the limit of years one is allowed to store the cryopreserved oocytes (Bowen-Simpkins et al., 2018; Lockwood, 2018), in

[9] Oocyte cryopreservation, embryo cryopreservation and ovarian tissue cryopreservation are also allowed for cancer patients, for patients with benign diseases and for transgender men, but not provided without costs for patients (ESHRE, 2020, pp. 33-35).

Germany there is no such regulation or guideline limiting the duration or the number of the oocyte storage[10].

3.1.2.4.3 ART with cryopreserved oocytes

The age limit for using the stored frozen oocytes is 50 years in Germany; however, this is just a recommended limitation that is defined by the clinics (ESHRE, 2020, pp. 38). In relation to IVF, two legal restrictions should be taken into consideration. In cases where the patient expects financial support from state health insurance, IVF is regulated in the Code of Social Law.[11] Furthermore, the Protective Law for Embryos[12] forbids the following acts that are relevant to SEF: using the oocyte of another woman and transferring greater than three embryos in a single cycle. Transferring a women's own oocytes has no legal restrictions. Single women and women in lesbian relationship have the possibility to opt for motherhood with assisted reproductive technologies and with sperm donation in Germany (Taupitz, 2021). Bernstein (2015, p. 222) reports no explicit wish about maximum age limit for using the previously cryopreserved oocytes, based on a survey among medical experts in Germany.

3.1.2.4.4 Financial support

Since 2022, as per the Federal Joint Committee's (Gemeinsamer Bundesausschuss, 2021a) decision, there is a possibility to apply for financial support for oocyte cryopreservation to the statutory health insurance, if the reason for cryopreservation is disease-related and the woman is undergoing treatment that may damage her gamete. This decision applies to female individuals who have already had their first period but are not older than forty years of age (Gemeinsamer Bundesausschuss, 2021a; Gemeinsamer Bundesausschuss, 2022b).

3.1.2.5 Consultation

An objective and informative patient consultation is deemed to be crucial to achieve the expected outcome (Cobo et al., 2013; Fässler et al., 2019; Stoop, 2016). The European Society for Human Reproduction and Embryology (ESHRE, 2020, p. 47) advises clinicians and medical centres to cover the following information about fertility prevention for women undergoing oocyte cryopreservation for age-related fertility loss:

- Fertility preservation options
    - Impact of age at the time of fertility prevention on success rates

[10] Restrictions may be defined by the clinics.
[11] Sozialgesetzbuch (SGB) Fünftes Buch (V) - Gesetzliche Krankenversicherung § 27a Künstliche Befruchtung
[12] Embryonenschutzgesetz - ESchG, §1 Missbräuchliche Anwendung von Fortpflanzungstechniken

    - Fertility preservation options (such as techniques, required time, success rate, pregnancy rates, risks, side effects, advantages, disadvantages and costs)
- Cryopreservation and storage of cryopreserved material
    - Maximum time for cryopreservation
    - Costs of cryopreservation
- Infertility and fertility treatments
- Pregnancy (e.g., obstetric risks)
- Childbearing/parenting options
    - Reproductive planning
    - Other options to achieve pregnancy/parenting

3.1.3 Financial costs of oocyte cryopreservation

The medical process of OC is extremely complex; numerous individual factors and risks influence the success of a pregnancy ending with a live birth. Likewise, estimating the potential costs is also challenging, the best way is to individualise the cost-effectiveness due to its numerous factors (Chronopoulou et al., 2021). However, the younger the woman is, both at the time of the oocyte retrieval and zygote transfer, the higher the chances that she will benefit from the advantages of the method. Van Loendersloot et al. (2011) analysed the cost efficiency of oocyte cryopreservation, taking into account the costs of hormone stimulation, cryopreservation, storage of the cryopreserved oocytes, IVF, transfer of the zygote and potential miscarriages. Based on his calculation, when a 35-year-old woman cryopreserves her oocytes and uses these oocytes for reproduction when she is 40 years old, a live birth would cost approximately €12,000.

Hirshfeld-Cytron et al. (2012a) also carried out a cost-effectiveness analysis for women wishing to delay childbearing until age forty with three strategies: (1) oocyte cryopreservation at the age of twenty-five, (2) ovarian tissue cryopreservation at age of twenty-five and (3) no assisted reproductive technologies used until conception. The analysis concluded that the scenario of oocyte cryopreservation at the age of twenty-five and IVF at the age of forty is more costly ($135,520 per live birth), but also more successful compared to the scenarios with no fertility treatment at the age of twenty-five and aiming to achieve a pregnancy without assisted reproductive technologies at the age of forty. It is important to note that the calculated costs include only the medical costs and exclude indirect costs such as potential reduced wages during treatments.

A significant discrepancy can be observed between the two cost-effectiveness calculations.

The main reason is that Van Loenderslooet and colleagues' (2011) study was conducted in Europe (Denmark), whereas the Hirshfeld-Cytron and colleagues' (2012a) study was based in the US, so the prices of treatments and medications differ in the calculations. In addition, different aspects were included in the calculations. For instance, Van Loendersloot et al. included miscarriage costs. The two analyses also applied different strategies (e.g., women's age at the time of the cryopreservation and number of cryopreservation cycles undergone). Lastly, the European study calculates a better probability of success of IVF at the age of 40 than the US study. Thus, the authors agreed on re-analysing the scenarios of cryopreservation and IVF before reaching a conclusion on the cost-effectiveness of oocyte cryopreservation (Hirshfeld-Cytron et al., 2012b).

Mesen et al. (2014b) also calculated the cost effectiveness of oocyte cryopreservation focusing on who is going to return to the cryopreserved oocytes. They concluded that oocyte cryopreservation is most cost effective at the age of 38; however, the method has a low live birth rate at this age. Taking into consideration both cost effectiveness and live birth rate, the authors suggest women opt for cryopreservation in their early thirties.

Ben-Rafael (2018) points out that women undergoing oocyte cryopreservation at a younger age have higher chance for a successful pregnancy and live birth. However, they might not return to their cryopreserved oocytes in the end, thus lowering the cost effectiveness. He also stresses that the real cost effectiveness of this method is just starting to accumulate, as only a 3.1-9.3% usage rate of the cryopreserved oocytes might lead to live birth costs of $600,000 to $1,000,000.

Devine et al. (2015) calculated the cost effectiveness of three scenarios. The most cost-effective option appears to be when a woman opts for cryopreservation at the age of 35, with an average of 1.2 oocyte cryopreservation cycles in order to freeze 16 oocytes and attempts spontaneous pregnancy at the age of 40 for six months, and after that returns to her cryopreserved oocytes. This scenario ends up with a cost of $39,946, which can be compared to the cost of $55,060 for a scenario in which without oocyte cryopreservation a woman attempts pregnancy at the age of 40 with IVF treatment, after a six-month unsuccessful spontaneous pregnancy attempt.

While the estimated costs for cryopreservation and ultimately the costs of a live birth are very different in these studies, it is important to highlight that Apple and Facebook offer financial support of $20,000 for female employees undergoing OC in the USA (Tran, 2014). Although it is a generous benefit, this contribution does not cover the entire costs of the medical process.

3.1.4 Concluding remarks

OC is a medical process that was initially introduced to preserve women's fertility for those potentially facing infertility due to medical reasons. After OC reached its non-experimental phase in 2013, a high amount of women have chosen this method. Although there are numerous studies analysing the risk, potential and success rate of a live birth with previously cryopreserved oocytes, it remains difficult to estimate its financial costs and outcomes. In Germany, OC is not just a legal option to preserve the fertility of women who have medical conditions, but is also available to women who prefer to postpone motherhood to an age when natural conception would be challenging or not possible, and so they opt for OC—and thus SEF—for social reasons. The availability of OC has therefore raised important sociological and ethical discussions, and SEF has thus gained relevance in sociological sciences. The following section focuses on SEF from this perspective.

3.2 Sociological and ethical discussions

The following section introduces the social and social-psychological aspects of SEF, such as society's perception of women who choose SEF, how they are portrayed, the perceived reasons why they opt for SEF, and the rhetorical division in perception between age-related and disease-related infertility. Additionally, SEF is also set in the context of the gendered division of labour and is analysed as a product of neoliberal feminism and other relevant social norms. The availability of SEF, and the potential factors limiting its availability such as information sources and costs, are also addressed in this section. Lastly, previously conducted attitude research about SEF is presented, including the dissertation's preliminary research.

3.2.1 Perception of women opting for social egg freezing

In the ethics of ART, scientific medical inventions meet emotions, dignity, and human rights (Chatzinikolauo, 2010), and therefore the legitimate question arise, "[h]ow can we distinguish between what is a use and a misuse of ART […]" (Campbell, 2021, p. 23). Although the reproductive rights are defined by the United Nations (1994) (see *section 2.2.2.1*), it is still challenging to implement them and define the justifiable use of ART "in an ethically tenable fashion" (Zaami et al., 2021, p. 1). As Bühler (2022) describes the medical possibility to extend female fertility enables women to "synchronize conflicting biological and social temporalities" (p. 1). For the time of synchronising all the temporalities, time and biological processes are paused through cryopreservation and a "new form of life" arises, labelled as "suspended life" (Lemke, 2021, p. 702). Lemke (2019) highlights that cryopreservation is not just relevant for the female oocytes, but also for the umbilical cord blood for the potential healing of future

diseases (pp. 456-457) and for "endangered or extinct species" to ensure future biodiversity (p. 459). Katz et al. (2020) claim that "cryotechnologies have mythical proportions" (p. 247), as they "reshape[s] living and dying in the twenty-first century" (p. 243), thus due to their potential, they are in focus in several interdisciplinary, e.g. "socio-anthropological, medico-legal and bioethical analysis" (p. 243).

In general, one of the disadvantages for women, compared to men, is the existence of biological inequity in fertility; that is, men are biologically able to reproduce until a more advanced age than women, and women lose their fertility at a fairly young age relative to modern human life expectancy (Bernstein & Wiesemann, 2014; ESHRE Task Force on Ethics and Law, 2012; Ohlendorf & Bundschuh, 2015). Sperm cryopreservation, however, has been available to men for decades (Dondorp & de Wert, 2009; ESHRE Task Force on Ethics and Law, 2012); we might therefore assume oocyte cryopreservation can be as legitimate as sperm cryopreservation (Stoop, 2010). Dondorp and de Wert (2009) found no significant difference in the motivation or ethical concerns of men and women when they opted for cryopreservation to delay parenthood and concentrate on their careers or to wait for the right partner; however, women face more pressure and judgment than men for becoming parents at a more advanced age or when opting for cell cryopreservation.

Moreover, when expected age-related infertility motivates women to cryopreserve their oocytes, they are less accepted than women whose reason to opt for cryopreservation is an expected disease-related infertility (e.g., radiotherapy) (Keglovits & Kovács, 2017; Petropanagos, 2010). Debates exist as to whether the technology ought to be prohibited for healthy women yet remain unrestricted for disease-related reasons. In both cases, because women are fertile at the time of the cryopreservation and are planning to use their oocytes at a time when they are likely to be infertile, they share common motives and gain similar benefits from the technology (Goold & Savulescu, 2009; Petropanagos, 2010).

The judgement of women opting for oocyte cryopreservation due to expected age-related infertility may originate from gender theory's descriptive and prescriptive character, as women and their bodies are socially and culturally linked to motherhood (Martin, 2010). As for SEF, with the attention shifting from the technological to the social, and SEF being viewed from the angles of bioethics, bio-policy, bioeconomy and bio-law, Martinelli et al. (2015) observe that female bodies and foetuses are becoming "public spaces" and ought to be discussed without losing focus that women are still the main actors and decision takers on their pregnancies and their child's delivery.

These discussions should also include how men's attitudes towards commitment, long-term relationships or childbearing affect the decisions made by women (Petropanagos, 2010), because studies indicate that the main reason for postponing childbearing or undergoing SEF is the lack of a suitable partner (Hodes-Wertz et al., 2013; Stoop et al., 2014a; Tan et al., 2014). Social ideals and norms encourage the formation of nuclear families and thus women fear single parenthood. Women in single-parent households are more likely to face social challenges, disapproval, a higher risk of low economic status and more difficulties managing work and family life (Petropanagos, 2010). Well-educated and professional women are likely to stay single and face the challenges of delaying childbearing and unwanted childlessness (Wunder, 2013).

3.2.1.1 Who's going for SEF?

Whereas the life expectancy of western humans has increased over recent centuries, biological female fertility has remained the same. Consequently, women face their declining fertility at a relatively young age in relation to their life expectancy (Bernstein & Wiesemann, 2014, p. 288; ESHRE Task Force on Ethics and Law, 2012; Ohlendorf & Bundschuh, 2015). The ticking biological clock metaphor symbolises women's limited timeframe for reproduction, including the "tension between the biological and social age norms of motherhood" (Bühler, 2022, p. 20). As van de Wiel (2014) underscores, this clock is counting down the outstanding time for female reproduction, and it starts to tick louder when women reach the end of their fertility, usually in their thirties. This ticking has a characteristic of urgency, symbolises fear and puts pressure on individuals. It also gives the impression that women must be reminded, like setting an alarm, otherwise they might forget about their expected to-dos and responsibilities (p. 15). But why do run out of their reproductive timeframe and why women decide for social egg freezing? Numerous studies have addressed this question and women's motivation the reasons why they opted for SEF, and most conclude that women feel they are running out of time to find a suitable partner to pursue a family with and to avoid panic parenting with the wrong partner (Baldwin, 2016; Baldwin, 2018; Baldwin et al., 2018; Fässler et al., 2019; Gold et al., 2006; Hodes-Wertz et al., 2013; Inhorn et al., 2020; Inhorn et al., 2022; Platts et al., 2021; Stoop et al., 2014a; Vallejo et al., 2013; Wafi, et al., 2020; Will et al., 2017; Yee et al., 2017). More details on these women's motivations, experiences and reproductive plans are described in *section 3.2.6 Freezing experience and the cryopreserved oocytes' future.*

3.2.1.2 Portrayals of women

In most studies and in the media, SEF is discussed as a woman's decision based on personal reasons. In some cases, these reasons are deemed selfish, such as in cases where a woman does not have a suitable partner or a solid financial background, is physically or psychologically unprepared for childbearing or where the child does not fit into the woman's career plans (Baldwin, 2016; Goold & Savulescu, 2009). Mertes (2013) observed and analysed three different portrayals of women opting for SEF. Women were pictured as (1) "selfish career-pursuing women", (2) "victims of a male-oriented society" for whom combining career and motherhood is nearly impossible, or (3) "wise, proactive women" securing their independence. The results of the preliminary study (Keglovits, 2015) indicate a fourth category: (4) "naïve consumers" of the portrayal of women.

3.2.1.2.1 Selfish career-pursuing women

In this category, women's descriptions are summarised from existing publications which are focused on women's individualistic, self-centred, even egotistic characteristics. As Baldwin et al. (2014) also highlight, these women are viewed as currently prioritising their self-fulfilment through their career instead of taking responsibility for their reproductive roles. These descriptions are more negative and tend to blame and question women for their lifestyle choices and reproductive decisions. For example, "healthy young women who wish to pause their 'biological clocks'" (Martin, 2010, p. 533); women pursuing a "botox and chardonnay lifestyle" (Lockwood, 2009, as cited in Baldwin et al., 2014, p. 14); women who want to "have it all" and labelled as "lifestyle freezer" (van de Wiel, 2014, p. 5); women who falsely prioritise career over motherhood are described as "'egotistic' career women"[13] and might get the label of "loser women"[14] (Feiler, 2020, pp. 108-109), who "therefore try to pull 'the emergency brake' so as not to die alone"[15] (Feiler, 2020, p. 110).

3.2.1.2.2 Victims of a male-oriented society

Mertes (2013) defined the victims of a male-oriented society as the second narrative she observed in publications (Gosden et al., 2000; Rybak & Lieman, 2009; Savulescu & Goold, 2009). In this narrative, women are described as receiving a for the problems of the society, instead of focusing on the root causes. In other studies, the victim narrative adds a further aspect, as women are blamed for not having a partner or for not looking for a partner actively,

[13] Original in German: "'Egoistische' Karrierefrauen" (Translated by the author.)
[14] Original in German: "Loserfrau" (Translated by the author.)
[15] Original in German: "Sie versuchen deshalb ‚die Notbremse' zu ziehen, um nicht einsam zu sterben […]." (Translated by the author.)

or are too critical in their expectations for finding Mr. Right. Thus, the picture arises of the "single woman who is a victim of circumstances" (van de Wiel, 2014, p. 5). Perceived commitment issues are also mentioned for women have not found a partner or if their relationships failed (Lockwood & Johnson, 2015).

3.2.1.2.3 Wise, proactive women

Mertes (2013) describes this narrative of wise, proactive women as an accepted and conscious decision by women (and men) to decide for postponed parenthood until their late thirties or forties. As they might not be fertile at this period of their life, they opt for the cryopreservation proactively, so they do not have to rely on donors in the future. Whereas many younger women in their twenties think that by the time they start to lose their fertility they will have found a partner and started a family, there are other women who are less willing to take the risk of being childless without banked fertile oocytes and opt for the insurance of egg freezing (Robertson, 2014, p. 121). Further phrases can be seen in related studies such as the description of the "empowered women controlling their destiny" (Martin, 2010 as cited in Baldwin et al., 2014, p. 17), women "doing security" and "managing biological infertility and fetal genetic abnormality" (Myers, 2017, p. 777) or the autonomous women "in charge" for their fertility (Feiler, 2020, p. 111). Additionally, the phrase "biopreparation" points to a conscious decision to be proactively prepared for a potential event such as age-related infertility and similar occasions include stem cell preservation or umbilical cord blood banking (van de Wiel, 2015, pp. 124-125). Van de Wiel (2015) also highlights the different narratives of *postponing* and *extending* of motherhood. *Postponing* motherhood is related to elderly motherhood with all aspects of the gestational risks in advanced age, and SEF is described as a false insurance. On the other hand, *extending* motherhood has a positive connotation, as it is a way to achieve motherhood and women are seen as individuals who are committed to achieving pregnancy (pp. 124-125).

3.2.1.2.4 Naïve consumers

Robertson (2014) observes that SEF is being oversold in certain discussions or publications, such as in Sarah Elizabeth Richards' book *Motherhood Rescheduled: The New Frontier of Egg Freezing*, in which the author describes the cultural shift in how motherhood can be rescheduled by presenting the technology in a one sided manner with less discussion of the associated risks. The same author also tells the story about the best investment she ever made: how she spent $50,000 to freeze her eggs in her mid-to-late thirties in order to have fertile oocytes for her mid-40s. Richards (2013) claims SEF is a means of gender equality. In other

publications, the expressions of naïve consumers (Martin, 2010, p. 536) can be found, or the description of the "gamble of egg freezing" (Harwood, 2009, p. 43), "hedge their bets against future infertility" (Reis & Reis-Dennis, 2017, p. 42), "feeling a little pregnant" (Pavone, 2015, p. 114) or women labelled as "'Bridget Jones' generation" (Lockwood, 2002, p. 153). Additionally, in the preliminary study (Keglovits, 2015), some women participating in the attitude research towards SEF also describe women opting for SEF as naïvely brave.

3.2.1.3 Rhetorical division between age-related and disease-related infertility

3.2.1.3.1 Ethical differentiation in the media and medical literature

Women's motivations and rationales for choosing oocyte cryopreservation are very diverse. However, in most discussions, publications and academic studies, these motivations are commonly divided into two groups: age-related and disease-related infertility. The fear of age-related infertility is when women assume they might not have a child by the time they start to lose their natural fertility or enter menopause, and they would like to have a chance to have a biologically related child in the future. All sociological and individual motivations behind delayed motherhood, such as career, lack of partner, financial instability, lifestyle, and so on, are claimed to lead to age-related infertility. Conversely, disease-related infertility is, in most cases, when women lose their fertility in a short period of time (e.g., due to cancer and the treatment effects) and they have the opportunity to bank their oocytes before they start treatment. Other illnesses, such as premature ovarian failure, are also reasons for disease-related oocyte cryopreservation, however, these reasons are mentioned less frequently in non-medical publications. Although both groups of women are undertaking the same medical procedure, the reasons for why they opt for oocyte cryopreservation are perceived differently. That is, the intentions of women choosing cryopreservation due to disease-related infertility are more accepted, as this is the original purpose of the medical process. Taking the risk of oocyte cryopreservation is viewed as more justifiable for disease-related reasons because this medical process is the woman's last chance or hope to have biologically related child (Harwood, 2009; Keglovits, 2015; Mertes, 2013).

This rhetorical division is also observed in mainstream media. Studies from the Netherlands and United Kingdom suggest that oocyte cryopreservation for medical reasons is seen as less controversial and deemed more legitimate than the same medical process for age-related reasons (Van de Wiel, 2014, p. 6). Van der Ven et al. (2017) presents similar results, finding that women who opt for the technology for age-related infertility—and are sometimes labelled "lifestyle patients"—may face less social acceptance for their decisions. These are

healthy women taking the risk of invasive medical procedures, including the oocyte retrieval and later IVF, without having any medical reasons to do so (p. 3). There are also several expressions referring to oocyte cryopreservation due to age-related infertility. The term elective egg freezing suggests that women have the choice to do so, while the term non-elective implies that there is no choice, that it is the only option for biological motherhood. The term elective freezing underscores the elective nature of the medical process, suggesting that it has no therapeutic or medical need, like cosmetic surgery. Here, the implication is that this intervention is not necessary and there is no reason it should be collectively financed such as by health insurance (Borovecki et al., 2018). Whilst there is less social acceptance for age-related compared to disease-related oocyte cryopreservation, certain companies, mostly in the USA, offer financial support for SEF for healthy young women, and this opportunity receives greater attention (Keglovits, 2015; Martin, 2010, p. 535; Srinivas, 2014; Taube, 2014). Two publications with religious background also rather support OC for disease-related than for age-related infertility prevention (Kovács, 2013; National Council of Churches of Singapore, 2019).

The medical literature often describes women opting for oocyte cryopreservation due to cancer as sympathetic subjects because these women must accept their diagnosis, fight through the treatment and face the future, and even if they survive cancer, they probably will not be able to have a genetically related child. As infertility and childlessness or "non-motherhood" (Leite, 2013, p. 18) are socially and culturally stigmatised, medical risks linked to oocyte cryopreservation and the delay of cancer treatment due to the process of cryopreservation are justified for the sake of a future motherhood (Martin, 2010, p. 534).

There are discussions and partially disagreement among medical professionals, whether OC should be supported also for social reasons (Linkeviciute et al., 2015; Patrizio et al., 2016) and a survey among obstetrics and gynaecology residents shows that they show more support towards cancer patients to opt for OC than for healthy women to undergo the same procedure (Yu et al., 2016). Interviews with medical professionals offering oocyte cryopreservation in clinics show similar results (Feiler, 2020). Several medical professionals mentioned that women's motivations for oocyte cryopreservation do make a moral and ethical difference. While in the first case the medical intervention is not necessary, in other case it is necessary and thus the risks of the cryopreservation are justifiable (pp. 59-62). Indeed, one of the medical professionals interviewed compared SEF to plastic surgery (p. 62), highlighting its unnecessary or luxurious characteristics. Feiler (2020) concludes that women with medical reasons are typically described as "actual" and "serious" patients with morally justifiable reasons, whereas

the decisions of “lifestyle freezers” are viewed as “exorbitant”, “unnecessary” and “morally questionable” (p. 91).

3.2.1.3.2 The simplified ethical differentiation

While the above discussion shows that perceptions of age-related and disease-related oocyte cryopreservation may be strongly divided, there are other publications that argue the opposite or warn against oversimplifying this discussion.

Petropanagos (2010) demonstrates that when disease-related and age-related oocyte cryopreservation are framed as moral concerns, the latter reason for cryopreservation is less accepted. Debates exist as to whether the technology ought to be legally banned for healthy women, but remain unrestricted for disease-related reasons. The author argues that the situations of the two groups of women are not so different. (1) In both cases, women are fertile at the time of cryopreservation and are planning to use their oocytes at a time when they are likely to be infertile, therefore (2) they share common motives, such as the hope of secured reproductive options in the future. Furthermore, (3) women in both groups undergoing oocyte cryopreservation gain similar benefits with the technology, namely, reduced emotional stress and a sense of empowerment. (4) All women are affected by the same medical risk since the medical procedure is the same in both cases. Nevertheless, women undergoing oocyte cryopreservation for disease-related reasons like cancer may face further medical risk if the medical processes (e.g., chemotherapy, radiation) are postponed until the end of the possible multiple ovarian stimulation of cycles and the retrieval of the eggs (pp. 211-212). Stoop et al. (2014a, p. 1311) also highlight the fact that oncologists often prefer to start the cancer treatment and do not wish to delay it due to oocyte cryopreservation.

Robertson (2014) similarly points out that cancer patients even take more risks by opting for oocyte cryopreservation because they delay their cancer treatment with this medical process. Furthermore, in order to retrieve several oocytes, women’s cycles are stimulated. This stimulation raises the oestrogen level, which is not advantageous for certain cancers such as breast cancer (p. 118). When analysing the success rate of oocyte cryopreservation and the potential live birth rate based on the motivation for the medical process, Cobo et al. (2018) conclude that women opting for oocyte cryopreservation due to oncologic disease and later returning to their cryopreserved oocytes have a lower cumulative live birth rate (41.1%) than women who opted for oocyte cryopreservation due to age-related fertility loss (68.8%). However, as van de Wiel (2014) highlights, cancer patients are not labelled as “irresponsible or selfish” for choosing cryopreservation. It is also not typically recognised that women with

serious diseases and going through treatment may have a lower life expectancy than healthy women. Healthy women in advanced age entering pregnancy face the criticism of not having a high life expectancy compared to their younger peers, and their children may lose their mothers at a fairly young age or have to take over the caregiver role for their parents when they are not ready. Furthermore, women delaying motherhood for social reasons are described as selfish and frequently warned about the higher risks they are taking for health issues during pregnancy, labour and post-natal healing, but women recovering from serious disease and treatment may face equal challenges when becoming pregnant. In the latter scenario, these risks are generally accepted (pp. 13-14). Petropanagos (2010) questions why oocyte cryopreservation is an available, legal reproductive technology for unhealthy women, while healthy women are discouraged to choose the technology because it is labelled as risky and experimental. It could be assumed that women undergoing oocyte cryopreservation for disease-related reasons do not have any other choice to have a biologically related child in the future, while women undergoing oocyte cryopreservation for age-related reasons may have several further options to have a biologically related child. Therefore, women in this second group are perceived as having a choice and are made morally responsible for their infertility (pp. 209-221).

De Proost and Paton (2022 pp. 153) concluded after their empirical research that women opted for OC due to medical or social reasons, both have similar rationales and decision-making processes in the background. They all have the urge to "plan for future options" by "postponing definite decisions and making micro-decisions" (de Proost & Paton, 2022, p. 145) with OC. Goold and Savulescu (2009) argue that "time" and "cause" of infertility are the two major reasons when moral concerns are discussed in relation to disease-related and age-related infertility. The authors suggest that in the case of disease-related infertility, women become infertile in a short period of time, which is not the case for age-related infertility, as infertility may occur in the distant future, but the exact date cannot be defined. As for the "cause" of the infertility (e.g., medical treatment or menopause), the authors recommend against making a moral distinction. Stoop et al. (2014b, p. 550) also encourage to use the term "anticipated gamete exhaustion" to avoid the phrases "social" or "nonmedical freezing" to imply and label the reason of the cryopreservation.

The simplistic rhetorical division in discussions of women's motivations for age-related or disease-related infertility is dangerous for several reasons:

(1) Not every woman's motivation fits into these binary categories. It is important to recognise other scenarios such as diseases other than cancer, transgender individuals and women with certain occupations (e.g., laboratory workers exposed to potentially

harmful chemicals and radiation) (van de Wiel, 2014, p. 7).

(2) This binary thinking may lead to pitfalls in oocyte cryopreservation regulation (van de Wiel, 2014, p. 7) and potential financial support for one group but not the other group and when women's cases do not fit into the division (Rimon-Zarfaty et al., 2021, p. 694).

(3) Psychological illnesses (such as depression) might motivate women to postpone motherhood and opt for oocyte cryopreservation. However, these psychological illnesses are rarely, if ever, included in the medical reasons to freeze. Thus, physical illnesses, not psychological illnesses, legitimate oocyte cryopreservation in media coverage, regulations and the perceptions of medical experts.

3.2.2 Social egg freezing and the gendered division of labour

Apple, Google and Facebook seek to balance career and motherhood, support gender equality in the labour market and attract female talent to the male-dominated IT sector. As such, they have offered financial support for SEF as part of their employee benefit packages (Srinivas, 2014; Taube, 2014). Delayed childbearing could enable women to concentrate on their careers in their thirties, to be an *ideal worker* for a longer period and to avoid or at least delay the *motherhood penalty* and potentially fit into the masculine organisational culture and pursue higher positions in the vertical organisational hierarchy. However, SEF cannot be regarded as the unquestioned and ultimate solution for existing gender inequality in the labour market because the emergence of SEF has raised numerous ethical questions and debates worldwide (Bernstein & Wiesemann, 2014; Dondorp & de Wert, 2009; ESHRE Task Force on Ethics and Law, 2012; Ethics Committee of the American Society for Reproductive Medicine, 2018; Mertes & Pennings, 2012; Rybak & Lieman, 2009).

3.2.2.1 Equality in general

Most authors of scientific publications argue that SEF itself does not support gender equality at the labour market because it does not address the underlying reasons for inequality, but rather provides a quick response to the challenge by postponing its appearance; that is, combining motherhood and career will not cause a double burden for women in their twenties or thirties, but in their forties or fifties. For instance, Cattapan et al. (2014) argue that SEF as a concept does not take into consideration the socioeconomic inequalities within the families, which influence reproductive choices in the first place (p. 243). They oppose the idea that SEF can empower women "by offering a nonproblematic reproductive choice" (p. 244). According to Harwood (2009), societies have established certain structures that have created inequalities

between the genders based on their biological differences. In particular, given women's gender roles and their limited timeframe for childbirth, Harwood questions the real influence of SEF in gender equality. Martinelli (2015) also mentions that the need itself for SEF highlights the lack of adequate support in the labour market to have a thriving career and fulfil the needs of motherhood.

Tarasoff (2014) argues that the equal participation of women in the labour market is made nearly impossible by highlighting their biological and childcaring responsibilities and paying women less than men, and if women succeed in the male-dominated labour market, they are still questioned for turning the focus on their clothing rather than their professional achievement. Furthermore, Wunder (2013, p. 4) notes that mothers are often considered unsuitable for leadership positions due to fears of lower performance compared to men; thus, she claims that if women consider their career plans, a pregnancy or raising children may never fit, regardless of age. Conversely, Ravitsky (2014, p. 3) presents a different view, arguing that SEF may support gender equality because women are able to postpone motherhood, a choice that was previously only available to men.

3.2.2.2 Company support

In relation to whether SEF provides real support for gender equality or not, companies' financial support for SEF in a form of an employee benefit package raises further issues about the phenomenon (Johnston et al., 2021). For instance, questions arise as to the perceived intention and strategy of employers to finance such an expensive medical treatment. According to Mertes (2015, p. 1206), once the employer or insurance company bears the costs of the oocyte cryopreservation, it makes women less vulnerable as they will not be paying huge sums of money for false "hopes". In addition, younger women who biologically benefit more from OC than their older peers may potentially opt for freezing, as the costs would not be a factor in their decision process. With this option, the average age of women choosing SEF could be reduced and lead to a higher success rate of SEF through the better quality of the frozen oocytes. Mertes (2015) highlights, however, that it is also crucial to support both delaying childbirth and having children earlier in the career with different benefit options, such as paid parental leave, financial support for the costs of adaptation, baby-parent rooms, financial support for childbirth, ART rather than SEF, and so forth. An implicit expectation not to have a child in the near future may be raised for women who have frozen their oocytes unless companies are unable to access to their employees' medical records, regardless of whether they paid for or contributed to the medical process. As Mertes concludes, employer-financed SEF can be only

liberating if: (1) women understand the risks they are taking, (2) women are not under pressure to opt or not to opt for SEF and (3) this opportunity does not negatively affect other supportive family policies. Mertes (2015) observes that it is possible to make the best out of SEF; that is, only women opt for it who have considered all of their options for reproduction and SEF would be the best fit. Women should be able to enter motherhood at a biologically more advantageous age without experiencing any major career discrimination. Mertes (2015) argues that keeping these two aspects in mind is challenging, and she would rather the focus be placed on establishing family-friendly environments where parenting and a career are possible and have a liberating effect for women, rather than spending money on introducing SEF as an employee benefit.

Vieth (2016) also contends that with companies' active interference with their employees' parenthood planning, the planned childbearing will become a victim of career interests and be based on economic approach. Vieth (2016) therefore argues that social egg freezing is in the economic interest of companies for keeping competent female employees (p. 7). This conclusion is similar to Baylis's (2015, p. 65) argument that employers covering the costs of the cryopreservation do not empower, but rather disempower women with the implicit statement that women with young children not be expected to take their careers seriously. Van de Wiel (2020b) observes that SEF as an employee benefit can be seen as a "threat to reproductive autonomy" (p. 53), by encouraging female employees to postpone motherhood in an institutionalised context.

In Feiler's (2020, p. 190) medical expert interviews, one participant argued that SEF could only be legitimate if there is a personal motivation behind it. If there is a non-personal reason, for instance, an employer's economic motivation, it would not qualify as legitimate. In addition, this participant called the financial support of Apple and Facebook a "trap". Another medical expert also claimed that social egg freezing is a mathematical and capitalist tool and will be used for purposes other than those intended (p. 86). Miner et al. (2021) also highlighted, after conducting interviews with women, who is having SEF as employee benefit in the USA, that the benefit may enable more personal opportunities by postponing motherhood, but the conflict of work-life balance will not be addressed but only delayed.

3.2.3 SEF as a product of neoliberal feminism

The discussions of SEF in relation to gender inequality show remarkable similarities to the rhetoric of contemporary neoliberal feminism and its critics. Rottenberg (2014) claims that the representatives of neoliberal feminism neglect the sociological, cultural and economic contexts

of gender inequality, while the approach of *individualistic responsibility* is overemphasised. The narrative of *"having it all"*, such as personal wellbeing, happiness, successful work-family balance and so-called performance indicators (e.g., a well-dressed, perfectly shaped body), is deemed women's own responsibility (McRobbie, 2013; Rottenberg, 2014). In other words, gender inequality has become an individual responsibility instead of a structural social problem. As such, the way to avoid a potential failure is to accept blame and improve the self, while collective and political actions are deemphasised (Gill, 2016; Thwaites, 2017). The *choice* narrative of neoliberal feminism encourages women to welcome opportunities and make their own choices. Consequently, every conscious decision made by women should be understood as their own choice and therefore accepted and not judged (Ferguson, 2010; Thwaites, 2017). However, these choices are influenced by certain obligations and predetermined by social structures or traditions (Snyder-Hall, 2010). Furthermore, the right and freedom to choose supports the *consumerism* of neoliberal rhetoric. These choices are not equal and not all options are available to everyone (Ferguson, 2010; Thwaites, 2017). Neoliberal feminism is also accused of concentrating on the social issues of *privileged women* (i.e., white, middle-class, heterosexual, young, Western) (Gill, 2016; Thwaites, 2017) and not challenging the status quo (Ferguson, 2010).

Scholars like Cattapan et al. (2014) have linked their concerns about SEF to certain narratives of neoliberal feminism, arguing that SEF offers "an individualist solution to a social problem." They assert that the neoliberal concept of "having it all" oversimplifies the challenges of professional goals and potential childbearing plans. The authors are also concerned about the idea of women's responsibility; if SEF is an available option for women, they should undergo SEF to show that they accept their reproductive responsibilities. Here, the free choice could turn into an unspoken expectation. Finally, the authors emphasise the class privilege and heteronormativity of the phenomenon (p. 236). Although SEF may only be available to the minority of privileged women, it can create a normative model for other women, like the other products of neoliberal feminism. The narratives of neoliberal feminism in contemporary society, such as *individualistic responsibility*, the concept of *"having it all"*, the freedom of *choice*, *consumerism* and the opportunities of the *privileged social class*, help us to understand, categorise and analyse the target group's attitude towards SEF and the perceived social pressure to choose or reject SEF.

3.2.3.1 The narrative of choice

From the rational choice theory perspective, choice is understood as selection of the preferred option from all available and desirable alternatives (de Jonge, 2012, p. 8.). The narrative of choice with regard to social egg freezing is outlined below. Several scholars conclude (e.g., Bernstein & Wiesemann, 2014; Goold, 2017; Harwood, 2009) that a woman should be allowed to opt for SEF, if she so *chooses*, after being fully informed of the potential risks and expected success rate and still believes it would be the best option for her. However, these choices are made in a much more complex socioeconomic context (Krause, 2017, p. 44). Additionally, the choice narrative is linked to liberal ideology emphasising the autonomous decisions of individuals (Borovecki et al., 2018).

3.2.3.1.1 The context of choice

Petropanagos (2010) views the narrative of "choice" as a moral responsibility linked to the context of patriarchy. The argument that women have the "freedom of choice" to solve the problem of motherhood and career with SEF is oversimplified. The "choice" narrative neglects the structure around the "choice" itself. So-called reproductive autonomy has several social, economic and political structures such as gender relations and labour force opportunities (Baldwin et al., 2014; Van der Ven et al., 2017) and individual factors that impact women's choices and their autonomy. Because most of these factors set the options women are allowed or able to choose from, they influence the choices women make (Petropanagos, 2010). These factors include, for example, whether SEF is available in the country, whether the regulations enable single parenthood by IVF, whether the woman can afford it or if the insurance company or employer pay for it and what society's attitudes towards SEF are and how she will be perceived by her family, friends and employers once she openly chooses SEF. Thus, these choices cannot be separated from their context and perceived influence (van der Ven et al., 2017, p. 40).

3.2.3.1.2 The unspoken expectations of choice

Although SEF might broaden the choices of reproduction, such as *when* women wish to have children (Argyle, 2016, p. 445), it also further emphasises women's childbearing responsibility. Cattapan et al. (2014) argue in cases where SEF is available, women might be expected to take responsibility for their reproductive role, such that the "choice" could become an unspoken expectation. For instance, if women do not have children when they are younger, they *should* at least act responsibly and opt for SEF. Robertson (2014, p. 122) also notes that this expectation could be disempowering if framed from a career perspective, as some women

might interpret this free choice as a must in order to show commitment to their careers. Furthermore, if SEF is paid by the insurance company or employer, women may feel pressure to opt for it because the financial challenges are lessened. And it could become a "choice" not to freeze the oocytes, which could be perceived as irresponsible for women failing to secure their fertility (van de Wiel, 2015, p. 125).

3.2.3.1.3 The age limits of choice

Everyone has options to choose from, but these options are not equal to everyone. While the financial limitations will be discussed further below, it is important to consider how women's ages afford them very different choices. Women in their mid-thirties do not have many possibilities to obtain a pregnancy. They have (1) a limited time to find a partner and conceive in their natural but declining fertility window or (2) they can decide for single parenthood by using a sperm donor (if it is legal in the country) and accepting the difficulties of single parenthood, or, alternatively, (3) they can opt for SEF and hope for future family planning (Petropanagos, 2010).

3.2.3.1.4 The price of choice

Harwood (2009) argues that the so-called freedom of choice reaches its limits once it potentially causes a harm to the child. That is, both women's autonomous desires and their unborn children's interests must be taken into consideration. Women may not just be held accountable for their reproductive choices, but they might also face criticism about the kind of reproduction (i.e., opting for SEF and returning to their frozen oocytes) if the pregnancy is unsuccessful or the child shows any health characteristics that deviate from the norm.

3.2.3.1.5 The either-or choice

Mohapatra's (2014, p. 383) analysis focuses on the context of decision making rather than on the technology itself, concluding that SEF is not a "panacea", which eliminates either the motherhood or career dilemma for women. While this dissertation focuses on the discussions around career choices and family planning in *section 3.2.1*, the career *or* motherhood characteristic of the choice should be highlighted at this point as well. The choice of SEF due to career reasons might solve the dilemma of motherhood or career in the short- or medium-term, but it does not provide a solution to the incompatibility of the two roles and responsibilities (Martellini et al., 2015; Ravitsky & Lemoine, 2014; Wunder, 2013).

3.2.3.1.6 Choice for now and for the future

Van de Wiel (2015, p. 124) observes that the choice of SEF represents two choices women make: choosing not to enter motherhood currently and also possibly choosing to reproduce with assisted reproductive technologies in the future.

3.2.3.1.7 Lifestyle choice

While not all the options are equal to everyone to make that "choice", women are held accountable for their decisions. If women decided not to have a child during the biologically more advantageous age, they must "live with their life choices" (Petropangos, 2010, p. 211). SEF is claimed to be a "lifestyle choice" and it is portrayed as if it is obvious that women should bear the costs of their choices (Ravitsky, 2014, p. 3).

3.2.3.2 The narrative of individual responsibility

SEF is often discussed as a woman's decision based on social reasons. In some cases, these reasons are labelled as selfish, such as lack of a suitable partner or "mr Right" as mentioned by Hyden-Granskog (2009, p. i100), an unstable financial background, being physically or psychologically unprepared and parenting as not fitting into the career plans (Goold & Savulescu, 2009). When the context of decision-making is analysed, the social structures, norms, ideologies, changing female and male gender roles and men's attitude towards commitment or childbearing have an impact on women's decisions and therefore these factors have to be taken into consideration (Inhorn, 2023; Petropanagos, 2010, p. 218). Women delaying motherhood has been in the focus of the discussions around SEF, whereas the choices men make about their reproduction or their lifestyle have not been addressed in such a detail. If men postpone their commitment to relationships and parenthood, it might influence women's decision on motherhood (Petropanagos, 2010). Petropanagos (2010) also argues that the choice to delay parenthood is not that simple and not necessarily as voluntary as many assume. She points to financial challenges, such as the increased cost of living compared to past decades, the requirement of longer education but in a context in which academic institutions do not have a flexible structure that would support early motherhood, and an employment system that is not designed to pursue a career and start a family at the same time.

SEF may only offer an individualistic, expensive medical solution to a complex collective and social problem. As long as SEF is seen as an individualistic responsibility and decision, there will not be any clear demand for fundamental social change, improvement of support systems such as paid parental leave, health care through policy change or in employment conditions (Cattapan et al., 2014, pp. 236-239; Lemoine & Ravitsky, 2015; Morgan & Taylor,

2013; Ravitsky, 2014).

3.2.3.3 The narrative of having it all

SEF is discussed as a "game changer" (Inhorn, 2013, as cited in Cattapan et al., 2014, p. 238) for women, meaning they can finally "have it all" (e.g. Harwood, 2009, as cited in Cattapan et al., 2014, p. 238), both pursuing a career and having a family with biologically related children, and with a suitable partner that they have had time to look for (Cattapan et al., 2014). The "have it all generation" is used by some fertility specialists to label women who are not willing to choose between a career and parenting (van de Wiel, 2014, p. 4).

3.2.3.4 The narrative of privileged women

Cattapan et al. (2014, p. 241) emphasise the class privilege and heteronormativity of the SEF phenomenon, given that the medical procedure is not available for many women, such those who are low income and sexual minorities. Ikemoto (2015) argues that this "stratified reproduction helps conceptualize power relations formed through assisted reproductive technology use" (Ikemoto, 2015, p. 114). As long as health insurance does not cover the costs for all women, they opt for it either due to disease-related or age-related infertility reasons, and the medical procedure remains so expensive that only financially privileged women can afford it, thus, SEF creates a further reproductive inequality, this time not between men and women, but between wealthy and poor women (Inhorn et al., 2017; Ravitsky, 2014, p. 3).

Van de Wiel (2020a) highlights, that financial products have been developed in the USA to finance, thus enable access to fertility treatments, such SEF, to more women and to more treatment cycles. Although she also warns about debt it creates for women.

3.2.3.5 The narrative of consumerism

SEF is a commercial means of expanding reproductive ageing and women deciding on SEF as a long-term investment are taking insurance in a "commercially exploitative context" (Harwood, 2009, p. 39). Harwood also raises the question as to who actually benefits from SEF, the women themselves, buying low future pregnancy chances for high amounts of money, or the medical centres selling the services and gaining vast profit. Harwood further opens the discussion whether it is indeed "paternalism" not to allow a 39-year-old woman to freeze her oocytes and whether it is really "free choice" to allow it.

By introducing oocyte cryopreservation for social reasons and for a wider target group in society, medical centres and fertility programs could open a new profit centre (Robertson, 2014, p. 116) and further commercialise fertility (Reis & Reis-Dennis, 2017). As SEF has been included in broader feminist discussions, Cattapan et al. (2014, p. 242) note that oocytes are

critical resources for stem cell research. Thus, SEF does not just give women the possibility to reproduce at an older age, but also provides the opportunity to a research field retrieve oocytes. It is therefore necessary to discuss and regulate what is going to happen with the frozen but unused oocytes in the future, who owns them, how long they can be frozen and who can profit financially from them. The emerge and spread of ART also led to the expansion of *fertility outsourcing* as clinical labour, which refers to the commercialisation of human tissues, i.e. female and male reproductive sells or even services, such as surrogacy (Cooper & Waldby, 2014, pp. 7, 37). Waldby (2019) refers to the economy manifested behind the oocyte cryopreservation and oocyte donation market and highlights the social inequalities between recipients and donors. The potential future scenarios of unthawed oocytes are discussed in *section 3.2.6.3.2.*

3.2.4 Social norms in the context of social egg freezing

3.2.4.1 The right time and ageism

As described in *chapter 2*, women may face ageism if they choose motherhood when they are older, either with oocyte cryopreservation or if they conceive naturally. These perceptions of SEF are not only observed in the media and in society in general but are also held by medical professionals. Feiler's (2020) research on SEF from a sociological perspective included interviews with doctors. One doctor deprecatingly described a forty plus pregnancy. If he, as a doctor, was walking along the corridor of the hospital and this pregnant woman passed by with her belly, he would be confused as to whether it was a tumour in her belly or a foetus (p. 169). Another doctor claimed that pregnancies over the age of forty-five were "creepy", as it would have the science fiction effect. A further medical professional admits that as a child, he would have been ashamed if his parents showed up at the age of 64 for his school leaving celebration (Feiler, 2020, p. 170). Van der Ven et al. (2017, p. 6) observe that there is insufficient data about how children's identities will be influenced once they learn they were conceived through fertilisation of a previously frozen oocyte. Furthermore, questions exist as to whether parents should tell their children about the act of their fertilisation and if so, when would be the right age and time for this conversation.

Consequently, in addition to women facing ageism and other negative judgements about their choice of SEF, it is possible that their children will be targeted as well. In the preliminary study (Keglovits, 2015) focused on women's attitudes towards SEF using the method of focus

groups, one participant joked about a child born with oocyte cryopreservation: "you can recognise him, that he is always freezing"[16] (Keglovits, 2015, p. 51).

3.2.4.2 The value of a genetically related child

Social norms include having a partner and a nuclear (heterosexual) family with a genetically and gestationally related child; as such, other family structures may face discrimination (Petropanagos, 2010; van de Wiel, 2014, p. 8). Women who internalise these social norms are less likely to opt for adoption with or without a partner, or choose single motherhood with sperm donation, egg donation or surrogacy (Petropanagos, 2010). The latter two options are strictly forbidden in Germany (see *section 3.1.2.4*), so women wishing to have a pregnancy with donated eggs or surrogacy face further costs and potentially the emotional pressure if they pursue a family planning option that is not legal in their country.

In the context of SEF, it is argued that OC and biomedical discussions support proactive thinking about infertility but work to reinforce the norms and biases towards genetically related children, while maintaining the existing stigma against adoption and failing to support non-traditional family forms (Cattapan et al., 2014, p. 239; Petropanagos, 2010).

3.2.4.3 Empowerment and the control of female bodies

There are several discussions welcoming SEF as a means of women's empowerment and emancipation, yet at the same time others view SEF as just another example of how female bodies are controlled in our society (Bozzaro, 2018). On the one hand, emancipation created numerous advantages for women such as (support for) gender equality in different areas of life and self-realisation. On the other hand, these social aspects cannot overcome the biological boundaries of reproduction. SEF offers a solution to address this gap (Feiler, 2020, p. 154; Waldby, 2015b). Robertson (2014, p. 114) argues that while SEF may empower women, particularly those with certain illnesses, for reasons such as requiring an egg donor or wanting to preserve their fertility and keep open the door for future opportunities for pregnancy due to social reasons, SEF may create undue pressure for others. It could become a social expectation for women to opt for SEF and undergo the risks of this medical process, even if they only have low chances of achieving the optimal outcome (Ravitsky, 2014).

Robertson (2014, p. 114) suggests that the real benefit of this technology goes to the entrepreneurs and businesses who manage to fulfil the needs of the market for SEF and also warns that businesses could be offering less effective or ineffective medical processes,

[16] Original in Hungarian: 'onnan lehet megismerni, hogy mindig fázik.' (Translated by the author.)

especially for women approaching their forties or even older. Mertes (2015) also questions whether fertility clinics are focusing on their patients' benefit or if they are instead making a business of selling costly "hopes" for pregnancies in an advanced age. Women who choose egg freezing are not the best fit biologically, due to their age, have reduced chances of benefitting from this medical process. However, older women who opt for SEF as their last chance to have genetically related child do not have much to lose in this perspective, as their best biological age to reproduce has passed. (Obviously, one can argue that further postponing motherhood is another risk they take.) But women who choose SEF at a younger age and build their family planning on the security SEF offers could be disappointed at the time where no further options are possible (p. 1206).

It can be observed in discussions about SEF how female bodies became "public spaces" and foetuses and frozen oocytes become objects, especially if SEF is not treated as informed choice but rather a "fashionable trend" (Martinelli et al., 2015, p. 390). A further example by Van de Wiel (2014) is a poll that took place in Denmark among 20,000 people that found participants did not argue against SEF because it might be a risky medical procedure for healthy women, but because women should be opting for motherhood during their "normal reproductive years" (p. 12).

As Mertes (2015) and Robertson (2014) conclude, in order to achieve a "liberating" effect with SEF, the medical process must be safe and women should be well informed about the medical process, including all the risks. They should feel no pressure by the opportunity of SEF and it must be affordable so it is available for more women. Additionally, other policies supporting families should not be negatively affected by these policies. In cases where employers offer financial support for SEF, questions arise as to whether these employer offers actually benefit the employees or rather the employers. Given that childless employees more closely fulfil the definition of the "ideal worker" as they are more flexible and have more time to invest in their careers, having employees be childless for longer periods of time could be a real benefit for employers (Mertes 2015, p. 1205; Robertson, 2014, p. 136). In conclusion, real empowerment would be the acceptance and acknowledgement of the "wish" to have or not to have a child is a statement of a certain time, it is personal and no woman should justify her decision to anyone, as there is no obligation to reproduce (Vieth, 2016, p. 4-5).

3.2.4.4 Just the next step

Due to the medical possibilities linked to reproduction such as contraception methods and elective abortions, planned parenthood has become an established concept in recent decades.

Women and couples may intentionally decide for parenthood based on their biographies and economic situations (Vieth, 2016). Consequently, SEF is viewed as the next step towards women's freedom by delaying childbearing and enabling conscious family planning following contraception or elective abortion (Harwood, 2009; Shkedi-Rafid & Hashiloni-Dolev, 2011). In contrast, Wunder (2013, p. 3) warns that SEF is the embodiment of a societal phenomenon as people are rejecting the limitations and finiteness of human life. Additionally, childbearing when older and postponing parenthood, if enabled by SEF, may transform our society in certain unforeseen and unexpected ways. For instance, other forms of sexual empowerment such as sexual freedom and oral contraceptive medication brought unintended consequences such as a higher incidence of sexually transmitted diseases (Rybak & Lieman, 2009, p. 1511).

Furthermore, Daly and Bewley (2013) claimed, that SEF does not lead to female empowerment in its current form, but they urged to invest in research focusing on male pregnancies and development of artificial wombs to achieve more equality between the genders, as the next step of reproductive freedom.

3.2.4.5 Transgender and non-heterosexual issues

SEF may not just enable reproductive choices for heterosexual women, but for many other individuals. For example, OC may provide the opportunity to preserve fertility for women opting for transgender surgery (Argyle, 2016, p. 445; Inhorn, 2020, p. 53), as they might want to have the option of a genetically related child in the future. Furthermore, in countries where it is legally permissible, SEF widens the possibilities for non-heterosexual male couples as well, as these couples could use cryopreserved oocyte donors and a surrogate mother to bring about a pregnancy (ESHRE, 2020). Non-heterosexual female couples can opt for cryopreservation and get a sperm donor (Borovecki et al., 2018). While many of these pregnancies would also have been possible without oocyte cryopreservation in the past, cryopreserved oocytes provide flexibility for ART, such as the time to search for the right sperm donor or surrogate mother and by enabling IVF without synchronising the oocyte donor's and the surrogate mother's cycles.

3.2.4.6 A social problem with an individual solution

Several publications observe that SEF offers an individual solution to solve a problem created by cultural heritage in society. Ravitsky and Lemoine (2014, p. 3) claim that SEF involves an expectation for women to solve society's collective problem at the individual level by paying a high price and taking risks because the real solution is not SEF but rather policies to ensure work-life balance by creating family-positive corporate environments, supporting flexible

working patterns by enabling work from anywhere at any time and providing parental leaves and offering childcare. Martinelli et al. (2015) also argue that a socially inclusive society would seek solutions to support younger families, especially helping women combine their caregiver roles and their careers, instead of encouraging women to opt for SEF. Daniluk (2015) highlights that women face criticism and are blamed for their reproductive choices, aligned to this, Robertson (2014, p. 120) suggests that the key would be to leave behind the traditional working and environment models. Wunder (2013) concludes that SEF does not provide a solution for balancing motherhood and career, as it is not changing the underlying challenges in society that make it difficult to be a mother and have a successful career. SEF may just delay the challenges women have to face later in their lives (p. 1). Harwood (2009) claims that the existing social structures prevent women from realising both motherhood and career, especially for women with lower wages.

3.2.5 Control factors: The availability of SEF

This section describes the factors that are considered to control whether women would potentially choose SEF; for instance, whether women *wish to have a child* in the future, as women for whom motherhood is not attractive now or presumably at any time are unlikely to consider SEF. Furthermore, it is important to define whether the women are in the *right age* group for the cryopreservation with higher changes for successful cryopreservation. It is also crucial that women have the right access to a reliable *information source* about the medical process. Additionally, whether women can *afford the costs* of SEF reduces the size of the method's target group. Lastly, women should feel safe and accepted with their decision and ideally have a *supporting network* throughout their decision-making and the medical procedure.

3.2.5.1 Wish for a child

Vieth (2016) views the "wish" to have or not to have a child as always a statement of a certain point of time, that it must be considered to be personal and that women should not be urged to justify their decisions to anyone, as there is no obligation to become a mother at any time in life. If we acknowledge that this "wish" is not permanent and that women may change their minds with time, SEF can be considered a legitimate means of expanding women's fertility span to support women deciding for motherhood at a later stage in their lives (pp. 4-5). Van de Wiel (2014, p. 1) also sees SEF as a two-in-one option in which women consciously decide against having a child at one moment, but at the same time preserve the option for having children in the future. Stoop et al. (2015) concluded that in their research women, who have

not banked their oocytes, show similar desire to have a child than women, who have opted for SEF, and all in all the two groups have comparable reproductive plans.

3.2.5.2 Right age to freeze

Van de Wiel (2015) describes two approaches to cryopreserve oocytes. One approach would be the "last minute" approach for women nearing the end of their fertility where it would be very unlikely to conceive naturally at the time or in the future, so they try to save their fertility for longer term. The other approach is an "anticipated interfertility" when younger women fear their future infertility and opt for the medical process while they are still having a high chance to cryopreserve oocytes in large amount and in good quality (p. 127).

"Ideal patients" were described in Feiler's (2020) interviews with medical professionals. These women wanted to reduce the pressure for motherhood, as they did not currently have stable relationships and did not want to become single mothers. They were well informed about the medical process of oocyte cryopreservation, including the risks and potential success rates, and they were aware of the fact that SEF is no guarantee for future childbearing. Ideally, these women did not feel any external pressure to opt for SEF. From the medical point of view, the "ideal patient" is in the beginning of her 30s (pp. 92-93). Unfortunately, the "actual patients", who are indeed opting for SEF, are not confirming the expectations set for the "ideal patients" by medical professionals (Feiler, 2020, p. 99).

As *section 3.1.2.1* detailed, medical experts also stress women's age as critical factor in the success of cryopreservation and define the age of thirty-six as the probability borderline to succeed or to fail to fulfil the wish to have a child with oocyte cryopreservation; however, this age borderline is not considered as the ultimate limit because individual differences are taken into consideration when advising women (Balasch & Gratacos, 2012; Cil et al., 2013). Therefore, the women's age is a control factor, whether they could consider SEF a mean of their reproduction.

3.2.5.3 Information sources

Bachmann (2018), Hafezi et al. (2022) and Kapuka (2019) highlight the importance of women's and men's (Daniluk & Koert, 2013) knowledge with regard to fertility decline and the possibilities, risks of OC and postponed pregnancy, especially their awareness of age as the main driver of positive outcome. The decision should be then autonomous and throughout the process also time must be taken for reflection (Pape & Tschudin, 2023). Rybak & Lieman (2009, p. 1510) also assume that SEF's success, from an ethical point of view, depends on how thoroughly and professionally the patients are informed about the realistic expectations of the

medical process. Patients would then have an understanding that this method increases their chances to reproduce at an older age but does not give any guarantee (Wennberg, 2020). Otherwise, false hope can create vulnerability, and women may end up in a doubly disadvantageous situation, where, on one hand, their oocytes are aging, thus losing the potential to reproduce, and on the other hand, the cryopreservation further reduces the quality of their oocytes (Harwood, 2009). The medical experts' responsibility is crucial in the knowledge transfer (Ikhena-Abel, 2021; Schattman, 2016) and the clinics' websites must improve their quality of the information they provide on SEF (Avraham et al., 2014; Zore et al., 2017). Additionally, it should be noted that there might be a conflict between medical responsibility and the autonomy of the patient, such as with regard to the maximum age for cryopreservation and until which age it would be acceptable to use the cryopreserved oocytes and pursue a pregnancy (Foth, 2017, p. 12).

Furthermore, it is not just a matter of informing women about their chances to conceive at an older age, but also how these topics are addressed and which language is used (van de Wiel, 2014, p. 18). For example, in relation to how certain medical centres bring the methodology closer to the target group, Van der Ven et al. (2017, p. 7) mention that fertility clinics, such as EggBanxx, organise egg freezing parties, where they inform the participants about SEF and market their services, assumably in a less formal setting than a traditional medical consultation. Sandhu et al. (2023) address the need not just for information and knowledge sharing, but qualified support for women to make the right decision about fertility preservation, for instance the newly developed online-based Decision Aid (Peate et al., 2022) seem to enable women to make better informed choices than their peers without applying this tool. Once women understand the medical process, its potentials and risks, they may change their considerations about this medical possibility (Milman, et al., 2017).

3.2.5.4 Affording the costs

The estimated costs of oocyte cryopreservation and the expected costs for a live birth are described above in *section 3.1.3.* A medical centre (Fertiprotekt an der Oper, 2018[17]) in Munich published on their website a cost estimation of €2,550 for oocyte cryopreservation that includes the retrieval of twelve oocytes, the anaesthesia and the cryopreservation of ten oocytes and storage for six months. Medication (e.g., the hormonal stimulation prior to the retrieval) is not included. Furthermore, they suggest cryopreserving thirty oocytes, which means that this process with the cost of €2,550 should be repeated three times, based on a simple mathematical

[17] The cost overview is still available on their website in 2023.

calculation and not including individual differences and medical complications. Thus, for €2,550 (excluding medication), women can purchase lower reproductive security with ten cryopreserved oocytes, whereas the recommended thirty oocytes can be purchased for €7,650. Whereas some employers in the USA communicate their financial support for SEF, no employer[18] was found to publicly advertise their financial contribution to SEF for their employees in Germany, which means that women must finance their oocyte cryopreservation themselves. Therefore, many women will be excluded from the opportunity. The financial costs can be seen as a control factor to opt or not to opt for SEF.

3.2.5.5 Supporting networks

SEF is discussed controversially in the media, in society and amongst medical professionals (Baldwin et al., 2014; Feiler, 2020; Harwood, 2009; Petropanagos, 2010; van de Wiel, 2014, p. 8) due to its medical nature, as it is an assisted reproductive technology that supports the postponement of motherhood but its success is not guaranteed. In studies, women undergoing ART (Bauer, 2013) or SEF (Greenwood et al., 2017), reported emotional loneliness and lack of emotional support during the medical process. Furthermore, women often carving for understanding and approval before opting for SEF from their families and friends for their decision, thus the support of significant others cannot be neglected (Caughey & White, 2021). Also Inhorn et al. (2020) highlighted the importance of male networks' (such as fathers, brother or male friends) mental or financial support for women who undergone SEF. Due to the above mentioned, women opting for SEF may face the lack of a supporting network of family, friends, colleagues or medical experts, which may prevent them from choosing cryopreservation.

3.2.6 Freezing experience and the cryopreserved oocytes' future

Based on other studies, this section summarizes SEF women's motivations, their experiences throughout the consultation and medical process, and last but not least, their reproductive plans for the future, including their potential decision about the unused and not anymore needed cryopreserved oocytes.

3.2.6.1 Motivations to freeze

The number of women, who opted for SEF, has increased in the last years. In Germany 1,688 women cryopreserved their oocytes due to age-related fertility prevention, whereas in 2019 only 910 women were recorded (Deutsches IVF-Register, 2023, p. 231). Swiss medical experts also report that this number has quadrupled between 2014 and 2017 (Fässler et al., 2019, p.

[18] Except Merck recently (Merck, 2023).

111). Based on data from the UK, between 2005 and 2017 the number of oocyte cryopreservations has increased annually by 25-30% (van der Ven et al., 2017, p. 24). But why do women decide for social egg freezing? Numerous studies have investigated the reasons why women opted for SEF, and most conclude that women feel they are running out of time as their biological clock is ticking to find a suitable partner to pursue a family with and to avoid panic parenting with the wrong partner (Baldwin, 2016; Baldwin, 2018; Baldwin et al., 2018; Fässler et al., 2019; Gold et al., 2006; Hodes-Wertz et al., 2013; Inhorn et al., 2020; Inhorn et al., 2022; Platts et al., 2021; Stoop et al., 2014a; Vallejo et al., 2013; Wafi, et al., 2020; Will et al., 2017; Yee et al., 2017). Financial and psychological reasons are also mentioned (e.g., Nasab et al., 2020). Alternatively, women treated this option as a kind of insurance on their fertility prevention. Inhorn (2022) found that some women faced negative relationship experiences or trauma (e.g., divorce, breakups, betrayal, dishonesty) before they made their decision to cryopreserve. Although there are women who decide to extend motherhood and opt for SEF, in Baldwin et al.'s (2018) study, for instance, this reason was insignificant. However, in the research focusing on attitudes towards SEF, the participants perceived the reason of delayed childbearing and/or oocyte cryopreservation as mostly simply career-related and due to the lack of partner, but the complexity of their decisions and their backgrounds are not adequately discussed (Cardozo et al., 2020; Gorthi et al., 2010; Lewis et al., 2016; Stanton & Sussman, 2014; Tan et al., 2014; Tozzo et al., 2019). De Proost and Coene (2022, p. 1) highlighted, how these "women's decisions are accompanied by feelings of ambivalence, and lasting mismatches between subjective expectations and structural tendencies in the fields of intimate relations, work and medicine."

3.2.6.2 Undergoing the medical treatment

Women decide to cryopreserve their oocyte mostly in their thirties, as the reported average in Germany was 35.6 in 2022 (Deutsches IVF-Register, 2023) and international studies conclude also similar data, such as average age of 36 (Baldwin et al., 2015), 36.4 (Greenwood et al., 2017), 37 (Yee et al., 2017; Baldwin et al., 2018), 38.6 (Vallejo et al., 2013). Coboe et al. (2016) also highlight that in their study most of the women (63%) were 37-39 years old at the time of the cryopreservation, whereas only 18.9% were 31-35 years old, which is the medically advised age to opt for cryopreservation. The *section 3.1* describes the number of successfully retrieved oocytes, besides individual health status, mostly depend on the age of the woman at the time of the cryopreservation. In Germany the average oocytes aspired after one cycle was 11 oocytes (Deutsches IVF-Register, 2023), Baldwin et al. (2015) report in average 13

cryopreserved oocytes per women, Hammarberg et al. (2017) 14.2 oocytes and Greenwood et al. (2017) 18 oocytes, however these studies note that these number of oocytes were reached partially after several cycles.

The ESHRE (2020, p. 47) details their advices regarding the consultations on SEF, as described in *section 3.1.2.5 Consultation,* and medical experts and scholars highlight the importance of knowledge sharing and professional support for the patients before the decision making and throughout the medical process, as summarised in *section 3.2.5.3 Information sources.* Additionally, not only personal supporting network is crucial, but the professional support should be extended. Greenwood et al.'s (2017; 2018) results show that women wished to have mental health professionals during the cryopreservation experience, as they faced lack of emotional support, loneliness and hopelessness while undergoing SEF. Hodes-Wertz et al. (2013) also conclude, although many women describe SEF as empowering, they experienced anxiety throughout the cryopreservation as well.

3.2.6.3 Outlook

3.2.6.3.1 Returning to the oocytes

Mesen et al. (2014a) offer guidance for when women should opt for SEF to have the biggest benefit of the technology. The highest live birth rates can be observed when women freeze their oocytes before age 32, however, the greatest benefit of the technology was observed at age 36. Whether women desire to return to their cryopreserved oocytes can change already couple of years after the cryopreservation, as for instance Stoop et al. (2014) highlighted that only about 50% of these women plan to return to their oocytes. In another studies, out of the 560 patients twenty-six have decided to return, and five babies were born five years after the cryopreservation (Garcia-Velasco et al., 2013) or out of 183 patients eleven returned to the oocytes (Hodes-Wertz et al., 2013). Cobo et al. (2016) found similar results as out of the 1,382 women, 120 (8.6%) returned for their frozen oocytes, and almost half (47.4%) of the single women (at the time of the cryopreservation) returned with a partner. 31 children were born from the participating women and a further 11 pregnancies were ongoing. The main probability for a woman to return is whether she gets married or they conceive naturally to fulfil their wish to have a child. Leung et al. (2021) reported 7.4% return rate, with almost 40% live birth rate in a study with 921 patients. Women above the age of 40 (n=6) did not have successful pregnancies with OC. Walker et al. (2022 p. 12) concluded that about 40% of the women opted for OC due to social reasons returned to the banked oocytes, and this rate is less than 10% for women, who opted for OC due to disease-related reasons.

3.2.6.3.2 The future of the unthawed oocytes

In cases where women return to their frozen oocytes and use them all, no decisions are needed about the oocytes' future. Robertson (2014, pp. 123-124) raises questions about what happens to the oocytes when women do not wish to use them, if they fail to pay the storage fees, or if they pass away. Obviously, these possibilities must be included in the initial contract when women choose cryopreservation. Different options are mentioned in the literature in regard to what should happen to the unthawed oocytes, depending, of course, on the local jurisdiction. As mentioned above, one option is to discard the oocytes. Another option is for women to *donate eggs* to another woman, either for free or for financial compensation. With cryopreserved oocyte donation, it is not necessary to synchronise the involved women's cycles (donor woman and recipient woman) as it is required for the fresh oocyte donation. A well-organised national or international oocyte bank can empower women to receive the right donor in a shorter time period (Robertson, 2014, p. 127). Baldwin et al. (2015) and Hodes-Wertz et al. (2013) report, that women would donate their oocytes for other women's fertility treatment or for research purposes. Borovecki and colleagues (2018) highlight that many women find the idea of donating their cryopreserved oocytes and having their genetically related child be raised by another family to be emotionally challenging. The authors assume, therefore, that although the medical opportunity is possible, not many women will be open to donating their oocytes to other women. Borovecki et al. (2018) observe that women would rather act as donors if family members or friends would be receiving the oocytes or if they would benefit from the donation (e.g., financial compensation or participation in an oocyte sharing programme). Also women would rather donate their unused oocytes, if they have become mothers, than their wish for a child stayed unfulfilled (Caughey et al., 2023). Certain foreign clinics have already launched a "freeze and share" concept in which women can donate a certain amount of their retrieved oocyte for free, in exchange for a discounted medical treatment (Argyle et al., 2016, p. 445) or for free storage option for their oocytes (Jackson, 2018). Additionally, if women face wished but unfulfilled motherhood, they may *reclaim* the unused oocytes and have a ceremony as an expression grief (Caughey et al., 2023). A further possibility is to offer the unused oocytes for *research purposes* to enable the improvement of this medical process, which was the most favourable option based on Caughey et al.'s review (2021). Poli and Capalbo (2021, pp. 2-6) underscore that the fact whether women return to banked oocytes or not will determine the real cost-effectiveness of SEF, unless the "abandoned" (p. 6) and unused oocytes are rescued and can be donated or can be researched, and the original financial, physical and psychological investment has some kind of positive outcome.

An additional topic raised by Robertson (2014, pp. 123-124) is the price of the cryopreserved oocytes. Once the egg banks have enough cryopreserved oocytes to fulfil the needs for research and oocyte donation, the value and thus the price of the cryopreserved oocytes may drop. It is also possible that the price of cryopreserved oocytes could be defined based on the women donors' characteristics such as general health, fertility or genetic traits. In this regard, Ahuja and Simsons (2006, p. 282) highlight the ethical risks involved with the rising popularity of oocyte cryopreservation. Further, Argyle et al. (2016, p. 445) argue for a regulated framework for oocyte cryopreservation that specifies what happens to unused oocytes, including clarity on ownership and the maximum length of time of cryopreservation because these factors may enable egg banks or medical centres to take over ownership of the oocytes and gain further profit.

3.2.6.3.3 Regret

When women reflect on their decision to undergo SEF, considering all the financial investment and the burden of medical process, most of them express no regret in the conducted empirical studies (Giannopapa et al., 2022; Greenwood et al., 2018; Jones at al., 2020; Stoop et al., 2015; Wafi et al., 2020). At the same time many participants in the studies expressed their regret that they did not undergo cryopreservation earlier (Gold et al., 2006; Hodes-Wertz et al., 2013; Stoop et al., 2015; Vallejo et al., 2013; Yee et al., 2017).

3.2.7 Empirical research on SEF

This section summarises empirical studies conducted on SEF. On the one hand, there is published attitude research that includes participants without personal experience with oocyte cryopreservation. Within attitude research, seven studies discussed below include medical students or experts. In the other twelve attitude studies there were participants with no particular medical background. These studies examine participants' knowledge about the medical process, their perception of women's motivation for opting for oocyte cryopreservation and in some cases their intention to opt for the method. These studies are also international as they were conducted, for example, in Europe (UK, Spain, Hungary, Sweden, Austria and Italy), in Asia (Singapore), in the USA and in the Middle East (Israel and Lebanon). Furthermore, fourteen studies are introduced below that address women who have undergone oocyte cryopreservation or participated in medical consultations regarding oocyte cryopreservation. These women's motivations, decision making and experiences are summarised based on international samples (e.g., US, UK, Norway and Israel).

3.2.7.1 Attitude research

3.2.7.1.1 Medical students or experts

(1) A study by Tan et al. (2014) conducted amongst Singaporean female medical students assesses participants' mindsets towards social egg freezing and fertility. Of the participants (n=129), only 36.4% had heard about the technology and 70% of those who had heard about it said that they would consider using the technology sometime in their lives. The most common reasons for delayed childbearing were career (37.2%) and the lack of a suitable partner (46.5%). Government financial support was the factor that would encourage most participants (71.3%).

(2) Another survey amongst medical (n=98) and non-medical (n=97) students at the University of Leeds explored women's attitudes towards SEF (Gorthi et al., 2010). The study concluded that the majority of medical students (85.7%) would prefer to delay childbearing for social reasons, compared to non-medical students (49.5%). Those who would postpone starting a family would consider oocyte cryopreservation technology (80.9% of medical students and 45.8% of non-medical students). This study primarily found social reasons for using OC, such as career planning, financial stability and marriage, or a stable relationship.

(3) A study by Garcia et al. (2017) conducted in Spain explored the attitudes towards SEF of gynaecologists, other physicians and nurses and concluded that among the participants (n=201), gynaecologists were less supportive of SEF. Only 42% of them believed SEF should be offered to any women (compared to 63% of physicians and 49% of nurses) and 47% of gynaecologists would not recommend SEF to women over 35. In addition, only 19% of gynaecologists thought that SEF should be financially supported by public medical insurance.

(4) An Israeli study (Brezis et al., 2011) examined ART professionals (n=21), bioethicists (n=23), medical students (n=196) and people from the general public (n=600) about their acceptance of SEF and its potential financial support. Most of the ART professionals and bioethicists (80%) and medical students (56%) thought oocyte cryopreservation should be allowed also for social reasons, whereas the general public showed less support (40%). The medical experts expressed a preference for private financing of the medical procedure, while the general public would consider financial coverage from insurance companies. Brezis (2011) concluded that participants' professional orientation and their religious affiliations had an influence on their attitudes towards SEF; that is, professionals tend to support SEF, whereas religious

minorities tend to disapprove of it.

(5) Interviews conducted with Hungarian IVF professionals (n=12) found a gendered paternalistic pattern because most of the participants described oocyte cryopreservation for social reasons unfavourably (Sandor et al., 2017). Anti-careerist sentiments also appeared in the interviews, as some professionals did not find it acceptable to postpone motherhood for career reasons. Additionally, oocyte cryopreservation for medical reasons was perceived more positively than for social reasons, due to its importance, being more legitimate and not being a choice. While oocyte cryopreservation for social reasons was portrayed as "as a choice to *have* a child, it is seen as a decision *not to have* a child" (Sandor et al., 2017, p. 7). In one interview, motherhood amongst older women was found to be legitimate and was supported when a woman lost her child in an accident or illness. Postponed motherhood was not supported due to medical reasons as well as social reasons such as the belief that parents should be alive until their children grow up; in sum, it is perceived to be better psychologically to become mother at a younger age. Almost all participants set a limit for oocyte retrieval and cryopreservation at the age of 35 and the use of the cryopreserved oocytes between 40 and 45. Conversely, they would have set either no or higher age limitations for men (Sandor et al., 2017).

(6) 84 women pursuing medical degree were surveyed in the US about their attitudes towards SEF and whether they would consider choosing it in the future (Ikhena et al., 2016). While 41% of respondents would consider SEF, 35% were unsure and 24% would decline the opportunity. 79% of these women indicated they would not delay motherhood, even if their employer provided financial support for cryopreservation. Participants' decisions to opt for SEF was influenced by the following factors: the lack of a partner (91%), the potential success rate (94%), financial support (97%) and the health of the child (100%) (Ikhena et al., 2016).

(7) Medical residents and fellows (n=98) in Lebanon were surveyed on their attitudes towards SEF (Esfandiari et al., 2018). Around three quarters of female participants would postpone childbearing due to their residencies, while 45% of the women respondents said they would consider oocyte cryopreservation and 72% would consider the method if financial support was provided by their employer or health insurance (Esfandiari et al., 2018).

3.2.7.1.2 Non-medical participants

(1) Public support of SEF was researched by Lewis et al. (2016) in the US. Participants (n=1,064) reported they would rather support women with cancer diagnoses to opt for oocyte cryopreservation (89%) than women who opt for the same medical process but for career reasons (72%), the lack of suitable partner (63%) or financial reasons (58%). Demographic factors such as an older age suggested less support towards SEF, whereas a younger age, a single marital status and an atheist or agnostic religious perspective were associated with greater support and potential usage of SEF. In sum, 18% of participants would consider SEF for their personal reproductive goals and 37% believed employers should provide financial support for SEF to their employees. Compared to women, men showed less acceptance to using cryopreserved oocytes for unmarried women.

(2) Childless women's (n=257) intentions to cryopreserve oocytes were studied by ter Keurst et al. (2016) in the UK. The study found that while women evidenced a low intention to opt for oocyte cryopreservation, they did not necessarily show negative attitudes towards the medical possibility, nor did they perceive the lack of acceptance from their families; rather, they did not realise the personal benefit of the method or had not yet considered the possibility in detail.

(3) A Swedish study by Wennberg et al. (2016) assessed 30-39 year-old women's attitudes towards oocyte cryopreservation, a method which at the time of the research was not allowed in the country. The main focus of the study was to examine any differences in attitude between the urban cohort (n=1,000) and national cohort (n=1,000). The urban women surveyed showed greater acceptance for oocyte cryopreservation and for social reasons and accepted a higher age limit for using cryopreserved oocytes than their national peers (Wennberg et al., 2016).

(4) 500 currently childless women were surveyed about their beliefs and considerations towards social egg freezing (Daniluk and Koert, 2016). 66% of the women showed a positive endorsement of oocyte cryopreservation for social reasons, but even more participants (91%) were supportive of the method for women with cancer diagnoses. 65% of the women preferred to be employed by a company that provides financial support for the medical process. Participants' perceived knowledge about fertility prevention was also assessed, with 53% of women responding that they have some knowledge and 15% describing themselves as fairly or very knowledgeable about fertility prevention (Daniluk and Koert, 2016).

(5) 200 women in the US were surveyed on their interest in and awareness of SEF (Stanton et al., 2014). Most of the women (79%) expressed interest to learn more about the medical process. These women found the possibility of cryopreservation for non-medical reasons appealing due to enabling their focus on career (48%), having more time to find a partner (47%) or to secure financial stability (41%). On the other hand, 58% of them found the possibility less appealing due to its high financial costs (Stanton et al., 2014).

(6) Stoop et al. (2011) surveyed 1,024 women about their willingness to cryopreserve their oocytes. While 32% of the women said they would consider it, 28% replied with maybe, 17% were indecisive and 52% said they would not consider the medical process at all. Women who would consider SEF would follow-up with their plan if there was reassurance about the risks and the health of the child. An older age at the time of the survey and a higher desire to become a mother indicated a greater likelihood to consider SEF (Stoop et al., 2011).

(7) 171 female students in the Boston area were surveyed (Cardozo et al., 2020). More than half of the women (63%) pointed to career as the main reason to postpone motherhood and 54% agreed that SEF would enable them to focus on their career first. 81% of the women were more likely to consider SEF if they received financial support by their employer or health insurance company, as 59% indicated cost as the major concern about the medical process (Cardozo et al., 2020).

(8) 46 women were surveyed about their views of SEF in Austria (Kostenzer et al., 2021a). The results outlined three viewpoints. (1) Women should be allowed to make their own decisions about their fertility prevention and oocyte cryopreservation should be allowed to all women and for social reasons. (2) The natural course of human fertility should be accepted and oocyte cryopreservation should be allowed in exceptional cases. (3) A societal debate is urged for medical inventions like SEF, but ethical considerations should be addressed as well (Kostenzer et al., 2021a).

(9) 34 women were survey with the same method applied by Kostenzer and colleagues (2021b) and four viewpoints were established. (1) Respondents expressed caution about oocyte cryopreservation, but think women should be allowed to make their own decisions. However, fertility preservation was seen as unnatural. (2) Women should be making their own reproductive choices because it is their own bodies and having a child is described as a human right. They thought that oocyte cryopreservation could support gender equality. (3) The unnatural aspect of oocyte cryopreservation is assessed

critically, especially if there are social motivations behind the decision. (4) Motherhood at an early age is encouraged, as medically extending fertility is viewed as unnatural unless there are medical reasons. Balancing family and career as a woman was seen as a personal question of planning and prioritisation (Kostenzer et al., 2021b).

(10) In Italy, 930 female students were survey about their attitudes towards social egg freezing (Tozzo et al., 2019). One third (34%) of participants were aware of the medical process. Only 20% of them would consider cryopreservation for social reasons, 39% would not and 42% were indecisive. The justifiable reasons for using oocyte cryopreservation were economic stability and career (50%), finding the right partner and feeling ready for motherhood (27%) and other care commitments (8%), while a further 14% did not agree with any of the above reasons. Almost half of women (48%) surveyed believed that women should be bearing the costs of the medical process. 65% of participants would not donate their oocytes to someone they know, but 43% might consider donation to a biobank (Tozzo et al., 2019).

(11) Johnston et al. (2022) conducted over 600 Australian women's attitude towards "employer-sponsored egg freezing". Although 42% of the participants see the potentials of employers' financial support, such as career opportunities, others were unsure of its effect or even found it inappropriate due to the perceived pressure women might face with regard to delayed motherhood.

(12) Forke and Siegers (2022) researched 775 participants acceptance towards SEF with a factorial survey in Germany. SEF was a known ART among the participants, but accessed very controversially. The main factors influencing the attitude were regularly attending church, the wish to have a child, and the preference with regard to delayed parenthood. As the latter one is perceived among the participants as egoistic.

3.2.7.2 Women who choose SEF

(1) Similar motivating factors for SEF can be seen among women (n=86) who have already banked their oocytes (Stoop et al., 2014a) and whose primary reasons were a need for more time to find the right partner or to reduce the pressure of having a suitable relationship.

(2) Another study mentions motivational reasons for pursuing childbearing among women (n=478) who undergo SEF, including lack of a partner (88%), professional reasons (24%), financial reasons (15%) and women also deem childbearing to be too large of a commitment (15%) (Hodes-Wertz et al., 2013). Nevertheless, 19% of women said they

would consider childbearing earlier if their employers were more flexible in this matter.

(3) A UK-based study Baldwin et al. (2015) assessed and analysed twenty-three degree educated women's motivations for SEF who had already undergone oocyte cryopreservation. The study concludes that the women participating in the research were keen to conceive, but the preconditions of parenthood were not yet fulfilled and the desired type of partner was not yet in their lives, as 87% were single.

(4) The motivation for undergoing oocyte cryopreservation was analysed in qualitative research by Baldwin et al. (2018) with participants (n=31) in the UK, US and Norway. The fear of "running out of time" to find the suitable partner and to achieve a pregnancy with natural conception were the most dominant concerns amongst participants. As most of the women were single at the time of cryopreservation, they reported the lack of suitable partner and the fear of so-called "panic partnering" as the reasons to undergo the treatment. Furthermore, they wanted to avoid future regrets about unwanted childlessness. Most women (84%) mentioned that the actual decision to cryopreserve could be linked to a certain event in their lives (e.g., the end of a relationship, a birthday, health scare, etc.). Finally, the study concluded that these women's careers were not a significant reason to postpone motherhood and cryopreserve, despite this portrayal in media representations.

(5) Fifteen degree educated women with average age of 38 were interviewed about their reasons to opt for oocyte cryopreservation and their future reproductive plans (ESHRE, 2010). In 53% of cases, the main motivation to freeze was the lack of the right partner, while in 27% of the cases, women wanted to give additional time to their current relationships before they wished to start a family. Lastly, in 33% of cases, women opted for the medical possibility to have secured oocytes against expected age-related infertility. These women expect to use their cryopreserved oocytes at the age of 43.3 years on average, however most preferred spontaneous pregnancy over IVF if given the option to decide. In cases where they would not return to their cryopreserved oocytes, they would either donate them for research (47%) or another woman (13%) or at the time of the interview, they were indecisive (26%) about the future of their unused oocytes (ESHRE, 2010).

(6) Twenty women with an average age of 38.6 were interviewed about their backgrounds and decisions to opt for SEF. Most participants described their family status as single. Their main reasons to freeze were to take advantage of this modern reproductive technology (60%), relieve the pressure of the ticking biological clock (50%) and to

ensure they are “insured” against age-related infertility, although using the frozen eggs is not the primary motivation (15%). Furthermore, some participants noted that they would consider fertilisation with sperm donors and most of them mentioned that they would have chosen SEF earlier if they had known about the technology when they were younger (Gold et al., 2006; Vallejo et al., 2013).

(7) 95 women who previously opted for cryopreservation were surveyed about their experiences (Hammarberg et al., 2017). Their average age at the time of the cryopreservation was 37 and on average they successfully stored 14.2 oocytes. Six women returned to their oocytes and three of them had successful pregnancies and births. Women who still had frozen oocytes and had not returned to them yet indicated the main reasons as the preference not to single parent and to conceive naturally. 85% of participants wished to have a child or another child at the time of the survey (Hammarberg et al., 2017).

(8) A binational (US and Israel) study researched men’s participation in women’s oocyte cryopreservation decisions by interviewing women (n=150) who opted for the medical process in the past (Inhorn et al., 2020). Most women (85%) named the main reason to choose cryopreservation was the lack of a male partner, although more than the half of the women (63%) were involved with or were being supported by men (e.g., fathers, male partners, male friends, brothers) during the cryopreservation through, for instance, financial, physical or psychological support. However, 37% of the women interviewed had undergone the process alone or with other women (Inhorn et al., 2020).

(9) A study conducted in Israel and in the US with 150 women concluded that the decision for cryopreservation could be linked to negative relationship experiences or trauma, such as divorce or broken relationships or engagements. Amongst other reasons for relationship dissolution were betrayal, dishonesty and controlling behaviour, but the most commonly cited reason was that men were not ready for fatherhood due to an age difference or a lack of maturity (Inhorn et al., 2022).

(10) 241 women who participated in consultations for oocyte cryopreservation were asked whether they would pursue single motherhood by using their previously cryopreserved oocytes if they did not have a partner in the future. 58% of these women reported they would consider it and younger participants (63%) were more likely to consider single motherhood than their somewhat older peers (54%) (Schuman et al., 2011).

(11) 40 women who underwent oocyte cryopreservation completed a survey. At the

time of the cryopreservation, their mean age was 37 and their main reason to do so was the lack of a partner rather than pursuing their careers. Almost half of the women (48%) cryopreserved fewer oocytes than they originally expected to cryopreserve and 65% regretted that they did not opt for the method at a younger age (Yee et al., 2017).

(12) 180 women who went through oocyte cryopreservation were surveyed by Greenwood et al. (2017). Their average age at the cryopreservation was 36 and the average number of oocytes cryopreserved was 18. In regard to their freezing experience, after a two-year period had passed, 36% reported that their experience could have been better by involving a mental health professional, as 13% of all surveyed women mentioned a lack of emotional support, 36% reported loneliness during the medical process and 16% indicated hopelessness about future families. Their satisfaction about their decision to cryopreserve can be associated, for example, with the high number of banked oocytes, emotional support and adequate information they received (Greenwood et al., 2017).

(13) 201 women were surveyed about their consultation and cryopreservation experience (Greenwood et al., 2018). 80% of the women received adequate information to make their decision about cryopreservation and 69% assessed the emotional support during the consolations adequate as well. As for their satisfaction, 88% of women perceived more options regarding their family planning due to their cryopreserved oocytes. Half of the women (51%) had no regret because of their decisions, 33% had a mild regret and 16% a stronger regret. Similar to Greenwood et al.'s (2017) other study, important factors included the number of banked oocytes, perceived emotional support and adequate information they received during the consultations (Greenwood et al., 2018).

(14) In Rimon-Zarfaty and Schicktanz's (2022) study 39 women, who opted for SEF, were interviewed in Germany and in Israel, focusing on "reproductive temporalities" (p.20). Most of the participants confirmed that they decided for SEF due to the lack of partner and in general they wished to postpone decisions about motherhood. Among Israeli participants appeared the religious motivation to have not just one, but several children in the future.

3.2.8 Preliminary research

The preliminary research, based on Keglovits's (2015) Master's thesis, evaluated the attitudes of Hungarian women towards (1) social egg freezing and (2) women cryopreserving their

oocytes for social reasons. A further aim was to answer the question as to whether (3) social egg freezing can be defined as a symbol of gender equality in the labour market and in career development. Focus group interviews were conducted with (i) women who had no children and (ii) women who had at least one child. The research summarised the findings in a model (see *Figure 4*) naming the most significant attributes influencing participants' attitude towards the attitude objects. The participants did not reject the basic idea of SEF, although they highlighted the unnatural aspect of the technology. Women undergoing OC were evaluated on whether the reason for cryopreservation was disease-related or age-related infertility. The participants saw SEF as a manipulation of female employees rather than as a symbol of gender equality, and they named other alternatives that could support better gender equality in general. The thesis concludes that the harmonisation of the biological and social aspects of childbearing, applicable to women in particular, poses a significant challenge to today's society. Whether SEF will be the next generation's reproductive trend depends on how assisted reproductive technologies in general and SEF in particular are evaluated by the target group and which other solutions arise that may resolve the conflict of the abovementioned aspects as well as gender inequality.

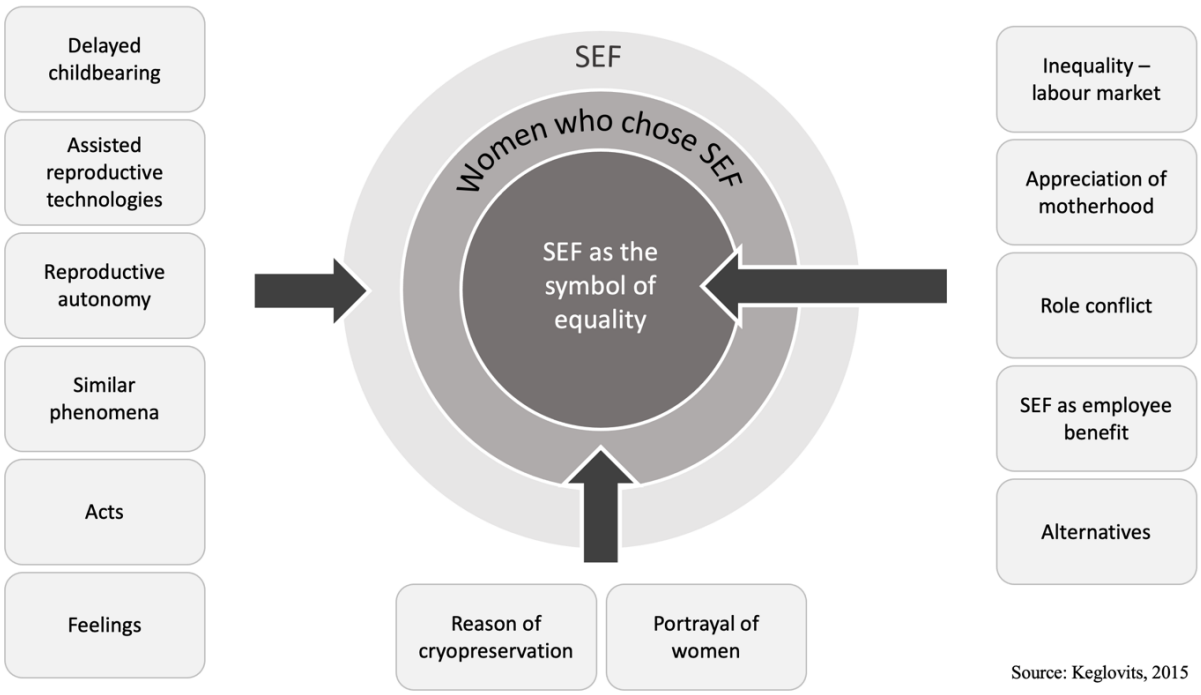


Figure 4 Preliminary research results

3.2.9 Concluding remarks

Since OC was first offered for women, the choice of this medical possibility for social reasons has sparked ethical and sociological debates. In addition to OC as an assisted reproductive technology facing public criticism, women who have decided to preserve their fertility with

this method also face scrutiny. Women opting for SEF may be socially perceived on a spectrum ranging from selfish, career pursuing women to wise, proactive women (Baldwin, 2016; Goold & Savulescu, 2009; Keglovits, 2015; Mertes, 2013). Although the main reason to opt for SEF in attitude research studies is the career of the women (Cardozo et al., 2020; Gorthi et al., 2010; Lewis et al., 2016; Stanton & Sussman, 2014; Tan et al., 2014; Tozzo et al., 2019), studies focused on women's experiences who have opted for SEF instead more commonly cite the lack of a partner as the primary motivation for cryopreservation rather than their careers (Baldwin, 2016; Baldwin et al., 2018; Hodes-Wertz et al., 2013; Schuman et al., 2011). Furthermore, women who opt for OC for social reasons are perceived more negatively than women who opt for the same medical process but for medical reasons, such as cancer. In debates where the rhetorical division between the two reasons for cryopreservation can be observed, for women SEF is deemed to be their own individual decision to extend their fertility because they decided not to become mothers in their most fertile years and thus they must take full responsibility for their decisions, including any unsuccessful pregnancy or unhealthy child born with cryopreserved oocytes. At the same time, women opting for cryopreservation for medical reasons are described as the victims of circumstance who do not have any other choice in life to become mothers other than to cryopreserve their oocytes; thus, all the risks they take are justified (Feiler, 2020; Harwood, 2009; Harwood, 2015; Keglovits, 2015; Mertes 2013; Petropanagos, 2010).

Cattapan et al. (2014) set SEF in the context of neoliberal feminism and highlight the narratives of choice, individual responsibility, having it all, privileged women and consumerism. These discussions about SEF are linked to other social norms and viewed as triggering existing social inequalities and discriminations such as when it is the "right time" to become a mother, as both women who are deemed to be too young and too old are judged and face ageism (Baldwin, 2017; Feiler, 2020; van der Ven et al., 2017). In addition, nuclear heterosexual families and genetically and gestationally related children are more greatly valued in society than non-traditional family structures, social norms that are also observed in debates around SEF (Petropanagos, 2010; van de Wiel, 2014, p. 8), even as SEF may create further opportunities for single women or non-heterosexual families who face biological boundaries to starting a family with genetically related children (Borovecki et al., 2018). SEF is seen to offer an individual solution for a deeply rooted problem in the structure of society (Matinelli et al., 2015; Ravitsky & Lemoine, 2014; Wunder, 2013) and it does not necessarily contribute to female empowerment; indeed, certain discussions of SEF instead emphasise the existing control over female bodies (Mertes 2015; Ravitsky & Lemoine, 2014; Robertson, 2014). Social

control, which may impact women's decisions to opt or not for opt for SEF, is rooted in various factors, such as whether they can identify themselves with the role of the mother and they wish to have a child at all or keep this opportunity open for the future; whether they are the right age, where the medical solution is available (e.g., before menopause); whether they have the resources to gather reliable information on the cryopreservation; whether they would be able to afford its costs; and whether they have a support network so they can make the decision with the emotional support of their friends, family, colleagues or medical experts.

Women, who decide to undergo SEF mainly do it due to the lack of the partner (e.g. Baldwin et al., 2018; Fässler et al., 2019; Hodes-Wertz et al., 2013; Inhorn et al., 2022; Platts et al., 2021; Wafi, et al., 2020; Will et al., 2017), in average, in the second half of their thirties (e.g. Baldwin et al., 2015; Greenwood et al., 2017; Vallejo et al., 2013; Yee et al., 2017), partially at the age, when it's least advantageous from the medical perspective. The number of the cryopreserved oocytes differ in average from 11 to 18 oocytes (e.g. Baldwin et al., 2015; Deutsches IVF-Register, 2023; Greenwood et al., 2017; Hammarberg et al., 2017). In certain cases women also experience loneliness and anxiety throughout the medical process (Greenwood et al., 2017; Hodes-Wertz et al., 2013). The future of the unused oocytes depends on the local jurisdictions and debated from the ethical and personal point of view, whether they could be donated, offered for research or destroyed (e.g. Borovecki et al., 2018; Caughey et al., 2023; Robertson, 2014). Most women opted for SEF do not regret their decisions, but retrospectively should have opted earlier for the method (e.g. Giannopapa et al., 2022; Jones at al., 2020).

This chapter has also reviewed international studies about SEF, either in the form of attitude research or research on women's experience who already opted for SEF. In several attitude research studies, medical students were involved and it can be concluded that medical students and medical professionals show greater support towards SEF than non-medical participants; for example, they are more willing to postpone parenthood, consider SEF to extend their fertility and have more acceptance for oocyte cryopreservation for social reasons (Brezis et al., 2011; Esfandiari et al., 2018, 2019; Gorthi et al., 2010; Tan et al., 2014). In other attitude research studies (e.g., ter Keurst et al., 2016), participants did not show negative attitude towards SEF, but they showed greater support for women opting for the method due to disease-related infertility compared to age-related infertility (e.g., Daniluk and Koert, 2016; Lewis et al., 2016), with the main reason to opt for SEF considered to be women prioritizing their career over motherhood and thus postponing it. Women have a more positive attitude towards SEF than men (Lewis et al., 2016), and participants living in bigger cities are observed

to be more open to SEF than participants living in smaller communities (Wennberg et al., 2016). Female participants mention the high costs of SEF as a negative factor in their decision making, however, they are more likely to consider the method if they received financial support (Cardozo et al., 2020; Stanton et al., 2014). The main outcome of the studies conducted with women who opted for SEF is that most of these women have a strong wish to become mothers, but they do not have the partner at the time and they are reaching the end of their fertility period; therefore, they consider cryopreservation as one of their last chances to preserve their fertility and have a genetically related child in the future (Baldwin, 2016; Baldwin et al., 2018; Hodes-Wertz et al., 2013; Schuman et al., 2011).

4 Research methodology

This chapter describes the methodology used to conduct the research and outlines the research objectives and questions. The research design defines the target groups and explains how the theory is applied. Additionally, the chosen methods described in detail while focusing on the interview design.

4.1 Research objectives and questions

1. *Detecting attitudes and planned behaviours by involving the target group of SEF*

   Even though the SEF appears in the media from time to time and it is raised in ethical and medical discussions in scientific journals, to my best knowledge, no scientific qualitative attitude research study has been conducted amongst the potential target groups of the technology in Germany. This dissertation thus aims to provide a German, scientific contribution to a topical reproductive issue.

2. *Involving men in the discussion*

   In most of the existing attitude research studies, men's attitudes have not been assessed. For reproduction, both female and male cells are essential, therefore both sexes are equally responsible for the reproduction of human beings. Thus, men ought to be engaged when delayed childbearing, childlessness and SEF are discussed and their social contexts or social constructions ought to be analysed.

3. *Highlighting the social context of SEF*

   This research contributes to international academic discussions on a topical reproductive method with a complex ethical and social context and uncertain medical success, which, however, has been offered as a valid solution for a social problem. This dissertation digs down to the roots of the phenomenon and investigates its context from a sociological and social-psychological perspective. The research's results and recommendations may be considered by local policy makers and employers for relevant decision making.

4. *Understanding women's decisions who opted for SEF and gathering their experiences*

   In the international context, there are several publications about women's motivations and experiences about SEF (e.g., Baldwin et al., 2015; Baldwin et al., 2018; Hodes-Wertz et al., 2013; Schuman et al., 2011); however, German publications are less focused on this perspective.

5. *Understanding the perception and the need for SEF as an employee benefit*

Whilst in other countries employers' financial support of SEF is observable in media stories, in Germany no company has publicly published a benefit as such[19]. Therefore, it is valuable to understand how the target group of the method would react to such an offer and whether they would prefer an employer with this benefit.

Based on the theoretical review, the summary of current research on SEF, the preliminary empirical research and the aforementioned objectives, the following research plan was designed (see next section, *Figure 7* and *Figure 8*) in order to answer the dissertation's research questions:

(1) What are the target groups' attitudes towards (a) *social egg freezing*, (b) *women who opted for social egg freezing,* and (c) *social egg freezing as employee benefit?*

(2) What are the perceived (a) social norms associated with opting or not opting SEF and (b) behavioural control factors that facilitate or impede the application of social egg freezing?

(3) Amongst women who have undergone SEF, what are the (a) actual controls to performing social egg freezing and (b) what are their experiences?

4.2 Research design

4.2.1 Target groups

Based on the reproductive trends in Germany, it can be observed that the phenomenon of postponing parenthood has been growing in recent decades. For example, amongst children born in 2022, the average age of their mothers and fathers was 31.7 and 34.7, respectively (Statista, 2023). Furthermore, the number of newborns born to mothers aged forty or older is constantly rising in recent years, not just in absolute numbers, but also in the percentage of the live-born rate in Germany. Not only has postponing parenthood been a phenomenon of the past several decades, the number of childless women has also risen, especially in the German urban region amongst women with academic backgrounds (Statistisches Bundesamt, 2019). One of the reasons identified for involuntary childlessness were infertility, among women who wish to have a child but postponing motherhood until women become infertile (BMFSFJ, 2021). The target group for SEF is therefore defined in the current dissertation as women who are pursuing or have an academic degree and live in an urban area and may decide to postpone motherhood or face involuntary childlessness and could potentially extend their fertility with

[19] Note, Merck announced to provide financial support for fertility treatments, such as SEF only in 2023 (Hoffmann, 2023; Merck, 2023), when the interviews were already conducted. Therefore, references with regard to no German employer support for SEF may be read in the dissertation.

SEF. Furthermore, this research includes men who have similar demographics and therefore may face similar challenges.

The target groups for this dissertation are defined on three levels: (A) *female students and young professionals* with no personal experience with SEF (non-SEF women)*;* (B) *male students and young professionals* with no personal experience with SEF (non-SEF men) and (C) *women who have undergone SEF* (SEF women). All participants need to have at least a Bachelor's degree or be currently pursuing one. In the groups of A and B (*students and young professionals*), all participants are welcome regardless of the focus of their studies and profession, and in the group of women with personal experience of SEF (C) there are no similar restrictions either. The first two target groups (A and B) are of reproductive age, however, these two groups might have different perspectives on reproduction based on their gender, age, experience in the labour market and lifestyle focus and challenges. Women who have already chosen SEF may be at the end of their reproductive age or even after, and they may have used their cryopreserved oocytes, conceived naturally or do not have had a child (yet). Their experiences can complement the first two target groups' results about their attitudes. This research welcomes diversity through the different target groups, thus it includes women and men, LMBTQI individuals, parents or individuals without a child.

4.2.2 Applying the tripartite model and the theory of planned behaviour

The research questions (RQ) 1(a, b and c), 2 (a and b) and 3 (a and b) are assessed through 20 semi-structured interviews. Individual interviews provide a private context to discuss the research topic, and the predefined guiding questions may foster and stimulate a holistic view of the participants to yield their attitudes. A short demographic questionnaire was completed by all participants to define their target group characteristics. Independent variables such as gender and experience with SEF are assessed and analysed with the dependent variables (direction and intensity of the attitude towards the attitude objects, perceived social norms to perform or not to perform the behaviour and perceived factors to facilitate or impede the behaviour). The tripartite model (Allport, 1935; Fishbein & Ajzen, 1975; Haddock & Maio, 2004; Wicker, 1969) is applied to evaluate the three components of the attitude to measure their direction (positive or negative) and intensity (*Figure 5*). Then the theory of planned behaviour (Ajzen & Cote, 2018) is used to assess the target groups' intentions towards choosing SEF and to evaluate the actual controls of SEF women who opt for SEF and further to research women's controls to choosing SEF who have actually undergone SEF (*Figure 6*).

Application of Tripartite Model
(Allport, 1935; Fishbein & Ajzen, 1975; Haddock & Maio, 2004; Wicker, 1969)

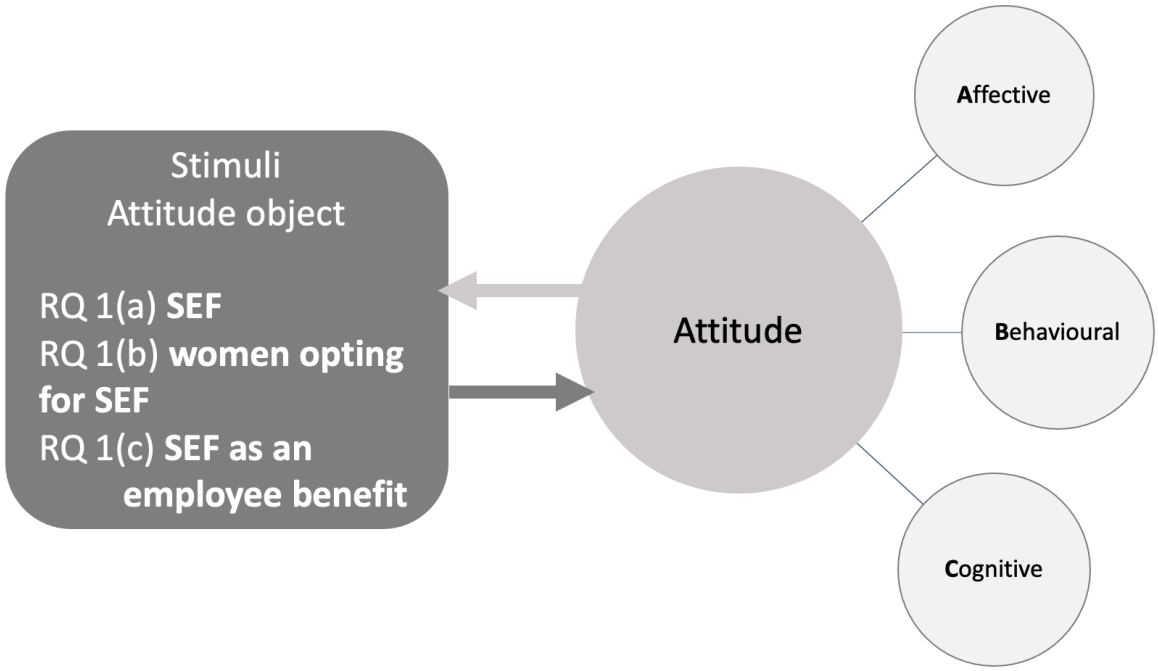


Figure 5 Application of Tripartite Model

Application of the Theory of Planned Behaviour
(Diagram based on Ajzen, 2019)

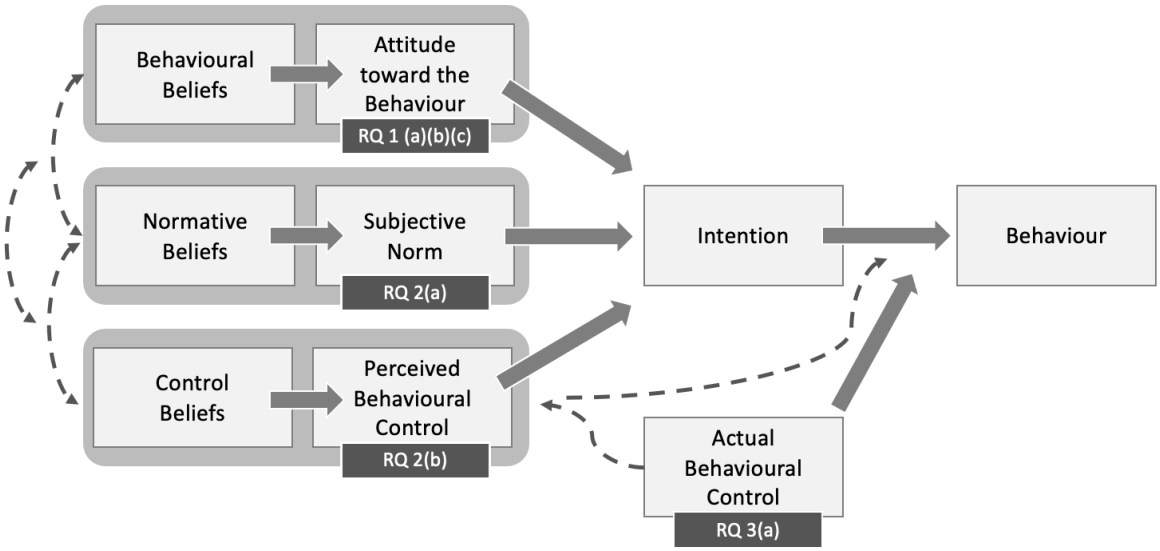


Figure 6 Application of the Theory of Planned Behaviour

4.2.2.1 Research Question 1

To answer the first research question, (1) What is the target groups' attitude towards (a) *social egg freezing*, (b) *women using the method of social egg freezing* and (c) *social egg freezing as an employee benefit*, the tripartite model will be applied; that is, analysing the affective, behavioural and cognitive components of attitude towards the attitude object, which are (a) *social egg freezing*, (b) *women who opted for social egg freezing* and (c) *social egg freezing as an employee benefit. Figure 7* shows the research design, including the research question 1(a),(b),(c), the applied theory and the preliminary research, which provided the basis for the design, the method and the relevant target group for the assessment. The preliminary studies, which provide a basis, are only referenced below and the main results of these studies are summarised in *chapter 3*. Furthermore, the results of this dissertation are reflected in *chapter 6.*

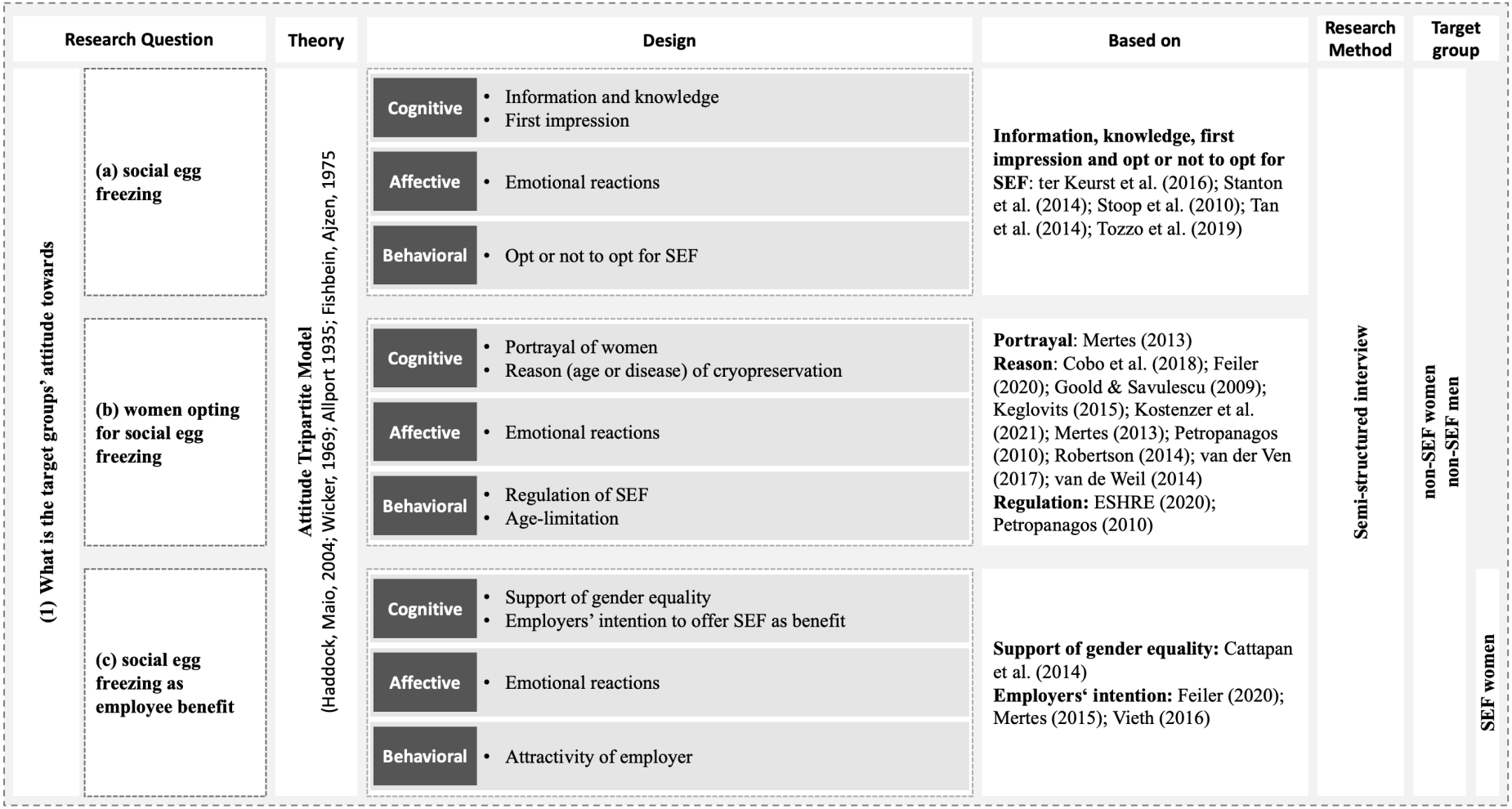


Figure 7 Research design for research question 1

The non-SEF female and non-SEF male participants' attitudes are researched towards the attitude object *(a) social egg freezing* by assessing their cognitive component of the attitude, such as their beliefs, information and knowledge about SEF, their emotional responses (e.g., whether it is excitement, happiness or fear) and behavioural responses (i.e., if they are open to opt for SEF or not). The cognitive, affective and behavioural components have been designed based on existing attitude research by ter Keurst et al. (2016), Stanton et al. (2014), Stoop et al. (2011), Tan et al. (2014) and Tozzo et al. (2019) because these studies have analysed participants' attitudes from a similar perspective, such as their knowledge about SEF, their first impression of the method or their openness to cryopreserve oocytes.

Furthermore, non-SEF women's and non-SEF men's attitudes towards *(b) women opted for social egg freezing* is studied by assessing their beliefs about these women based on their portrayal, their perceived motivations, whether the reason for cryopreservation (age- or disease-related) plays a role in their perceptions and which emotions participants show towards these women such as jealousy, anger or shock. The assessment includes which behaviours participants may show towards these women; for instance, whether they would forbid SEF or regulate SEF in other ways, such as setting an age limit for using the cryopreserved oocytes, thus limiting women's possibilities for using SEF for their reproductive freedom. The research design is linked to existing research by Mertes (2013) which observed the portrayal of women who opted for SEF and other studies (e.g., Cobo et al., 2018; Feiler, 2020; Goold & Savulescu, 2009; Keglovits, 2015; Kostenzer et al., 2021; Mertes, 2013; Petropanagos, 2010; Robertson, 2014; van de Wiel, 2014; Van der Ven et al., 2017) that assessed individual perceptions about SEF or women opting for SEF based on the reason of cryopreservation and whether these participants would allow or forbid the application of this method based on the reason for the cryopreservation (ESHRE, 2020; Petropanagos, 2010).

Additionally, all participants' attitudes towards (c) *social egg freezing as employee benefit* is examined by assessing the cognitive component of their attitudes, such as their beliefs as to whether SEF would support gender equality in the labour market, their beliefs about employers' intentions to offer SEF as a benefit, if participants would feel relieved or angry with having such a benefit offered from their employers and lastly, if would they find an employer offering SEF attractive. While SEF women's attitude towards (a) SEF and (b) women who opted for SEF is not assessed, their attitudes towards (c) SEF as an employee benefit is studied, as currently employers in Germany do not offer financial support for SEF, based on the publicly available data, and it is valuable to know how SEF women would perceive such an opportunity. The current research design reflects Cattapan et al.'s (2014) research on the

parallel aspect of SEF and gender equality in the labour market, and Feiler's (2020), Mertes's (2015) and Vieth's (2016) discussions of employers' potential intention of offering SEF as a benefit to their female employees.

As evaluative abstractions towards the attitude objects also vary in their direction and in their strength (Allport, 1935; Fishbein & Ajzen, 1975), these are assessed for the participants and on the individual level.

4.2.2.2 Research questions 2 and 3

To assess the target groups' intention to opt for social egg freezing, the research question (*2) what are the perceived (a) social norms associated with opting or not opting for SEF and (b) behavioural control factors that facilitate or impede the application of social egg freezing* are assessed based on the research design visualised in *Figure 8*. Additionally, the same figure demonstrates the research question (3), which assesses the *(a) actual control factors* to perform SEF amongst women who have already decided for SEF and their (b) *experiences*.

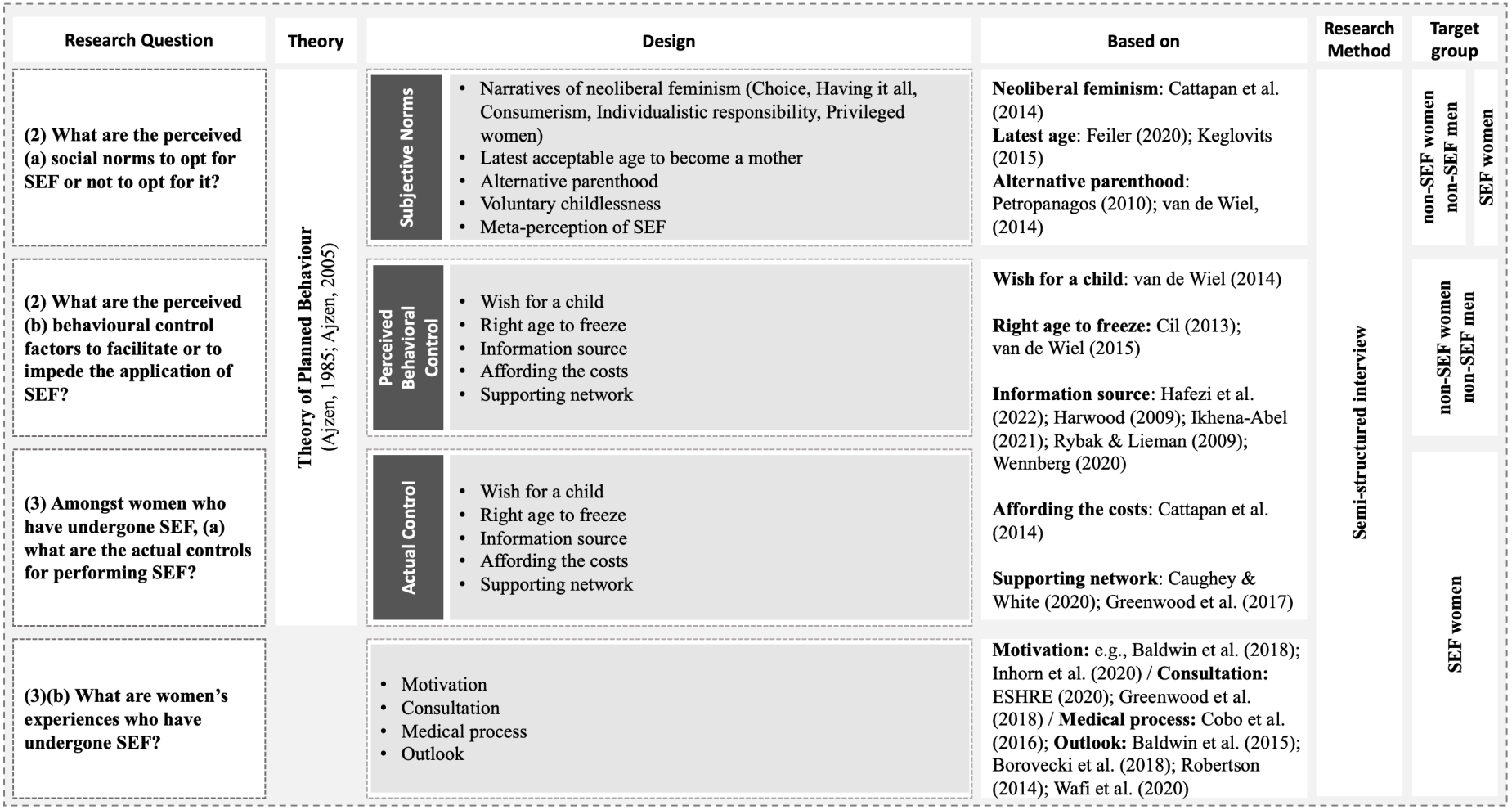


Figure 8 Research design for research questions 2 and 3

To answer research questions 2 and 3, the theory of planned behaviour (Ajzen, 1985, 2005) is applied. Based on the theory, the performance of the behaviour, in this case, opting for SEF, is influenced by three factors: the attitude towards the behaviour, subjective norms and perceived behavioural controls. As research question 1 focuses on attitudes towards SEF, women opting for SEF and SEF as an employee benefit, research question 2 assesses the target groups' perceived (a) *subjective norms* and (b) *behavioural control factors* among non-SEF female and male participants. And research question 3(a) addresses the *actual controls* of SEF based on SEF women's experiences.

The associated *(a) subjective norms* may influence the choice to perform the behaviour, such as gender roles, the narratives of neoliberal feminism, the latest acceptable age to become a mother, alternative forms of parenthood, voluntary childlessness and the meta-perception (Carlson & Barranti, 2016) (i.e., what participants believe how other people or the society perceives SEF or the women who opt for it). These aspects of the research rely on preliminary studies such as the parallel of SEF and neoliberal feminism described by Cattapan et al. (2014), how participants in different studies (Feiler 2020; Keglovits 2015) perceive the latest acceptable age to become a mother and how alternative forms of parenthood are discussed (Petropanagos, 2010; van de Wiel, 2014). The (b) *perceived behavioural controls* are the existence of factors to facilitate or impede the performance of the behaviour, such as the target groups' wish for a child, what age is considered to be the right age to freeze from a medical point of view, the availability of reliable information, the affordability of SEF and the existence of support networks. The perceived control factors and their assessment were defined based on preliminary studies, such as women's wish for a child (van de Wiel, 2014) or what is considered to be the right to freeze based on van de Wiel's (2014) and Cil et al.'s (2013) research, how the accessibility and the quality of the existing information sources about SEF are described by e.g. Hafezi et al. (2022), Harwood (2009), Ikhena-Abel (2021), Rybak & Lieman (2009) and Wennberg (2020), the financial aspects of this method as analysed by Cattapan et al. (2014) and the importance of these women's support networks as highlighted by Caughey & White (2021) and Greenwood et al. (2017). Research question 3(a) assesses the *actual control factors* to perform SEF amongst women who have undergone SEF. In addition, the theory of planned behaviour is applied (Ajzen, 1985, 2005), where the same aspects are tested, which for the target group of non-SEF women and men include the wish for a child, at what age they cryopreserved their oocytes, where and how they accessed reliable information, how they afforded the costs of SEF and the existence of their support networks. Research question 3(b) focuses on the *experiences of women* who have undergone SEF. The aspects of these

experiences were defined based on research studies conducted by e.g. Baldwin et al. (2018), Inhorn et al. (2020; 2022) and Stoop et al. (2014a) about women's motivation to cryopreserve oocytes, what the ESHRE (2020) guidelines suggest about consultations and how women experienced these (Greenwood et al., 2018), what is the suggested number of cryopreserved oocytes based on medical research and how many oocytes women in these studies actually cryopreserved (Cobo et al., 2016; Otkay et al., 2006). Furthermore, what is the women's outlook, i.e. future plans or reflection with regard to the cryopreservation according to the existing research outcomes, such as returning to the oocytes (Cobo et al., 2016; Garcia-Velasco et al., 2013; Hodes-Wertz et al., 2013; Stoop et al., 2014), their plans with the unused oocytes (Baldwin et al., 2015; Borovecki et al., 2018; Hodes-Wertz et al., 2018; Robertson, 2014) and their potential regret about opting SEF (e.g. Giannopapa et al., 2022; Greenwood et al., 2018; Jones at al., 2020; Stoop et al., 2015; Wafi et al., 2020).

4.3 Methods

4.3.1 Semi-structured interviews

The qualitative nature of the current study originates from the preliminary research (Keglovits, 2015). While attitudes can be measured with quantitative methods like surveys, a personal interview enables participants to add new meaning to the study and provides space to understand the underlying reasons for their answers more individually, compared to a standardised survey (Fujii, 2018). An interview offers the opportunity to explore the interview-partners' understanding of the research topic (Galletta, 2013). Semi-structured interviews were chosen to ensure comparability of the data and to offer space for deviation and to understand personal differences in experiences and perceptions (Merriam, 2014, p. 89). As the preliminary study was conducted in the form of focus groups with semi-structured interviews (Cyr, 2019), following the previous research design was considered. There were three reasons why it was decided not to conduct focus group interviews. First, in the preliminary research the set-up of different participants had the advantage that they inspired each other, but at the same time certain participants did not express their perceptions in detail or to the fullest extent due to the group dynamic. Negative comments were also made to each other, which further negatively influenced the willingness of participants to share about such a sensitive topic as reproduction. Second, in the current research, women's experiences with OC are addressed, with the aim to keep the atmosphere private, which is possible in one-on-one interviews. Third, in 2020 when the interviews were planned and conducted, Germany faced the COVID-19 pandemic; as such, in-person interviews with several participants were not advised. There was the possibility to

conduct focus group interviews online, but it would have had challenges around data security (e.g., ensuring that none of the participants recorded the interview unauthorised including the discussions with other participants).

4.3.2 Survey

A survey was designed to collect quantitative data about all research participants. The aim of data collection was to have demographic characteristics of participants for the analysis and for comparability, but also to gather research related specific data on the participants (Hoffmeyer-Zlotnik & Warner, 2018). The survey was conducted in German and it was part of the interview process. The English translation of the survey is available in Appendix 9.1.

4.3.2.1 Demographic data

Demographic data collection ensures that the participants' attributes are recorded, which may lead to explanation based on social structures in the research results, and it ensures the comparability of participants and the study's integration into the scientific landscape (Gournelos et al., 2019; Statistisches Bundesamt, 2016, p. 5). As noted above, participants' demographic data were collected via a survey that was designed to address the key variables defined in the German catalogue for Demographic Standards (Statistisches Bundesamt, 2016), such as gender, age, marital status, sexual orientation, educational background and employment (industry and experience). Further demographic data were collected on participants' living area (postal code), preferred journals, political preferences and religion in order to understand the participants more fully, which relates to the topic of the study. The questions in the survey are formulated to be inclusive (Hughes et al., 2016).

4.3.2.2 Research related quantitative data

The survey aimed to ensure that participants fulfil the eligibility requirements of the defined target group. For non-SEF participants who are (1) in the reproductive age, (2) have an academic degree or are pursuing one and (3) live in Germany in an urban area, it was also necessary to learn their (4) gender so they can be categorised into one of the target groups: non-SEF women or non-SEF men, as one of the variable in the data analysis. Additionally, participants were asked to read an article before the interview and in the survey, they confirmed this with a check question *("Have you read the article Das Einfrieren von Eizellen zahlt die Firma (FAZ) before the interview?"*). As for SEF women, the same abovementioned demographics were key, however, they had to have a personal experience with SEF, such as participating in a consultation or cryopreserving their oocytes. This defined the second variable (SEF experience vs. no SEF experience) in the data analysis.

Further information was gathered to have a better understanding about the participants, including their reproductive plans (*"Do you plan to have a child in the future?"*) and their knowledge about SEF (*"Had you heard of social egg freezing before this study?"; "What personal experience do you have of social egg freezing?"*).

4.3.3 Data security

Participation in this study is voluntary and anonymous, as stated in the participation agreement. The template provided by Technische Universität Darmstadt was used, which contains standardised information on data security and the letter of participation agreement. Participation agreements are saved separately from participants' survey and interview documents. Interview transcripts are saved using password protection and under an anonymous identifier and the surveys cannot be linked to the participants' identities. For readability, participants have common names instead of an identifier number, but these names in the analysis are not their real names, but pseudonyms that correspond to their gender.

4.4 Interview design

4.4.1 Recruitment

In relational interviewing (Fujii, 2018, p. 37) the sampling and the recruitment of the interviewees are aimed to reach the pre-defined target group, which is the best to address to answer the research questions. Therefore, the recruitment took place on in various ways in August and September 2020 to reach the target groups' attention. Interview-partners with no personal experience with SEF were reached through Facebook groups associated to student life,[20] and general interest for locals[21] in Frankfurt and Darmstadt. Some of the interview-partners were reached through the snowball method (Naderifar et al., 2017), as their friends already participated in an interview. Interview-partners with personal SEF experience were found through clinics located in Hesse that offer oocyte cryopreservation. These organisations were contacted and asked to send out pre-drafted emails to their patients who fit the scope of the study. Furthermore, flyers were placed in the waiting rooms of two of the clinics with their authorisation. Two of the four interview-partners were reached through the medical centres and two with the snowball method.

[20] TU Darmstadt Wirtschaftsingeniuer/Wirtschaftsinformatik – Stellenbörse; EWF Prüfungsvorbereitung TU Darmstadt; Deut. & Int. Unternehmensrecht – TU Darmstadt; TU Darmstadt Psychologie (Master); Hochschule Darmstadt – University of Applied Sciences; TU Darmstadt Soziologie; Studienkolleg Frankfurt am Main; Soziologie Goethe-Universität Frankfurt am Main

[21] Free your Stuff Darmstadt; Facebook Darmstadt; Jobs in Darmstadt / Frankfurt und Umgebung; Neu in Darmstadt – New in Darmstadt; Jobs in Offenback & Kreis; Marketplace Frankfurt; Erstis Medizin Frankfurt WS 18/19; Biete / Suche / Verschenke im Main-Taunus-Wiesbaden-Frankfurt-Kreis; Frankfurt am Main Talkgruppe

The recruitment plan focused on the participants' engagement and motivation by preparing an eye-catching attracting flyer and addressing compensation for their participation (Kelly et al., 2017; Negrin et al., 2022; Peel et al., 2006). Virtual flyers and printed flyers (see below) were almost the same for both target groups, non-SEF and SEF participants. The flyer had a header, "Let's talk about social egg freezing", to make an informal expression and symbolise openness to the topic. It was important not to give a first impression with the header that this study was trying to convince or sell the medical product. For readers unfamiliar with the term social egg freezing, the header includes a footnote that explains the term. The flyer had a picture of a partially frozen pacifier with a chain. I took picture to be used explicitly for this purpose. The third part of the flyer described the nature of participation; that is, it is attitude research involving a 60-minute phone interview and compensation of a €10 Amazon voucher. When participants with experience were addressed, an additional bullet point was included outlining the requirement for personal experience with social egg freezing (e.g., participation in consultation or freezing of oocytes). The flyer also had the researcher's contact details (i.e., email address).

[22]

Figure 9 Recruitment flyer

[22] (originally colour printed)

4.4.2 Pre-interview

After potential participants applied by email, they received a reply with further details and suggestions for available times for the interview. The reply email had three attachments.

1. A document providing standardised information on data security and the letter of participation agreement, using the template provided by Technische Universität Darmstadt. The filled-in agreement must be sent back before the interview started.
2. Participants were also sent and asked to read an article about social egg freezing published in Frankfurter Allgemeine Zeitung (FAZ)[23] in 2014 when the US technology companies started to offer financial support for oocyte cryopreservation. This article was chosen as a stimulus for participants based on the following criteria. The publisher, FAZ, has a great reputation for reliable information and the article is short and can be read within five minutes, but is still informative. The article discusses the following topics:
    - Social egg freezing is a method to preserve fertility and stop the biological clock and enables women to save time and concentrate on their careers;
    - The quality and quantity of oocytes is reduced as women age, therefore they have a smaller chance to become pregnant;
    - After the age of thirty-five women's fertility rapidly declines;
    - The costs in New York are around €8,000, whereas in Germany it costs less than €3,000;
    - Google, Apple and Facebook provide financial support for SEF for their employees among other benefits which support family planning;
    - Critics suggest that the companies' aim is to keep employees as long as possible at work;
    - The female quota in US technology companies such Google, Apple and Facebook is around 30 per cent, which has harmed their reputations; and
    - Facebook manager Sheryl Sandberg's book and philosophy is mentioned, as she believes women spend too early and too much time on thoughts about family planning and this hinders their career.
3. Additionally, a demographic survey for their review. The survey is completed during the interview.

[23] The article *Das Einfrieren von Eizellen zahlt die Firma* (Lindner, 2014) was downloaded from the Frankfurter Allgemeine Archive for a fee of €1 on 6 July 2020.

At the agreed time for the interview, the I called the interview-partners via phone so they do not have any additional costs for their participation. After the interview is finished, the Amazon voucher (€10) was sent to them via email.

4.4.3 Interview

The interviews were semi-structured with mostly open questions and had an introduction and the main part in which the research questions were addressed, as presented below in the interview design (*Figure 10* and *Figure 11*), and a closing part. Given the nature of semi-structured interviews, the order of the questions may have changed during the discussions, or some questions were not posed while additional questions may be included for clarification purposes or for other interest of the research.

The opening part of the interview, the introduction, aims to set the scene, establish comfort and make sure participants understand their rights in the discussion (Galletta, 2013, p. 47). Therefore, the interview-partners were familiar with the goals of the study, its anonymous nature and that they are free to quit the discussion anytime or not to answer any question they wish not to, as it was included in the previously returned letter of participation agreement. Following the introduction, the demographic survey was filled-in verbally. To start with broader questions and ensure a good atmosphere (Galletta, 2013, p. 47), participants were asked to introduce themselves, including where they come from, their age, what they currently do professionally or what they study. Furthermore, they were asked where they heard of the current study and what motivated them to participate. The middle part of interview is designed to pursue the research topic based on the research questions and address all details with consideration. The aim is to pose specific questions, loop back to previous answers and further explore the responses (Galletta, 2013, p. 49).

In the first part, as for research question 1, non-SEF participants' attitudes towards SEF and women undergoing SEF were assessed and both target groups' (non-SEF and SEF participants) attitudes towards SEF as an employee benefit were assessed. They were asked whether they had heard of SEF and if yes, where they heard about it for the first time and how they felt and reacted back then. They were also asked whether they know about the medical process of oocyte cryopreservation and female non-SEF participants were asked if they would consider opting for SEF, while male non-SEF participants were asked if they would support their female partners to opt for it or how they would react if their partner would like to use her previously frozen oocytes to have their mutual child. Furthermore, participants were asked to give their perceptions about why women choose SEF and how they feel about these women,

as well as if they see any ethical differentiation between the medical egg freezing and SEF. The regulation of OC, especially for so-called social reasons, is very sensitive. In Germany, this medical treatment is allowed, but there are no regulations, only a guideline, that suggests the usage of frozen oocytes for pregnancy is supported until women turn fifty. Thus, participants were asked until what age would they support the usage of frozen oocytes and whether it should be regulated. Then SEF as an employee benefit was discussed both with non-SEF and SEF participants by referring to the article they have read prior to the interview. Participants were asked how SEF could support gender equality, a point addressed in the article, and what these companies' intentions might be and how they feel about it. They were also asked whether they would prefer or find a company attractive that offers financial support for SEF for their employees.

Participants' perceived social norms to opt or not to opt for SEF was discussed in the second part, as per research question 2. SEF participants were asked if they felt or experienced social influence or pressure when they made their decision to opt for SEF. Non-SEF participants were also asked the same question on a hypothetical decision to choose or not choose SEF based on the considerations they shared previously. The goal was to learn what participants think about how society sees women who opt for SEF.

To assess non-SEF participants' perceived control factors, and SEF participants' actual control factors to facilitate or impede SEF, all participants were asked whether they wished to have a child and if yes what age would be ideal to have their first child. Furthermore, the question was raised as to what age non-SEF participants consider ideal for retrieving oocytes and at what age SEF participants had actually frozen them. If non-SEF participants were interested in SEF, questions were asked about where they would go to gather information and where SEF participants informed themselves. The affordability aspect of SEF was addressed next. The previously shared FAZ article mentions that oocyte cryopreservation costs around €3,000 in Germany. Therefore, the SEF participants were asked whether they could confirm the costs based on their medical treatment. Additionally, it was important to learn how participants could afford the costs and if they had received any financial support (e.g., from family members, credit, etc.) or if they financed the opportunity themselves. Non-SEF participants were asked whether they would be able to afford the costs, assuming one round of retrieval costs €3,000. Finally, participants' support networks were discussed in the interviews, including whether SEF women shared their decisions with anyone, who supported them and if there was anyone who did not show support towards SEF. The same question was raised with non-SEF participants with a hypothetical character.

The last part of the interview focused on women's oocyte cryopreservation experience and their plans regarding childbearing. They were asked why they froze their oocytes and how they experienced the entire process, beginning with the consultations, the medical treatment and any potential aftermaths, including how many oocytes they were able to freeze and with how many rounds they achieved that certain amount and if they planned any further rounds. In regard to their future plans, participants were asked if they would like to have children, would they use their frozen oocytes for the pregnancy. Furthermore, their perceptions, individual plans and openness about single motherhood with cryopreserved oocytes and having a sperm donor and what they would do with their frozen oocytes if they decide not to use them in the future (e.g., would they donate them, offer them for research or let them be destroyed). In the end, participants were asked whether they would have regretted their decision to choose SEF and as of today, whether they would do it again.

At the end of all interviews, space was given to the interview-partners to reflect on the previously discussed topics and add anything they would like to include, either in response to the questions asked or any further aspects related to SEF.

Research Question		Interview design		Target Group
(1) What is the target groups' attitude towards	(a) social egg freezing	Cognitive	*Have you ever heard about social egg freezing before this study? If yes, where did you hear/read about it? Do you know how the medical process of oocyte cryopreservation function?*	Non-SEF
		Affective	*How did you feel when you heard/read about social egg freezing for the first time? How did you react?*	Non-SEF
		Behavioral	*(Female participants) Would you consider opting for social egg freezing? (Male participants) Would you support your (hypothetical) partner to opt for social egg freezing?; How would you react if your (new) partner would like to use her previously frozen oocytes to have your mutual child?*	Non-SEF
	(b) women opting for social egg freezing	Cognitive	*What do you think, why women decide for social egg freezing? Based on your opinion, who should be decide for social egg freezing? Do you think if there is any ethical difference between medical and social egg freezing?*	Non-SEF
		Affective	*How do you feel when you think of these women?*	Non-SEF
		Behavioral	*What do you think, should social egg freezing be regulated? Until which age would it be acceptable to use the previously frozen oocytes?*	Non-SEF
	(c) social egg freezing as employee benefit	Cognitive	*As it is mentioned in the article, social egg freezing should be supporting gender equality in the labor market. How would social egg freezing support gender equality in your opinion? What do you think, why employers provide financial support for social egg freezing?*	SEF / Non-SEF
		Affective	*How do you feel about this employer benefit?*	SEF / Non-SEF
		Behavioral	*Would you prefer (female) / find attractive (male) a company, if they would offer financial support for social egg freezing to their employees? Is there any other employer benefit, in your point of view, which would support family planning?*	SEF / Non-SEF

Figure 10 Interview design – research question 1

Research Question	Interview design		Target Group	
(2) What are the perceived (a) social norms to opt for SEF or not to opt for it?	**Subjective Norms**	*If you would reflect on your (hypothetical) decision to opt/not to opt for social egg freezing, is there a social influence, pressure which would impact this?* *What do you think, what is the society's perception about social egg freezing or about women who opt for social egg freezing?*	**SEF**	**Non-SEF**
(2) What are the perceived (b) behavioural control factors to facilitate or to impede the application of SEF?	**Perceived Behavioral Control**	*Do you wish to have a child? If yes, which age would be ideal to have your first child at?* *What do you think, which age would be ideal for retrieving the oocytes?* *If you were interested in social egg freezing, where would you get information on it?* *As it was mentioned in the FAZ article, the oocytes' retrieval costs around €3000 in Germany. Could you afford it?* *To whom would you tell, if you (female) / your partner (male) were to choose social egg freezing?* *Which of your friends, family, colleagues, would support your decision? Why? Who wouldn't support your decision?*		**Non-SEF**
(3) Amongst women who have undergone SEF, (a) what are the actual controls for performing SEF?	**Actual Control**	*Do you have children or plan to have children in the future?; If yes, what would be the ideal age for you to have your first child?* *When did decide for social egg freezing?/ When did you freeze your oocytes?* *How did you gather information on the medical process?* *As it was mentioned in the FAZ article, the oocytes' retrieval costs around €3000 in Germany. Did you make a similar experience on the costs?* *How did you afford social egg freezing? With whom did you discuss your decision? (Did you decide alone, or was it a joint decision with your partner?) Was there someone, who didn't support your decision? Why?*		**SEF**
(3)(b) What are women's experiences who have undergone SEF?		*Why did you decide for social egg freezing?* *How was your overall experience regarding the consultation and the medical process?* *How many oocytes were successfully frozen? How many rounds of retrieval did you have? Do you plan further rounds?* *Do you plan to opt for a pregnancy with your frozen oocytes?* *Could you imagine the following situations: Deciding for single motherhood with the frozen oocytes (with sperm donor)? In case you decide not to use your frozen oocytes, what would you do with them? Would you offer them for research, donate or let them destroy, etc.?* *Have you ever regrated to freeze your oocytes? Would you do it today again?*		**SEF**

Figure 11 Interview design – research questions 2 and 3

4.4.4 Transcription

The interviews were recorded in audio format and transferred to the licensed program f4transkript (Dr. dressing & pehl GmbH, 2020). The audio material was transcribed by applying content semantic principles in which the research focus is on the content the interview-partner has shared. Therefore, transcription includes words without focusing on dialect or accent, as some of the interview-partners were not native German speakers and neither was the interviewer (Barbara Keglovits). Stuttering, repetition and broken words are ignored as long as they did not have an impact on the content. Decreasing intonation is marked with a comma and shorter breaks and new sentences are marked with a full-stop. Breaks, longer than about three seconds are marked with dots in brackets (…). After a change of speakers, a new paragraph is started. Time stamps and the numbering of the paragraphs are included after every paragraph. Emotional expressions like laughing and crying are transcribed and marked in brackets such as (crying). Words that could not be heard clearly, but the meaning can still be assumed, are marked with a question mark in bracket (?), while words which could not be understood at all are marked as (inc.). The transcriptions are saved in Rich Text Format (RTF) and named with an anonymous identifier (Dresing & Pehl, 2018, pp. 20-26).

4.4.5 Qualitative content analysis

The transcriptions were transferred to the f4analyse licensed program (Dr. dressing & pehl GmbH, 2020) to enable qualitative content analysis according to Kuckartz et al. (2008) and Kuckartz (2016) in seven steps.

1. The interview transcriptions are read to gain familiarity with the text and to focus on the research questions.
2. Based on the research questions, the main categories and codes were developed and presented as an example in *Figure 12* and their entirety in *Appendix 9.2.* The research questions defined the first level of codes. To measure attitudes towards SEF, for instance, the attitude's components, such as beliefs, feelings and behaviours, must be identified. These become the second level codes. Further deductive codes are defined on the second or third level; for example, feelings towards SEF may be categorised as positive, neutral or negative. Additional deductive codes emerged from previously conducted research, as detailed in *section 4.2* and visualised in *Figure 7* and in *Figure 8*, such as the beliefs towards women undergoing oocyte cryopreservation, including women being described as selfish, career-pursuing women; victims of a male-dominated society; wise, proactive women; or naïve consumers (Keglovits, 2015;

Mertes, 2013). Furthermore, the reason for cryopreservation (i.e., age-related or disease-related infertility) resulted in different perceptions towards women who opted for oocyte cryopreservation (Cobo et al., 2018; Feiler, 2020; Goold & Savulescu, 2009; Keglovits, 2015; Kostenzer et al., 2021; Mertes, 2013; Petropanagos, 2010; Robertson, 2014; van de Wiel, 2014; Van der Ven et al., 2017). These deductive codes are expected to emerge in this study as well.

3. After establishing the first, second and third level codes, the transcripts are read and relevant text is linked to the existing codes. Most of the text is linked to some of the main codes and certain text may be linked to more than one code.
4. After the texts are linked to certain deductive codes, the segments of text under the codes are read to search for patterns. The inductive sub-codes are therefore defined mostly on the second and third level. For example, interview-partners showed a high interest in and curiosity about oocyte cryopreservation. It became an inductive code with sub-codes, as participants' interest refers to the success rate, costs, legal considerations, how the fertilisation is conducted, which questions they would ask women who had undergone oocyte cryopreservation and so forth.
5. The text is re-categorised based on the more detailed deductive and inductive codes.
6. The categorisation has its final description and is reviewed for completeness.
7. The statements of certain codes are analysed, summarised and concluded in the dissertation.

The final design of the codes for attitude towards SEF, as an example, is presented in *Figure 12* below. Whereas the first level code (attitude towards SEF) originates from the research question, the second level codes were defined based on the applied theory (tripartite model) (Allport, 1935; Fishbein & Ajzen, 1975) and categorised as cognitive, affective and behavioural, such as information source, medical knowledge, potentials and concerns, feelings and consideration of choosing SEF. On the third level, expected codes were added based on the preliminary studies. All of these deductive codes are marked with a black frame, while the inductive codes, emerged during the analysis, are highlighted with a grey dotted frame.

Additionally, in order to highlight and visualise the attitude's direction (positive or negative) and its intensity (Allport, 1935; Fishbein & Ajzen, 1975), the codes' allocated statements were further categorised on a rating scale, *negative; more negative; mixed/neutral; more positive; positive*, and always in relation to the researched attitude object. Note, the participants did not provide responses as per the scale, thus the statements, allocated to these dimensions during the analysis, may be overlapping, as words cannot always be clearly

categorised, or not having constant distances on the rating scale (e.g. between negative and more negative or between more negative and mixed/neutral). Due to the qualitative nature of the current study, this allocation is not intended to be analysed with complex quantitative methods, but to support the qualitative results.

Interviews were conducted in German, the original German transcription was analysed, as described above. For publication purposes, I translated the statements, which were used as examples in *Chapter 5*.

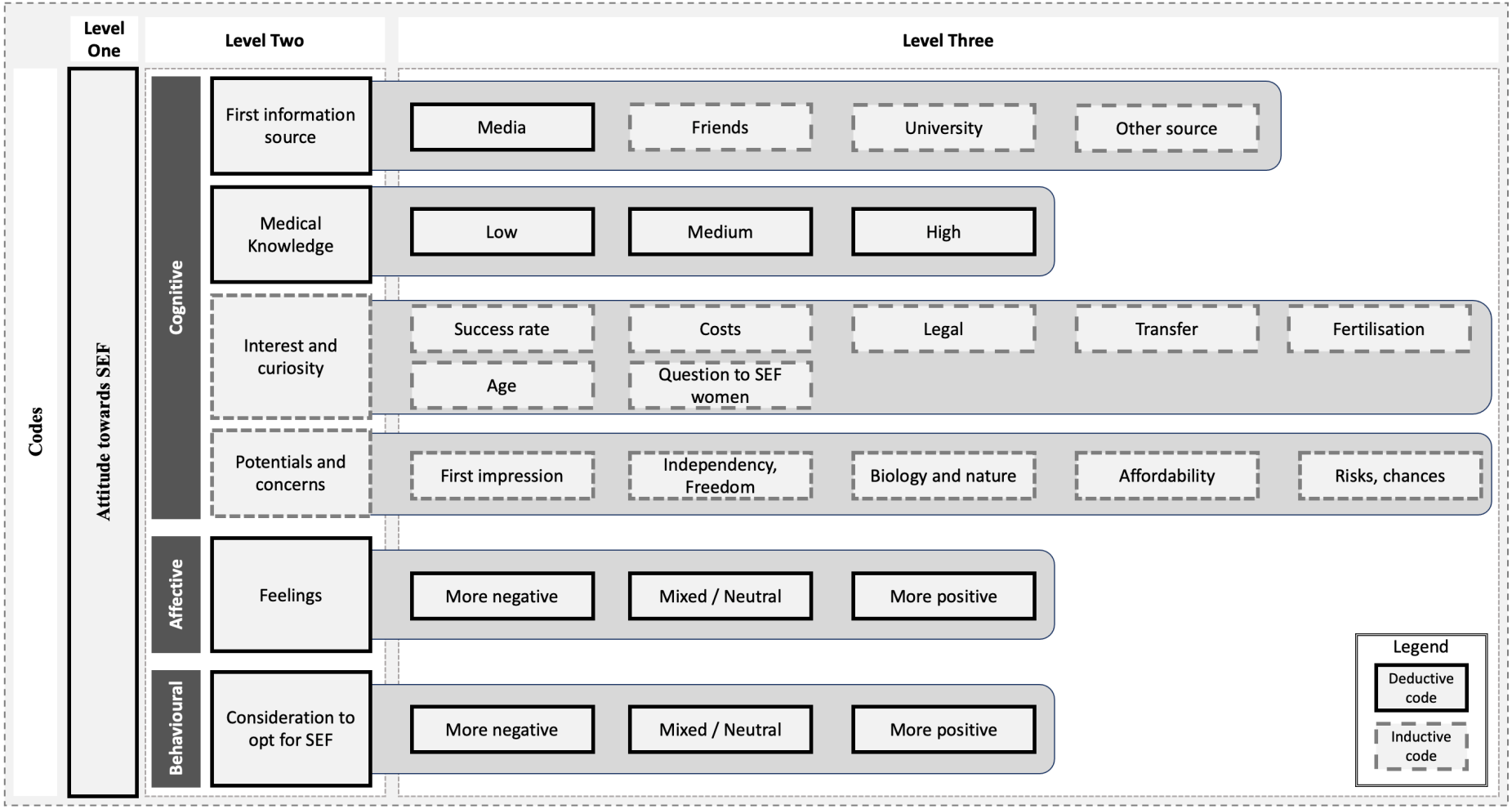


Figure 12 Codes - attitude towards SEF

5 Analysis

In this chapter, I introduce those who participated in my empirical research (*section 5.1*) and describe the analyses I conducted to answer my dissertation's research questions: RQ 1(a) the target groups' attitudes towards social egg freezing (SEF) (*section 5.2*), RQ 1(b) their attitudes towards women who chose SEF (*section 5.3*) and RQ 1(c) their attitudes towards SEF as an employee benefit (*section 5.4*). I also analyse RQ 2(a), the target groups' perceived social norms around opting or not opting for SEF (*section 5.5*), along with their behavioural control factors (*section 5.6*). Additionally, I use RQ 3(a) to address the actual control factors amongst women who have undergone SEF (*section 5.7*) and RQ 3(b) to cover their experiences respectively (*section 5.8*).

5.1 Participants

Twenty interview-partners participated in the study. I have categorised these participants into three groups: (1) women with personal experience of OC (SEF women) and participants who have no personal experience of the method; based on their gender, I have further divided them into (2) women (non-SEF women) and (3) men (non-SEF men).

I applied a survey question about personal experience of SEF (*What personal experience do you have with social egg freezing?*) to confirm my categorisation into non-SEF and SEF participants. 16 interview-partners answered the question with *I don't have any personal experience*; I placed these into the group of non-SEF participants, then further identified them as belonging to the groups of (2) women or (3) men based on their reported gender in the survey. Three participants answered the question with *I've opted for social egg freezing* and another participant replied *I've had a consultation in a medical centre*. At the time of the interview, the latter participant had decided to pursue SEF, but had not yet undergone the medical procedure. She later confirmed that she had successfully completed the procedure and cryopreserved her oocytes. As such, I am analysing her responses within the group of women who chose SEF, and her experiences with cryopreservation and its results are not part of the current study.

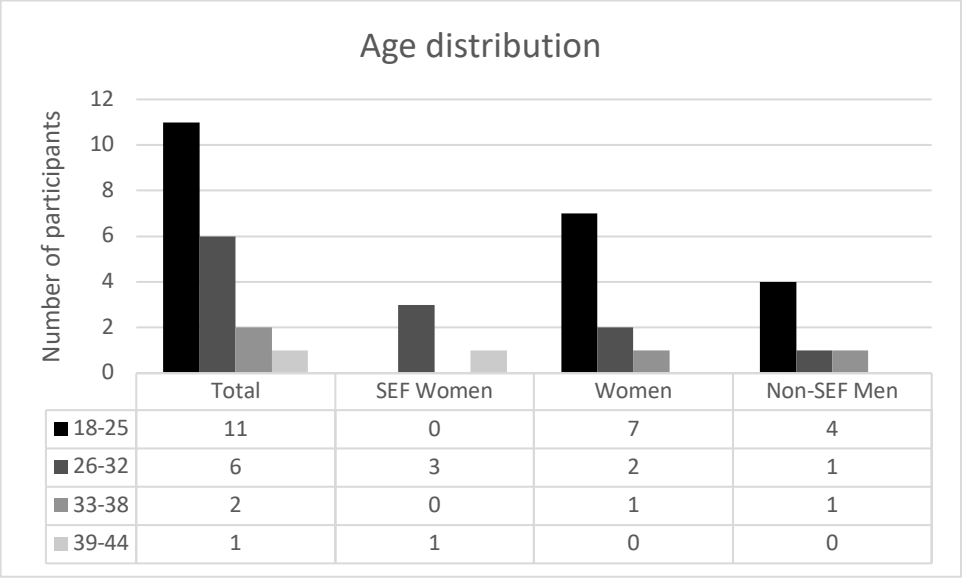
5.1.1 Demographics

5.1.1.1 Age distribution, sexual orientation and marital status

I asked participants about their age according to the following five ranges: *18–25*, *26–32*, *33–38*, *39–44* and *45+*. As visualised in Figure 13, more than half of the participants (n=11) are

aged 18–25, six participants are aged 26–32, two are aged 33–38 and one person is between 39 and 44. No participant belongs to the age range 45 or older. During the interviews, I asked participants about their specific age. The youngest participants (n=2) are 22 years old and the oldest is 41 years old. The average participant age is 27 and the median age is 25.

The age distribution differs between the groups. Compared to the other groups of participants, women with SEF experience (n=4) are the oldest, aged 32, 32, 32 and 41, which makes their average age 34 and median age 32. Women without personal SEF experience (n=10) have an average age of 25 and a median age of 24, as the youngest participants in this group are 22 and the oldest is 34. Furthermore, men (n=6) have an average age of 26 and a median age of 25, with the youngest participants (n=3) aged 24 years and the oldest 34. All participants without SEF experience were of reproductive age and based on their ages, all women qualify as the potential target group for SEF.



	Total	SEF Women	Women	Non-SEF Men
18-25	11	0	7	4
26-32	6	3	2	1
33-38	2	0	1	1
39-44	1	1	0	0

Figure 13 Participants' age distribution

The survey asked for interview-partners' marital status by providing the following options: *single*, *married*, *widowed*, *divorced* and *separated*. Almost all participants (n=19) are of single marital status and one participant who had already chosen SEF is married. Participants were also able to indicate their sexual orientation by either choosing the categories *heterosexual* or *other*, with the option to specify. All participants (n=20) identified as heterosexual.

5.1.1.2 Educational background

I also asked the participants about their educational background. All have either graduated with a bachelor's degree (n=9) or master's degree or equivalent (e.g., state exam) (n=5), or are currently pursuing their studies at the university level (n=6). Similarly to other studies on

women who have chosen SEF, women participants in this study are highly qualified, as all of the participants in this group (n=4) have a master's degree or equivalent. Half of the women without SEF experience (n=5) are currently university students and the remainder have completed a bachelor's degree (n=4) or master's degree (n=1). One of the male participants is still completing his studies and the others (n=5) have a bachelor's degree. All participants are therefore fulfil the preliminary definition to qualify as the target group.

5.1.1.3 Work experience

I assessed the participants' work experience by surveying their years of professional experience in four categories: *less than 3 years*, *3–5 years*, *6–10 years* and *more than 10 years*. Participants with work experience also had the option to indicate the industry in which they are employed. Almost half of participants (n=9) reported no work experience, given they are still university students or have just finished their education. Five participants have worked less than three years, two participants have work experience of 3–5 years, three participants have 6–10 years of experience and one participant has more than 10 such years. SEF women have more work experience on average than non-SEF women or men, which may be mainly due to their older ages. The participants who reported any prior work experience (n=11) were employed in the health industry (n=5), commerce (n=2), banking/financial industry or insurance (n=1), automobile industry (n=1) or in other industries (n=2).

5.1.1.4 Residency

I assessed the participants' residency based on the postal codes they provided in the survey. Most (n=18) currently reside in Hesse, in the bigger cities of Hesse or their metropolitan area, including Darmstadt (n=9), Frankfurt am Main (n=6), Wiesbaden (n=2) and Giessen (n=1), while two participants, both of whom opted for SEF, reside in Hamburg.

5.1.1.5 Political orientation

I assessed the participants' political orientation with an open survey question—'If there were an election next Sunday, which party would you vote for?' Two participants chose not to answer the question, while one participant in the SEF women group indicated preference for two political parties. The most popular political party amongst participants is Die Grünen (The Greens) (n=9), followed by Christlich Demokratische Union (CDU) (Christian Democratic Union) (n=4), Socialdemokratische Partei Deutschlands (SPD) (Social Democratic Party)

(n=3), Die Linken (The Left) (n=2) and Ökologisch-Demokratische Partei (ÖDP) (Ecological Democratic Party) (n=1).

5.1.1.6 Religion

I asked the participants to indicate their religious identity with a multiple-choice question, 'Are you member of any religion?', and the options of (1) *yes* or (2) *no*. If participants answered yes, they had the opportunity to specify their religion. More than half of participants (n=11) reported that they were members of a religion, while less than half (n=9) did not. Participants who answered affirmatively indicated Protestantism (n=7), Catholicism (n=3) and Buddhism (n=1) as their religions. While only 25% of women (one out of four) who chose SEF considered themselves religious, this percentage was higher amongst participants who had no personal experience of SEF: 60% of non-SEF women and 66% of men considered themselves religious.

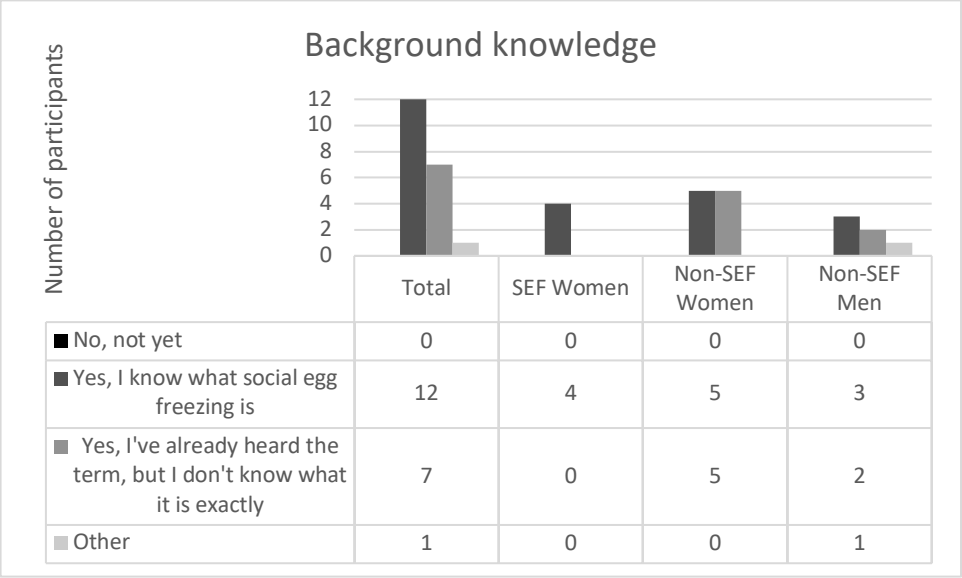
5.1.1.7 Wish for a child

I asked participants whether they planned to have a child in the future using a multiple-choice question which they could answer with (1) *yes*, (2) *no* or (3) *I don't know*. All participants answered this question and none chose *no*. Fifteen participants expressed clear plans to have a child in the future by answering the question with *yes* and a further five participants were indecisive, answering *I don't know*. 50% of SEF women answered the question with *I don't know*; however, one had two children already and the answer referred to additional children. Consequently, I consider that only one participant (25%) is undecided about having a child. This number is slightly lower amongst participants who do not have any personal experience of SEF: 20% of women (two out of ten) and 16% of men (one out of six).

5.1.2 Background knowledge about social egg freezing

I assessed the participants' background knowledge with a survey question asking whether they had heard about social egg freezing before participating in this study. They could answer this question with one of four options: (1) *No, not yet*, (2) *Yes, I've already heard the term, but I don't know what it is exactly*, (3) *Yes, I know what social egg freezing is* or (4) *Other*, with the possibility to specify. As presented in *Figure 14*, none of the participants reported that they hadn't heard of SEF in one way or another. Twelve participants indicated that they were familiar with social egg freezing and a further seven participants had heard the expression, but were unsure what it was exactly. One participant marked the option *other* and specified that although he was familiar with the medical procedure, the term social egg freezing itself was

new. All women who had undergone SEF chose Option 3. Participants with no personal experience showed similar perceived knowledge: 50% of women answered that they knew what social egg freezing was and 50% had heard the term before, while 50% of men knew what social egg freezing was, 33% had heard the term and 16% were aware of the medical procedure but not the term.



	Total	SEF Women	Non-SEF Women	Non-SEF Men
No, not yet	0	0	0	0
Yes, I know what social egg freezing is	12	4	5	3
Yes, I've already heard the term, but I don't know what it is exactly	7	0	5	2
Other	1	0	0	1

Figure 14 Participants' background knowledge

All participants confirmed in the survey that they had read the pre-circulated article, published in *Frankfurter Allgemeine Zeitung* about SEF, prior to the interview.

5.1.3 Concluding remarks

The results of the survey confirm that all interviewed participants fulfilled the target group requirements—that is, all non-SEF participants are of reproductive age, they live in an urban area and they are pursuing an academic degree or already have one. All non-SEF participants disclosed their gender and I allocated them to the non-SEF women or non-SEF men groups. Four women reported personal experience of SEF, three of whom had already cryopreserved their oocytes and one of whom was still in the consultation phase at the time of interview, but later confirmed that she had undergone SEF. As such, I identified and allocated these four to the SEF-women group. Other demographic characteristics provide additional information on the participants.

5.1.4 Participants' statements

In this section, I describe the overall data I used to assess my research questions. One statement qualifies as a sentence or sentences, which contains an information or perception that can be

allocated to a code during the analysis. I identified a total of 625 statements across the 20 interviews with participants of the three target groups (non-SEF women, non-SEF men and SEF women) and allocated them to one of the codes. *Figure 15* visualises the distribution of statements amongst participants. The top contributors were Ella, a SEF woman with 46 statements, and the following non-SEF women: Anna with 43 statements, Lara with 38 statements and Esther with 36 statements. Amongst non-SEF men, Luca had 35 statements. On average, participants made 31.25 statements I used in the analysis. SEF women's interviews had, on average, the most (35) statements identified, followed by non-SEF women's interviews, with an average of 31.7 statements, and non-SEF men's interviews, with an average of 28 statements. The average length of the interviews[24], was ca. 32 minutes, almost equally distributed between the groups, i.e. non-SEF women in average ca. 31 minutes, non-SEF men ca. 32 minutes and SEF women ca. 33 minutes. The total length of the 20 audio recordings were 631 minutes.

Note, when statements are quoted, not the participants' real names are indicated, but pseudonyms that correspond to their gender. Also, their age and the paragraph of the transcription are mentioned after the names. Additionally, if a participant has SEF experience, it has been indicated for the quotes before her name, e.g. SEF_Maria.

[24] Considering only the recorded questions and answers, excluding the pre- and post-interview discussions, such as presenting the aim of the study and the conditions of participation or the completion of the demographic survey.

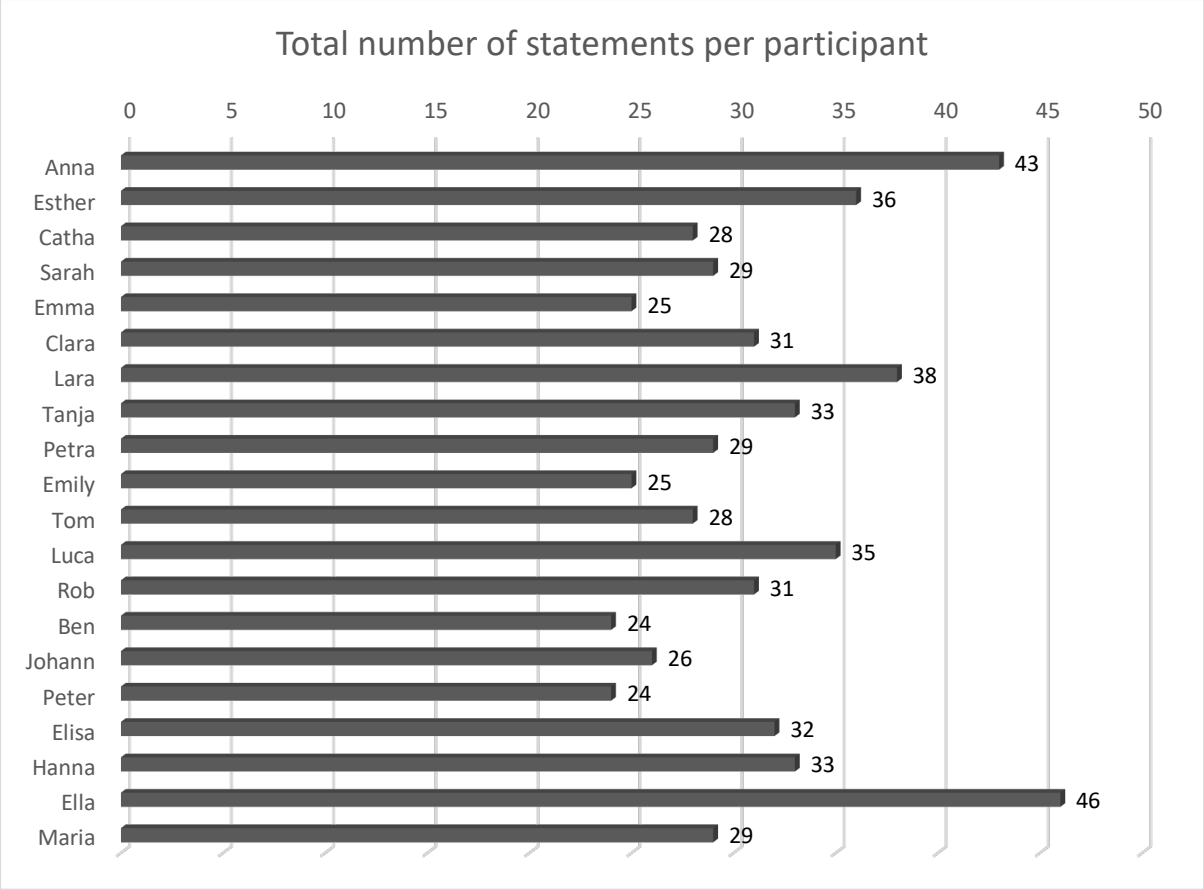


Figure 15 Total number of statements per participant

As shown in *Table 1*, I allocated the 625 statements to the Research Questions (RQ). For the attitude research about (a) SEF, (b) women who opted for SEF and (c) SEF as a benefit, I identified 298 relevant statements. Of these statements, 172 were mentioned by non-SEF women (n=10), 105 by non-SEF men (n=6) and 21 by SEF women (n=4). It should be noted that I only assessed SEF women's attitudes for RQ 1(c). For RQ 2, I assessed participants' statements in relation to (a) social norms and (b) perceived control factors to decide for or against SEF, identifying a total of 237 statements for analysis. Of these, 145 statements were mentioned by non-SEF women (n=10), 63 by non-SEF men (n=6) and 29 by SEF women (n=4). To answer RQ 3, concerning SEF women's (a) actual control factors to choose SEF and their (b) experiences, I identified 90 statements in the four interviews conducted with SEF women. I disuss my detailed allocation of these statements to the codes in the following sections.

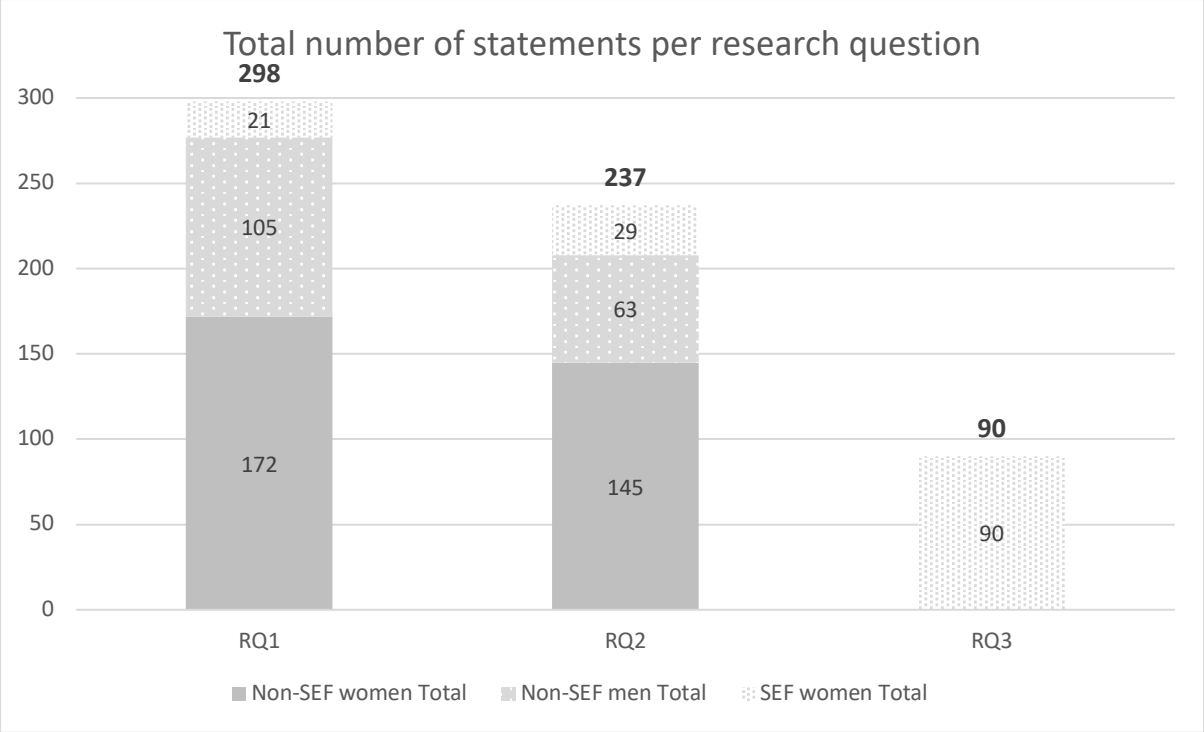


Table 1 Total number of statements per research question

5.2 Attitude towards SEF

To answer research question 1(a), what are the target groups' attitudes towards SEF, I assessed the participants' attitudes towards OC for so-called social reasons and analysed their perceptions on three levels (Allport, 1935; Fishbein & Ajzen, 1975): their (1) beliefs, (2) feelings and (3) behaviour towards SEF. As for their (1) beliefs, it was important to understand what kind of information participants had about the opportunity for SEF; whether they had heard about it before and where the information came from; whether they understood the medical procedure of OC; and whether they saw SEF as a benefit for women or society, or if they instead highlighted its possible risks. Furthermore, I asked the participants about their (2) feelings towards this opportunity and about their potential (3) behaviour. More specifically, women shared whether they would consider SEF and male participants were asked about their willingness to support their female partners undergoing SEF or their use of previously cryopreserved oocytes as part of their mutual wish for a child. I categorised the participants' statements about their beliefs, feelings and behaviours based on direction (positive or negative) and intensity in order to ascertain their attitudes towards SEF. I also asked SEF women about their first information source or their first impression of SEF, but have not included their answers in the attitude analysis about SEF. In the first part of this section, I present the identified statements in relation to certain codes, basing my analysis on their direction and intensity towards the attitude object (SEF), and then describe the participants' individual attitude analysis below in *section 5.2.4.*

5.2.1 Beliefs about SEF

In this section, I cover where the interview-partners first learned about SEF as well as their understanding and background knowledge about the medical procedure, including the hormonal treatment, retrieval, in vitro fertilisation and the fact that the retrieved oocytes are not fertilised and thus the biological father of the future child is not yet defined. Participants asked numerous and diverse questions about this medical opportunity, such as the success rate, costs and legal background, and their interests and curiosity are also summarised in this section. As SEF is a relatively new phenomenon, I have described the interviewees' first impressions below, including their perceptions as to whether this medical intervention to postpone motherhood supports women's independence and freedom, creates ethical issues due to its unnatural attributes or emphasises inequality between women of different classes, given the medical procedure's high costs.

5.2.1.1 First information source

To set the scene, I started my interviews by asking the participants whether they had ever heard about SEF and if yes, for how long they had been familiar with the phenomenon. Since I provided all participants with an overview article on SEF before the interview, as part of the study, my questions were related to their knowledge prior to reading said article. Between 2014 and 2015, as USA technology companies started offering their female employees financial support for SEF, the media coverage of this topic grew, not just in the USA, but in Germany as well. This is the period in which most participants gained basic knowledge about SEF or its existence.

All participants reported that they had heard or read about SEF; some may not have been familiar with the term itself, but they were aware of the possibility of women cryopreserving their oocytes and using them at a later stage in their lives to reproduce.

> 'Well, I haven't heard the expression social egg freezing, but I did know one can do it.' (Luca, 24, Paragraph 10)

> 'I know of the method, but actually, I didn't know that this term refers to it. I've already heard that you can freeze your eggs, but I remembered again once I read this short summary.' (Tanja, 23, Paragraph 5)

> 'Although I know the expression, I know it exists, I have never dealt with it extensively […] I know that the phenomenon exists.' (Petra, 29, Paragraph 6)

Most participants engaged with the topic via the media, as they had read an article or seen media coverage (e.g., television discussion) of SEF. However, participants with no personal SEF experience described their knowledge as high-level: They were aware of the possibility, but had shown no deeper interest or carried out any detailed research on the topic in the past prior to the interview.

> 'Well, I've kind of heard of it, but I've never really dealt with it in detail. Also, you know, a bit from the news, but otherwise, not much more.' (Anna, 26, Paragraph 6)

> 'Exactly. I believe a couple of years ago, well, six or seven years ago, it was huge in the media. At that time I was at school and at that time I had a totally different view of how my future would be.' (Clara, 22, Paragraph 6)

> 'I can remember that I've already read this article, I somehow registered it, but it didn't touch me, or I would have dealt with it in more depth. And it hadn't yet interested me.' (Tom, 34, Paragraph 10)

> 'I think in a discussion on TV where it was discussed, whether something like that should be allowed, or if it should be done or not.' (Tanja, 23, Paragraph 7)

Some of the participants even explicitly linked their first information source about SEF to US companies such as 'Google', 'Facebook campaign' or 'technology companies'.

> 'Hm, I mean, it was indeed, actually, in the context of Google news. Yes, that there is a possibility that women are offered [a chance] to freeze their oocytes in order to improve their career possibilities.' (Catha, 25, Paragraph 8)

> 'Yes, for the first time, indeed, I think within the scope of the Facebook campaign, that they would cover the costs for the female employees […].' (SEF_Ella, 32, Paragraph 7)

> 'In principle, I knew that it exists, well, I knew that technology companies do it in America, I knew that, but I didn't look at it in detail.' (Johann, 24, Paragraph 5)

Additionally, six participants mentioned that they first learned about SEF, or discussed the phenomenon, during their studies. These participants have different educational backgrounds, such as sociology, medicine, biomedicine or veterinary studies, but in the context of their studies examined cryopreservation from different angles.

> 'I even had a course at university about biomedicine or something like that. The ethics of this […].' (Ben, 24, Paragraph 8)

> 'In the winter semester 2019/20 I attended a seminar on the topic of prenatal diagnostics and yes, it was a bit in this direction. Hm, bioethics and yes, I found it interesting for sure.' (Peter, 25, Paragraph 2)

> 'It came from my studies, well, we also have it in veterinary medicine, when it comes to reproduction, all the different methods, and through this I learnt about it, that it also exists for humans.' (SEF_Elisa, 32, Paragraph 6)

In two other cases, the participants learnt about SEF through a friend.

> 'In the university context, a friend of mine also wrote her bachelor's degree thesis on this, then I took a look at it and I found out what it was.' (Sarah, 22, Paragraph 13)

> 'I've already heard of it through a friend.' (Esther, 23, Paragraph 6)

5.2.1.2 Medical knowledge

I asked my interview-partners whether they were familiar or unfamiliar with the medical procedure of OC. While some replied that they had either no or only shallow knowledge of the medical procedure itself, others provided a high-level description of how they imagine the medical intervention would take place. Even if participants were not able to describe the process of OC, they demonstrated their knowledge of other aspects of fertility, such as in vitro fertilisation or women's declining fertility as they age.

> 'Yes, I've asked previously how this freezing functions.' (Luca, 24, Paragraph 131)

> ‘I don’t know what this medical procedure looks like, how it functions. I’ve seen how in vitro fertilisation works, that I’ve seen. Everything in this micro, how do you say, microscopic range.’ (Tom, 34, Paragraph 61)

> ‘Indeed not. Well, I know that women have only a certain number of oocytes and they will always be fewer, that, well, as the time passes it’s going to be more difficult to become pregnant. I don’t know what the process looks like exactly.’ (Johann, 24, Paragraph 9)

Other participants provided some information they were aware of about the medical procedure but acknowledged the limitations of their knowledge. They used vague descriptions, and phrases like ‘more or less’, ‘I suppose’, ‘I can imagine’ and ‘I think’ to express their uncertainties. In most descriptions, they included the retrieval and cryopreservation steps as the main focus of the medical procedure.

> ‘Well, more or less, I can already imagine. I assume an oocyte is retrieved from the woman. And it is frozen. Well, anymore about the process, I don’t know.’ (Ben, 24, Paragraph 12)

> ‘I can imagine how it functions, but one hundred per cent, I do not know. I would guess, I can imagine, like the sperm bank or something similar for the oocytes. They will be stimulated and then retrieved, then frozen. That’s my interpretation.” (Clara, 22, Paragraph 10)

> ‘I don’t know the process exactly, no. I suppose it’s similar to stem cells, the freezing arrangements. That is, simply, I don’t know whether they are going to be frozen in nitrogen or how it’s done and then stored.’ (Catha, 25, Paragraph 12)

> ‘I can only imagine, well, I haven’t read about it, but I think basically that the woman’s oocytes are retrieved and either frozen or somehow else preserved, and therefore stored until the woman wishes to have a child.’ (Anna, 26, Paragraph 10)

> ‘I think I know more or less that for sure the retrieval of the oocytes exists and then these are frozen in some tank-like container. But much more I indeed don’t know.’ (Lara, 24, Paragraph 15)

Only one participant reported that she was familiar with the medical procedure, however, she did not describe the steps involved and thus did not present her knowledge (nor did I ask her to do so).

> ‘No, I actually know quite a lot about it. I cannot now name all the medical terms, but the whole process, that I know actually.’ (Sarah, 22, Paragraph 19)

5.2.1.3 Interest and curiosity

Most participants did not present well-founded knowledge of the medical procedure and some asked questions about different aspects of OC such as success rates, costs, the number of

women who have chosen SEF and so on. Participants showed openness and a high degree of interest in the topic. While I, as the interviewer, tried to keep to the set interview questions and not allow participants to direct the focus of the interview, I did provide brief answers in response to these questions. I explained that I was no medical expert and did not have all the background knowledge and statistics to hand, which are challenging to interpret. To conclude, participants' questions and interest brought additional value to the research, showing that the topic raised attention, stimulated thinking and established connections to other topics related to fertility. Interest and curiosity became an inductive code in the research, with its third level codes below.

5.2.1.3.1 Success rate

The most common and legitimate questions referred to the expected success rate of OC.

> 'The risk exists, yes. Do you know by any chance how high the probability is that this indeed works? Are there any numbers?' (Lara, 24, Paragraph 60)

> 'Namely, just because I indeed read an article about in vitro fertilisation and I already thought it works similarly. But do you know how high the chance is that it will run successfully and become a pregnancy? […] Because it has the connection to in vitro fertilisation with single mothers who would like to do it, but it didn't already work. Therefore, do we have the results or know how successful it is deemed to be?' (Petra, 29, Paragraphs 16–17)

5.2.1.3.2 Costs

Another focus of the questions was who would bear this medical procedure's costs. A logical assumption was that medical insurance companies would financially support women who choose either social or medical egg freezing. Clara's question below relates to the range of services that may be included in the price.

> 'And do you know whether medical egg freezing would be subsidised by medical insurance or will one cover their own costs?' (Esther, 23, Paragraph 83)

> 'Will it be covered by medical insurance or should one be paying by herself?' (Emma, 24, Paragraph 15)

> 'She freezes the eggs, but does the price include the hormonal treatment, retrieval, freezing also? And then again to implement? Or is it just the process I already discussed, with stimulation, the egg retrieval, etc., and when I would like to thaw them, for example, to implant them again, would it cost extra or is it included in the price?' (Clara, 22, Paragraph 65)

5.2.1.3.3 Legal

Two participants, Esther and Luca, showed curiosity about SEF's legal background. Luca posed additional questions on related topics such as surrogacy and fertility tourism, as we proceeded in our discussion of the different laws in different countries.

> 'And since when is it allowed in Germany?' (Esther, 23, Paragraph 85)

> 'Ah, isn't it not allowed in Germany, surrogacy?' (Luca, 24, Paragraph 34)

> 'Well, is it becoming a real tourism issue?' (Luca 24, Paragraphs 37–38)

5.2.1.3.4 Transfer

Participants also raised questions about the transfer of the thawed oocytes. Esther's and Luca's questions below relate to surrogacy and whether it would be possible to transfer the thawed oocytes in another woman. Luca also expressed uncertainty as to how the transfer of oocytes was medically conducted.

> 'Can you also transfer someone else's oocyte?' (Esther, 23, Paragraph 93)

> 'Ah, okay, well theoretically, could someone transfer her own oocytes into an unknown woman? Or?' (Luca, 24, Paragraph 36)

> 'I find it very interesting. What I've asked previously, how this works, well, when someone froze their oocytes, how do you get them back? How is it done? Is she undergoing a surgery or something similar?' (Luca, 24, Paragraph 127)

5.2.1.3.5 Questions about women who chose SEF

Participants showed additional interest about the women who had already undergone SEF, focusing on the participation rate and their experiences.

> 'Do many people do that in the meantime, if you consider Germany? […] do we know how often something like this is done?' (Petra, 29, Paragraph 69–71)

> 'Indeed, I would be interested in what the current numbers are in case there are any known statistics out there. I assume that one says one woman out of thousand or I don't know how it is known that one says how many do this currently.' (Esther, 23, Paragraph 81)

> 'No, I would like to know what number we are talking about. Well, how big is the attention on it? Is it one percent of all women or is it eighty percent?' (Rob, 26, Paragraph 91)

> 'Were they [women who chose SEF] satisfied with the method, did it go well for them?' (Luca, 24, Paragraph 88)

5.2.1.3.6 Fertilisation

Several participants wanted to confirm that oocytes are not fertilised at the time of retrieval. Tom explicitly clarified whether it would be possible to use the current partner's sperm to fertilise the oocytes after the thawing process.

> 'Well, the oocyte must not be fertilised when it is frozen?' (Emma, 24, Paragraph 13)

> 'But these oocytes, are they not yet fertilised?' (Ben, 24, Paragraph 45)

> 'Well, if she is again together with another partner and later with the other partner they let the oocytes thaw, would they then be fertilised with the current partner?' (Tom, 34, Paragraph 65)

5.2.1.3.7 Age

While participants asked two questions about SEF's age limit, the questions were quite different. Petra was interested in the maximum age someone could undergo SEF and Emily was interested if there is a minimum age limit on this medical procedure, such that one could opt for it as soon as possible.

> 'Is there any ethical limit, that it's said after that a woman cannot do something like that anymore?' (Petra, 29, Paragraph 19)

> 'Yes, actually I also have a question. I found it really interesting at what age one could do that. …from what age?' (Emily, 34, Paragraph 74)

5.2.1.3.8 Other

Participants asked several other questions about the quality of the oocytes, the side effects of the treatment and the medical procedure, the origins of the term social egg freezing, the additional reasons for choosing SEF and how menopause actually impacts women's childbearing possibilities. The examples below demonstrate participants' further areas of interest about social egg freezing as well as female fertility.

> 'But one can see it beforehand? Well, when they are thawed, then one can see whether they have survived it or not.' (Luca, 24, Paragraph 133)

> 'What are the side effects?' (Luca, 24, Paragraph 96)

> 'Interjected question. I'm asking myself now, why is it called social egg freezing actually? Is it because of society or why it is called social?' (Peter, 25, Paragraph 60)

> 'Could it be a reason that the husband is sick?' (Petra, 29, Paragraph 49)

> 'But all the oocytes are not aging further?' (Clara, 22, Paragraph 12)

> 'Yes, whereas now when I think about it, I don't even know whether it often happens that one has children later, that she would have actually been able to have one. When

one this social egg freezing doesn't do, or? Well, that one can have children after the menopause.' (Johann, 24, Paragraph 63)

5.2.1.4 SEF's perceived potentials and concerns

The method of social egg freezing has raised numerous ethical questions worldwide. To analyse the phenomenon itself, and the contexts in which decisions are made, the researchers of several studies have created complex ethical mind-maps (see *section 3.2*). I therefore decided to test whether the participants saw SEF as having potential for women and society, or whether they would name the negative consequences of this opportunity.

5.2.1.4.1 First impression

The participants' first impressions of SEF were very diverse—varying not just from participant to participant, but also within their own minds: many could identify with the extremes of beliefs and emotions and partly with the different behaviours.

> 'With mixed feelings, I would say. Well, on the one hand, for example, I found it interesting just simply to know what is possible nowadays. But, on the other hand, I might still have concerns as well […].' (Anna, 26, Paragraph 8)

> 'Yes, ambivalent, because I saw right away quite a lot of pros and cons, or it's better to say, there are many pros and cons that came into my mind, which I would link to this […].' (Lara, 24, Paragraph 9)

> 'Ambivalent.' (Tanja, 32, Paragraph 11)

Many participants expressed that SEF was a new phenomenon to them and one labelled it futuristic. They found the opportunity interesting and strange and they showed openness to learning more about the technology, as discussed in the previous section.

> 'Well, I, yes, that's so, how do you say it, too incredible, that it's possible, or […] one knows that women sometimes have difficulties having children, or sometimes with medical support they try everything possible to have children. But this was, for me, new somehow. Well, it sounded like something new. I don't know, how I should describe it, it was something different. Do you know what I mean?' (Tom, 34, Paragraph 11)

> 'I found it very interesting […].' (Luca, 24, Paragraph 127)

> 'I found it interesting because in the context of equal rights and so on, it's modern. It was also addressed within the scope of Me Too. […] But I don't know, somehow emotionally, it doesn't touch me, happily or not, simply I just find it interesting.' (Rob, 26, Paragraph 15)

> 'In the first moment, you think already, this is totally strange that this possibility exists at all. […] but, essentially, I thought first, well, if the possibility exists, everybody should know whether they want it. And people want to realise it. So, why not.' (Ben, 24, Paragraph 10)

> ‘I was surprised, for sure. For me it seemed quite futuristic. That’s the fact. And well, I find it quite, I found it for the first time, when I heard it, that it’s somehow a strong intervention in the natural course of things. But in the meantime, I can understand why it is done, why they make use of it.’ (Johann, 24, Paragraph 7)

> ‘Yes, it was interesting, personally interesting. This would also be an option for me. I found it to be a good story.’ (SEF_Elisa, 32, Paragraph 8)

5.2.1.4.2 Independency, freedom

Several interview-partners mentioned that SEF gives a wider choice of possibilities in reproduction as it provides women with ‘the opportunity to have an autonomous and sovereign decision about [their] life-planning’ (Lara, 24, Paragraph 9). Also, as women are only fertile for a relatively short period in their lives, and this time collides with some women’s career plans, women do not have to choose between the two desires. Thus, ‘they can make their own decision about when they would like to have a child and they don’t feel pressured’ (Emma, 24, Paragraph 21). Another SEF participant, Maria, claimed that women have postponed many plans in life due to their studies and work, therefore it is an ‘opportunity for women to have [childbearing plans] in their own hands and I find it good. For me, I see it as a security […]’ (SEF_Maria, 41, Paragraph 17).

> ‘[…] but because somehow I see this […] actually as a chance, an opportunity’ (Peter, 25, Paragraph 4)

> ‘[…] that it’s biologically determined that someone, as a woman, only a certain period of time is available to have children and at some point, it doesn’t work anymore. Of course, there are many women who cannot arrange it with their careers and there is the possibility that they may not reach a decision. That they can make their own decision, when they would like to have a child and they don’t feel pressured.’ (Emma, 24, Paragraph 21)

> ‘I find it a very attractive thing for career women. In the current moment, and many women due to studies, due to work, they have automatically postponed many life plans and especially plans for children. But I find the opportunity for women to have [childbearing plans] in their own hands and I find it good. For me, I see it as security for myself, maybe in the future I don’t have any children […], but at least I know, within 10 years I can, I still have the opportunity. When I did social egg freezing, then I could be relaxed. I find this is a good thing.’ (SEF_Maria, 41, Paragraph 17)

5.2.1.4.3 Biology and nature

The nexus between nature, culture and technology is one of the main research areas of biopolitics, among other topics such as reproduction, human genetics or plastic surgery (Feiler, 2020). Similarly to other studies (e.g., Keglovits, 2015), this nexus was also addressed by the participants. Although SEF may become as accepted in society as other elective medical

interventions, such as cometic surgery (Rybak, 2009), have in recent decades, it might take more time, considering its recent availability.

One participant, Tanja, wondered whether 'one doesn't have to follow any of the rules of nature' (Tanja, 32, Paragraph 11). Another participant, Peter, believed that generally 'through surgical processes the naturalness [of reproduction] will again be undergoing a change' (Peter, 25, Paragraph 4). Elisa, who already cryopreserved her oocytes, shared her thoughts starting with the question, 'how long would it be okay to intervene in human reproduction, and when is it not anymore?' She described how challenging it was for her to draw a fine line between an ethically acceptable and ethically non-acceptable intervention. On the one hand, she personally did not define as 'acceptable' the genetic manipulation of unborn children's features such as choosing a child with 'blue eyes and blond curls' from a 'catalogue,' because that goes against what is natural. On the other hand, she argued that if certain diseases could be controlled by genetic modification, or if it is about delayed childbirth, then she viewed the intervention to be acceptable. In the end, she concluded that she would understand if other people struggled with drawing the line as well, or if they drew this line a bit 'lower' than she does.

> 'How long would it be okay to intervene in human reproduction, and when is it not anymore? I would be against it […] if someone chose a child from a catalogue, who has blue eyes and blond curls, then I would absolutely be against it. Because I think this is a natural process, but when it is about whether I would like to have children later, and yes or no. Or eventually genetic diseases could be ruled out, I'm for it. This means I can for myself, with difficulty, draw the line as to when it is still acceptable to intervene in reproduction and when I find it ethically unjustifiable. And that's why I can understand very well that other people put the line lower than I personally do, because fundamentally these limits, yes, let's say genetic reproduction (inc.) I'm also partially sceptical against it. Therefore, I can relate to other people who don't find it good that any intervention happens.' (SEF_Elisa, 32, Paragraph 77–78)

Emma introduced a further aspect to the discussion by addressing the issue as to 'where life begins' and whether the oocytes in the medical procedure of cryopreservation represent life or if they are only cells. Based on this parallel line of argumentation, she defined SEF as ethically acceptable, in her point of view. Emma also referred to abortion, as based on her information abortion is allowed until the third or fourth month of pregnancy because this is the point where life has been defined to begin.

> 'Well, I think one must be able to define where life begins, and I believe that the definition is, also (inc.) we talk about from the third or fourth month, I believe abortion, life first begins there. Based on the ethical definition, probably. And, therefore, the oocytes are simply cells and not yet a life. And, therefore, I find it ethically acceptable to do this.' (Emma, 24, Paragraph 96)

Luca pointed out that reproduction in this medicalised way diminishes the romantic aspect of it.

> ‘Of course, it’s also a bit planned. One is, when someone does it, it’s quite planned, like the nature of it, it’s not that romantic anymore.’ (Luca, 24, Paragraph 16)

5.2.1.4.4 Affordability

As described in *section 3.1.3*, SEF is a costly medical procedure, and at the time of writing, based on my current research, no company[25] or state insurance in Germany openly advertises covering any costs of OC for social reasons. Consequently, important questions are raised as to who can afford SEF and whether it creates further social inequality. Participants observed that due to the high costs, SEF is only affordable for a certain class of women, such as ‘the middle class, upper middle class’ (Tom, 34, Paragraph 13) and ‘top managers’ or the ‘top elite’ (Clara, 22, Paragraph 24). One participant even labelled SEF a ‘luxury problem’ (Rob, 26, Paragraph 25). SEF’s costs seem to be particularly high for those who are young and do not yet have a regular income. Another participant mentioned that SEF leads to a ‘further inequality (inc.), especially for people who have the money and can pay for it quasi to stay longer in their careers and quasi to climb higher in the career ladder’ (Peter, 25, Paragraph 4).

> ‘This social thing, this is anyway a matter, I mean, it’s possible only to a certain class of women. I mean, not all women can afford it. […] Exactly, therefore the bottom line is not all the women can afford it, so it’s again for, I don’t know, for the middle class, upper middle class, who can do this based on social reasons at all.’ (Tom, 34, Paragraphs 13-15)

> ‘As it’s so expensive, it costs a couple of thousands of euros, says the text, it’s still rather a luxury problem.’ (Rob, 26, Paragraph 25)

> ‘Exactly, this is a good €3,000 when someone is fairly young and has a lot of money.’ (Emma, 24, Paragraph 35)

> ‘I have to say, (inc.) it costs a great amount of money, (inc.) also not, this only gets done by probably just the top managers, so not someone who just, I don’t know, (inc.) a bit more (inc.) I don’t know, whether maybe (inc.) a top elite [clientele] will be established because of the social equality, inequality (inc.). Yeah.’ (Clara, 22, Paragraph 24)

5.2.1.4.5 Risks, chances

As described in *section 3.1.2.1*, there are many factors (e.g., individual differences and medical backgrounds, the biological parents’ ages, the reason for and method of cryopreservation and the experience of the clinic conducting the medical procedure) that influence OC’s success rate

[25] Note, Merck announced to provide financial support for fertility treatments, such as SEF only in 2023, when the interviews were already conducted (Hoffmann, 2023; Merck, 2023)

and the wish to have a child with this method. The potential medical risks and likelihood of having a live birth with this method were raised when participants expressed their attitudes towards SEF. Two aspects were addressed in the interviews. On the one hand, participants questioned how safe this medical procedure is for women and for their pregnancies and, on the other hand, the possible side effects of this medical procedure for the children born with SEF. Participants wanted to know if there are any studies that have indicated the success rate and confirmed that the medical intervention is 'safe'. In this section, I analyse only the biological aspects of risks and chances, addressing the social perceptions of older mothers and fathers and their children in *section 5.3.3.2* and in *section 5.5.2.1.1.*

One participant, Peter, expected a 99–99.5% certainty of successful oocyte retrieval and pregnancy before he would label it a safe medical procedure and consider it for reproduction to start his family.

> 'There are studies to confirm that it's safe, so it's safe both for the retrieval and of course to have children, that it works, of course, not 100% certain, but when I would say, really largely, the probability would be really, really high. Well, I would then say, at least 95% or rather 99% or 99.5%, when it's so likely, then, yes, sure.' (Peter, 25, Paragraphs 49–50)

Another participant, Clara, described a scenario in which a woman cryopreserves her oocytes, but none of these oocytes lead to a successful pregnancy, asking 'what happens next? Are you insured for an adoption […]? That's certainly a risk'. At this point, she asked who assumes responsibility for the medical procedure: is it the women who choose SEF or the medical professionals?

> 'I have only frozen 10 oocytes. And then if right away I use three to four in the process, then they will be fertilised and nothing happens, and only two to three are left. And it doesn't work. And I don't get any children. Well, my own, well, biological children. What happens then? Are you insured for adoption or [does someone] take care of? That's certainly a risk.' (Clara, 22, Paragraph 14)

Tom highlighted as well that he would be interested in the statistics on what it means for women to undergo OC. Tom was not just curious about women's health conditions, but also about the long-term effects for their children in relation to medical and psychological health. Another participant, Anna, also noted the importance of the child's well-being.

> 'How about the women? How are the numbers from this and that age, or is it something to do with herself, when she's in a good condition, when she is fit, are there any concerns? Well, these things would interest me.[…] Also, the medical and psychological [issues], I would, I would be interested. What's with the children? Are they physically healthy? Are there any long-term studies? Do they have any psychological, any signs, that they somehow, that they have a tendency for certain diseases or something like that?' (Tom, 34, Paragraph 21)

> ‘Is it really safe and first of all for the child in principle whom one would like to procreate, does it have certain health issues, or will nothing [like that] happen?’ (Anna, 26, Paragraph 8)

Luca concluded: ‘Well, if there are no health risks, then why wouldn’t one do that?’ This comment suggests that the health risks are one, but not the main, factor for making a decision about SEF.

5.2.2 Feelings towards SEF

For the second component of attitudes about social egg freezing, I assessed the participants’ feelings towards the attitude object. As presented in *Table 2*, one major wellspring of feeling is the the medical procedure’s only recent availability. *Curiosity, being surprised* and *being interested* were the most frequent, relatively neutral, feelings participants brought up. As discussed above, they asked further questions about the medical procedure and showed a high level of interest in SEF. Some participants tended to have positive feelings by *expressing excitement, being positively surprised* or even *marvelling* at SEF and the opportunity. On the other hand, two participants explicitly expressed negative feelings, such as *being confused, anxious* or generally *feeling bad* about SEF and *having a scary imagination* about what SEF brings with it. In sum, many participants found it challenging to answer the question and name their feelings; accordingly, in several cases their answers did not contain feelings and thus cannot be assessed for this attitude component.

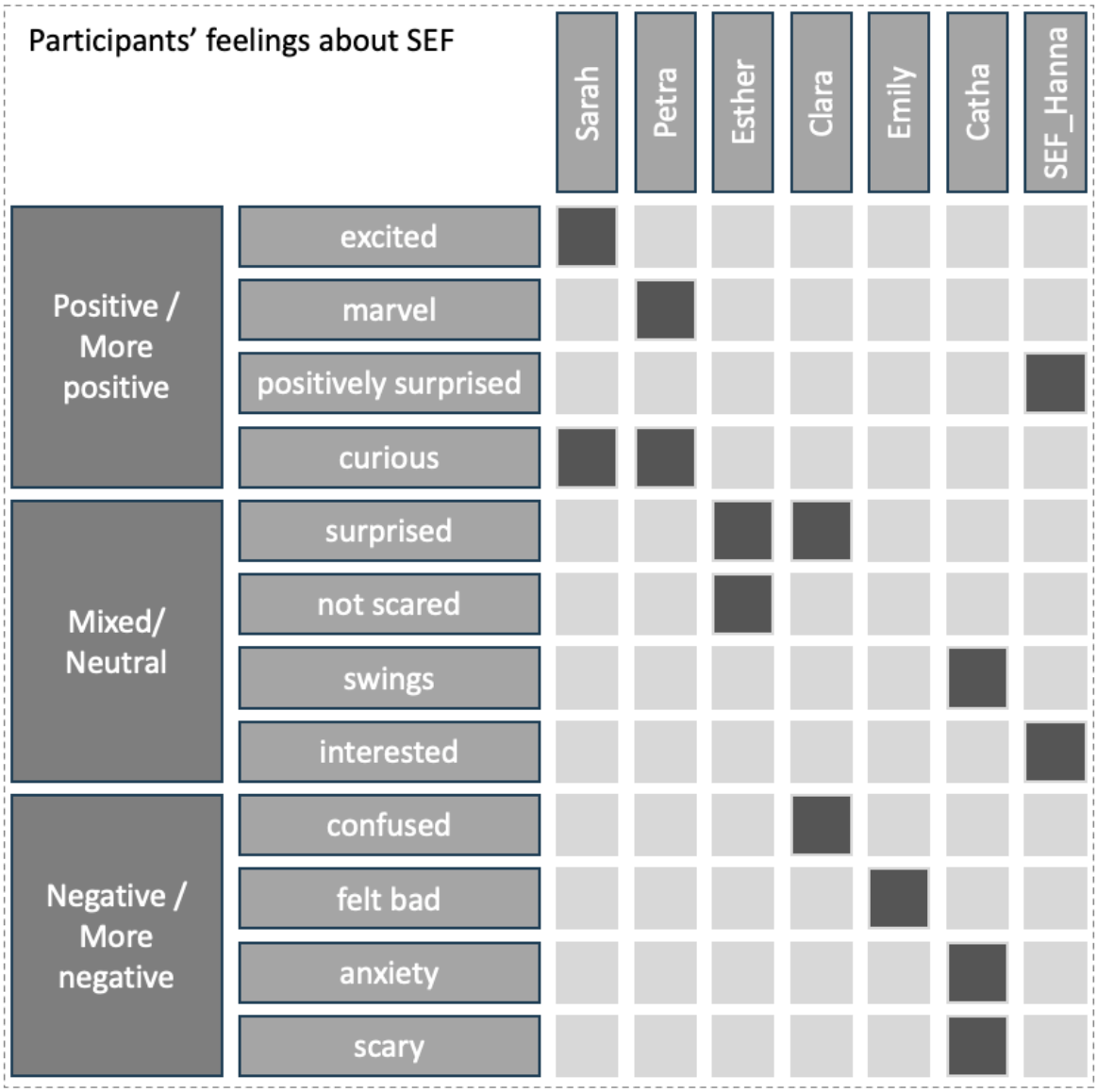


Table 2 Participants' feelings about SEF

'Well, first, really **excited**, yes, how did I feel? Well, it was first unexpected, because I didn't know that it's possible at all, but then I was **curious** considering my feelings.'(Sarah, 22, Paragraph 15)

'I was **surprised** because I've already known with sperm that one can do it, but one can also do it for the women, with the ovaries, I didn't know. I found it for sure interesting, but **not scared** only, but surprised that it's already come so far with the research.' (Esther, 23, Paragraph 8)

'I believe it's rather incredible what is biologically possible nowadays, so which possibilities exist (inc.) I was rather **curious** and yeah, I **marvel** at everything that can be done. That was, I believe, my feeling at first.' (Petra, 29, Paragraph 8)

'I believe I was somehow first **confused** and **surprised** that the possibility exists.' (Clara, 22, Paragraph 8)

> ‘As a woman, I **felt bad** because for me it wasn’t clear whether it’s indeed scientifically supported, or whether this also puts even more women under pressure.’ (Emily, 34, Paragraph 13)

> ‘Yeah, I have to say that it swings when one hears something like that, **swings** as, as not just positive thoughts, which somehow **anxiety** (inc.), because some of it is still new. And I think it’s actually a nice opportunity for women, but also a **scary imagination** a bit when one thinks about, […] I don’t know, whether it’s always only positive, if one can push it [childbearing] for later, as is their plan.’ (Catha, 25, Paragraph 10)

> ‘Well, I [feel] rather positive because I find it interesting that it’s possible and as I said, I cannot remember explicitly, but I was rather **interested** and **positively surprised** that something like this exists and works.’ (SEF_Hanna, 32, Paragraph 15)

5.2.3 Behaviour in relation to SEF

In this section, I focus on participants who have not had any personal experience of OC and their perceived potential behaviour in relation to social egg freezing. I assessed this behaviour with questions that varied according to their gender and reproductive possibilities. While I asked female participants whether they would consider social egg freezing in the future, I asked male participants whether they would support their female partners to undergo OC for social reasons. Additionally, I asked male participants whether they could imagine fulfilling their wish for a child through the use of their female partner’s previously cryopreserved oocyte.

5.2.3.1 Female participants’ consideration to opt for SEF

I conducted 10 interviews with women who had neither cryopreserved their oocytes nor participated in any consultations in the past. As such, they had no personal experience of the medical procedure and no children. Four women said they would rather not choose SEF, or they could not imagine doing so either now or in the future (Tanja: ‘rather not’; Lara: ‘as of now, I personally indeed would decide against it’; Emily: ‘I can hardly imagine’; Petra: ‘actually not’). All four women had different reasons for why they would not consider social egg freezing. First, Emily provided no explanation for her decision, but her reply was the strongest, in the negative direction, by using the words ‘at all’, giving no room for future reconsideration.

> ‘No, I cannot imagine it at all.’ (Emily, 34, Paragraph 52)

Petra and Tanja stated that they would ‘actually not’ or ‘rather not’ consider OC for career reasons, but they would leave the option for disease-related reasons open.

> ‘Actually not. Well, due to career reasons or reasons (inc.). Well, good, I have a partner with whom I can in principle imagine it. […] but for my profession I wouldn’t do that. Well, I wouldn’t opt for it for myself because I would think my career can be also

> possible with natural family planning at the age when the time is there.' (Petra, 29, Paragraph 42)

> 'I have also thought about it before the interview, but I think not. Not considering the diseases, only to ensure a career, no.' (Tanja, 32, Paragraph 26)

Lara shared her personal background: she may not be able to have biologically related children in the future because she likely lost her fertility due to a medication taken in the past. Therefore, the topic was not relevant for her to consider. She also believed that 'what shouldn't be, just shouldn't'. This statement can be interpreted as Lara choosing not to pursue a pregnancy artificially if it cannot happen naturally.

> 'I have been in the situation where I had to think about it due to medical reasons. […] But due to an autoimmune disease I was in the situation, I was, I had to deal with a medication, which actually the fertility, affects the fertility, and after taking it, it cannot be 100% ensured that I'm still in a position to be fertile at all. And based on that, I right away asked the question, how important are children to me in my life planning? And as the second step, which measures can I take? Or do I have the possibility at all to somehow influence this situation. […] as of now, I personally, indeed, I would decide against it.' (Lara, 24, Paragraph 35)

Three women showed clear openness towards SEF: none expressed a definite interest, but rather that they would at least consider the opportunity (Anna: 'I could consider it'; Esther: 'could be considered'; Catha: 'Yes, I think so, I believe it could be something'.) In general, all three appreciated the existing opportunity even if they might not end up choosing it. Esther highlighted that someone opting for social egg freezing should have a 'good reason', but did not specify in detail what would qualify, in her view, as such. Catha clearly suggested that she would consider postponing motherhood with OC due to career reasons, as she is a medical student, and if she 'would have good career opportunities' or would 'be self-employed in a practice'.

> 'Yes, I think, indeed, I could imagine. Yes. Well, I think it's a good option. And whether you actually use it or not is another thing. But simply that you have an opportunity and then without pressure, the career, or she can live her life, and make the decision after that, depending how it fits, well, it would be something that I would consider. Yes.' (Anna, 26, Paragraph 33)

> 'Yes, indeed, I have discussed it a bit with one of my friends, and it's something to be considered, although I think one should have good reasons for it and not just do it for less serious reasons. Let's see, maybe I want to have a child at the beginning of my thirties, but I still do it to be on the safe side, I think one should already have really [good] reasons why one does it.' (Esther, 23, Paragraph 37)

> 'Yes, I think so, I believe it could be something […] if I get a job where I would have good career opportunities, or I would be self-employed in a practice […] then it would

> be a good option to be able to postpone the family planning a bit. But I still have to make up my mind about it in detail. But for sure, I find the opportunity good.' (Catha, 25, Paragraph 45)

Three female participants were indecisive, either expressing several views or leaving the question unanswered. For instance, Sarah first stated that she 'cannot imagine' it, but she closed her view with the statement that 'it could be an option to consider'. Likewise, Emma first said 'I don't know', then conditionally added that 'maybe I would give a thought'. Clara did not want to pursue SEF now, but she would not rule out the possibility of doing so in the future. Both Sarah, at the age of 22, and Emma, at the age of 24, argued that they were not at the age currently where they were actively making plans about motherhood. Sarah believed she 'still [has] a lot of time' and would reconsider before reaching 30. Emma mentioned that she was 'not yet in the age' and would reconsider it in 10 years' time if childlessness was still relevant in her life. In sum, they did not entertain the idea of social egg freezing not because they found the medical opportunity unattractive, but rather because they did not see themselves as the procedure's target group. If they reconsidered their decision, as they mentioned in the interview (i.e., Sarah before reaching 30 and Emma in 10 years when she would be 34), both would still be categorised as ideal or still ideal candidates for the medical procedure (Feiler, 2020). Mesen (2014a) recommends that women freeze their oocytes at the beginning of their thirties due to the expected higher live birth rate, although based on the calculation (Mesen et al., 2014b) for cost-effectiveness reasons, the best age is 38. In addition, women cryopreserving in their twenties or early thirties may not return to their cryopreserved eggs, because they conceive without ART (Ben Rafael, 2018).

Clara argued that, as of now, she 'cannot imagine' it, but she wanted to keep the option to reconsider open. Although she was 22 at the time of the interview, she did not cite her age as being too young to think about it, as her peers Sarah and Emma did.

> 'Well, as of now I cannot imagine it. […] Also first, I still have a lot of time, well, I would consider it again before I am thirty because the oocytes before 30 are actually in the optimal time to do that. But I currently assume that I then, yes, I will have children for sure before 40 and then it would be for me, based on the current status, not relevant […] but you never know. Well, I don't know whether I'll have a partner by then, or well, what happens in life, exactly. But currently I cannot imagine it. […] No, exactly. I say when everything happens optimally and as I have imagined it in my head, at some point in time I have children, then it wouldn't be relevant for me. But if it doesn't work out, then for sure, it would be worth considering it. Then exactly, then it would be still possible.' (Sarah, 22, Paragraphs 40, 42, 44)

> 'I don't know. Well, I think you can do that and you don't have to use your oocytes if you can become pregnant naturally. […] I think, indeed, I'm not yet at the age where I

need to think about it. I think, I don't know, in 10 years, if I still don't have children, then I would give a thought.' (Emma, 24, Paragraph 65, 67)

'Whether I can imagine it initially yes. In the meantime, no. Well, as of now, I cannot imagine. Maybe I will change my mind in two to three years, but currently not.' (Clara, 22, Paragraph 52)

5.2.3.2 Male participants' consideration about SEF

In the interviews, I asked six men with no previous personal experience of SEF whether they would support their female partners choosing SEF. All men showed openness towards SEF and almost all highlighted that 'a discussion should take place' (Tom) and 'if there are reasons for it' (Rob) and if they can understand these reasons and motivations for their partners' decisions, they would support them. Luca mentioned that he believes 'it's the women's decision whether they do it, rather than the men's [decision]'. Similarly, Johann stated that 'the major part of the process of having a child is with the woman, therefore, I think in the end she should be able to decide about it'.

'Well, I think a discussion should take place for sure and if my partner wants it really, for 100%, of course I would support her.' (Tom, 34, Paragraph 23)

'I think, yes, for sure. Well, if I, money-wise, well, financially I can afford it, then definitely if she wants it. Because I think it's the women's decision whether they do it, rather than the men's [decision].' (Luca, 24, Paragraph 40)

'Yes, I believe so. […] yes, okay, I don't think that my girlfriend would want to do it. But if there are reasons for it, yes, for sure.' (Rob, 26, Paragraphs 40–42)

'Hm, I think, yes, yes. […] On the one hand, sure, yes. It's an opportunity, how you would like to postpone it to the future. But if it's based on my personal preference, I don't have the need to push my wish for a child always further into the future. […] if she would want to do it, then I would say, yes, okay. Do that.' (Ben, 24, Paragraphs 35–39)

'I would at least want to know, I would want to talk about it before. But otherwise, yes, in principle yes, if I can understand the motivations behind it and as I said, the major part of the process of having a child is with the woman, therefore, I think in the end she should be able to decide about it. And yes. If I can understand, then I would support it for sure.' (Johann, 24, Paragraph 25)

'Yes. I have a girlfriend, but she is now 23, well, somehow I would support it today. Yes, why not? […] Well, if she would want it. (inc.) the best time, yes sure.' (Peter, 25, Paragraph 37)

In some interviews I asked whether they would support their female partners using their previously cryopreserved oocytes for their mutual wish for a child. This option would mean that these men would be open to reproduction with assisted reproductive technologies. Faced

with this question, three male participants—Rob, Ben and Luca—showed support towards using frozen oocytes for their own reproductive plans. Two of them, Rob and Ben, noted the cost factor of this consideration in their answers: 'let's suppose that it wouldn't matter if we can afford it or not' (Rob, 26, Paragraph 51) and 'always a bit linked to costs' (Ben, 24, Paragraphs 45–47). For Rob, after disregarding the financial factor, the health perspective seemed to be the most important. Ben asked a clarification question about whether the child resulting from such a pregnancy would still be his biological child. After I confirmed that the oocytes are frozen in an unfertilized stage and the biological father is determined after the in vitro fertilisation, he supported the idea. Ben and Luca both closed their answers with '[w]hy not' (Ben) and 'why wouldn't one do that' (Luca), showing that they did not have any arguments against the idea.

> 'Yes, okay. Well, let's suppose that it wouldn't matter if we can afford it or not, but if the opportunity would be better to have a healthier child with it, I would be for it. Well, that's positive.' (Rob, 26, Paragraph 51)

> 'I believe I would see it quite pragmatically. […] Yes, why actually not. If she has it already now and this method (inc.) always a bit linked to costs and everything. […] A second short, interjected question. But they are not yet fertilised, these oocytes? […] Okay. If it's not the case, then they will be also my children, then it's quite a pragmatic thing, where you, then, it's safer, then I would say, yes. Why not.' (Ben, 24, Paragraphs 45–47)

> 'Well, I don't have a negative argument now why one shouldn't be using [the procedure]. Well, I would, if she wants it, agree. Well, if there are no health risks, then why wouldn't one do that?' (Luca, 24, Paragraph 42)

5.2.4 Conclusion: participants' attitudes towards social egg freezing

I assessed the participants' attitudes towards social egg freezing based on the statements of those who had no personal experience of SEF (non-SEF participants) about their beliefs, feelings and behaviours in relation to the attitude object. I categorised these statements based on their direction (positive or negative) and intensity on a five-point scale. This categorisation is visualised below in *Table 3*. When a participant's perceptions showed negative beliefs, feeling and behaviours in relation to the attitude object (e.g., negative first impression about SEF; showed no medical knowledge about OC; had serious concerns about SEF; linked it to negative feelings; would not consider choosing SEF; would not support his female partner's choice for SEF), I placed their statements on the left side, the black part of the heatmap. Less negative statements I categorised in the dark grey part. Mixed or neutral statements I added to the middle of the heatmap and marked dotted. More positive and positive beliefs, feelings and

behaviours in relation to SEF (e.g., positive first impression about SEF; detailed medical knowledge about OC; SEF as a potential for women and society; positive feelings; considering choosing SEF; would support his female partner's choice of SEF) I marked light grey or white and placed on the right side of the heatmap. For comparability reasons, the two target groups of the study, women and men without SEF experience, are shown on different heatmaps. The attitudes of women with personal experience of SEF I have already analysed and presented in the previous section, but the direction and intensity of their attitudes are not shown on the heatmaps below. I judged it more valuable to focus the interviews on their experiences than on their attitudes towards SEF and women undergoing SEF, as they had already reached a decision about the medical procedures. However, I did assess their attitudes towards SEF as an employee benefit and analysed in *section 5.4*.

5.2.4.1 Beliefs

I measured the participants' beliefs about SEF in five dimensions, each on a five-point scale, from very negative to very positive, as presented below in *Table 3*. The first dimension was the *information* (I) they had about SEF in general on a scale of *never heard about SEF* (negative) to *well informed about SEF* (positive). The second dimension was the *knowledge* (K) they had about the medical procedure of OC from *not having any knowledge* (negative) to *being aware of the medical procedure in detail* (positive). A further indicator was whether they had shown any interest or *curiosity* (C) for SEF and if this was *very sceptical* (negative) towards the attitude object or showed *positive interest* (positive). I assessed the fourth dimension, the *first impression* (F), on a scale of *very negative* to *very positive*. The last dimension was the potential (P) participants saw in SEF on a scale of *expressing very negative concerns* to *highlighting its positive potentials*.

Beliefs examples	Negative	More negative	Mixed / neutral	More positive	Positive
Information (I)	No example	‘Well, I’ve kind of heard of it, but I’ve never really dealt with it in detail. Also, you know, a bit from the news, but otherwise, not much more.’ (Anna, 26, Paragraph 6)	‘In the winter semester 2019/20 I attended a seminar on the topic of prenatal diagnostics and yes, it was a bit in this direction. Hm, bioethics and yes, I found it interesting for sure.’ (Peter, 25, Paragraph 2)	‘Hm, I mean, it was indeed, actually, in the context of Google news. Yes, that there is a possibility that women are offered [a chance] to freeze their oocytes in order to improve their career possibilities.’ (Catha, 25, Paragraph 8)	No example
Knowledge (K)	‘Yes, I’ve asked previously how this freezing functions.’ (Luca, 24, Paragraph 131)	‘Indeed not. Well, I know that women have only a certain number of oocytes and they will always be fewer, that, well, as the time passes it’s going to be more difficult to become pregnant. I don’t know what the process looks like exactly.’ (Johann, 24, Paragraph 9)	‘I think I know more or less that for sure the retrieval of the oocytes exists and then these are frozen in some tank-like container. But much more I indeed don’t know.’ (Lara, 24, Paragraph 15)	‘No, I actually know quite a lot about it. I cannot now name all the medical terms, but the whole process, that I know actually.’ (Sarah, 22, Paragraph 19)	No example
Curiosity (C)	No example	‘Is there any ethical limit, that it’s said after that a woman cannot do something like that anymore?’ (Petra, 29, Paragraph 19)	‘But these oocytes, are they not yet fertilised?’ (Ben, 24, Paragraph 45)	‘Ah, okay, well theoretically, could someone implant her own oocytes into an unknown woman? Or?’ (Luca, 24, Paragraph 36)	‘Yes, actually I also have a question. I found it really interesting at what age one could do that. …from what age?’ (Emily, 34, Paragraph 74)
First Impression (F)	No example	No example	‘Yes, ambivalent, because I saw right away quite a lot of pros and cons, or it’s better to say, there are many pros and cons that came into my mind, which I would link to this […].’ (Lara, 24, Paragraph 9)	‘I found it interesting because in the context of equal rights and so on, it’s modern. It was also addressed within the scope of Me Too. […] But I don’t know, somehow emotionally, it doesn’t touch me, happily or not, simply I just find it interesting.’ (Rob, 26, Paragraph 15)	‘I found it very interesting […].’ (Luca, 24, Paragraph 127)
Potential (P)	No example	‘This social thing, this is anyway a matter, I mean, it’s possible only to a certain class of women. I mean, not all women can afford it.’ (Tom, 34, Paragraph 13)	‘There are studies to confirm that it’s safe, so it’s safe both for the retrieval and of course to have children, that it works, of course, not 100% certain, but when I would say, really largely, the probability would be really, really high. Well, I would then say, at least 95% or rather 99% or 99.5%, when it’s so likely, then, yes, sure.’ (Peter, 25, Paragraphs 49–50)	“[…] well, my very first feeling was, ah, it’s brilliant. as a woman I get the opportunity to make a decision on my life-planning autonomously and in a sovereign way’ (Lara, 24, Paragraph 9)	‘[…] that it’s biologically determined that someone, as a woman, only a certain period of time is available to have children and at some point, it doesn’t work anymore. Of course, there are many women who cannot arrange it with their careers and there is the possibility that they may not reach a decision. That they can make their own decision, when they would like to have a child and they don’t feel pressured.’ (Emma, 24, Paragraph 21)

Table 3 Participants' beliefs about SEF - heatmap

In total, 82 statements were linked to one of the dimensions on the scale: 47 statements for women without experience (4.7 per participant) and 35 for men without experience (5.8 per participant). *Figure 16* below presents the distribution of the dimensions. I allocated the 82 statements as follows: 18 to Information, 14 to Knowledge, 26 to Curiosity, 8 to First Impression and 16 to Potential. In sum, participants did not have much information on SEF in general and lacked medical knowledge of OC. All statements linked to the *negative* category were related to participants' medical knowledge. Although the interview-partners presented little or no knowledge of the attitude object, they asked many questions about it: I allocated 26 statements to Curiosity, an average of 2.6 per participant. While some curiosity questions were *more negative*, most were *mixed/neutral* or *more positive*. Thus, the participants showed interest in SEF. The participants' first impressions were mostly *mixed/neutral*, *more positive* or *positive*. However, when I assessed the perceived potential of, or the concerns about, the medical opportunity, participants had more *more negative* statements (10) than *mixed/neutral* (1), *more positive* (3) or *positive* (2).

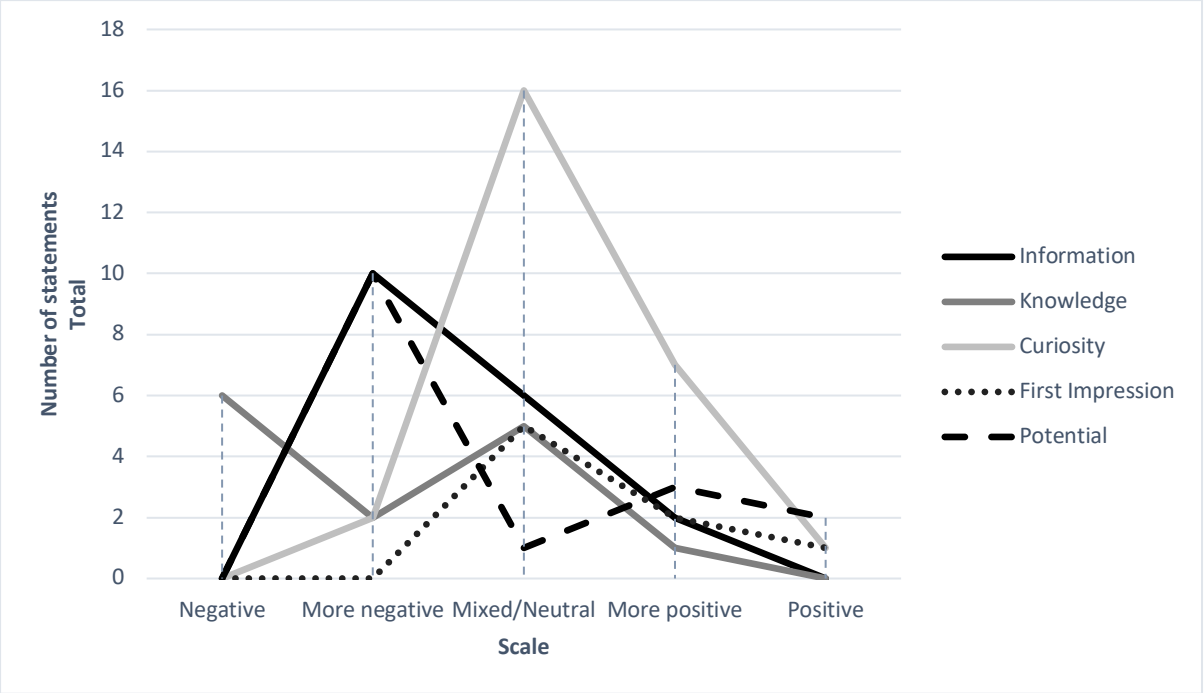


Figure 16 Participants' beliefs about SEF - statements

According to the gender-based analysis, statements from non-SEF women demonstrated less prior information about SEF compared to men, as most of their statements were located on the negative side of the scale, with eight *negative*, three *mixed/neutral* and only one *more positive*. Their male peers' statements were distributed more equally on the scale, having two *more negative*, three *mixed/neutral* and one *more positive* statements. I observed a simlar

statement distribution in both target groups, as almost none of the participants without SEF demonstrated detailed knowledge about OC. Both non-SEF women and men posed curious questions about the medical procedure, however, I interpreted the male participants' questions as more positive than their female peers' questions. More specifically, out of the male participants' 10 statements, I assessed four as *more positive*, five as *mixed/neutral* and only one as *more negative*. At the same time, out of the 16 questions the non-SEF participants posed about the medical procedure, I interpreted one as *positive*, three as *more positive*, 11 as *mixed/neutral* and one as *more negative*. Male participants' statements also demonstrated a more positive first impression than non-SEF female participants' statements. Out of the five male statements, three are located on the positive side of the scale (one *positive*, two *more positive*), two are *mixed/neutral* and no statement lies on the negative side. As for the non-SEF participants, all of the three statements were *mixed/neutral*. Male participants perceived SEF's potential more negatively than non-SEF female participants, as out of the nine statements, I interpreted six as *more negative*, one as *mixed/neutral* and only one as *more positive* and *positive*. At the same time, non-SEF women made seven statements about SEF's potential, four of which I assessed as *more negative*, two as *more positive* and one as *positive*.

As presented below in the doughnut chart's (*Figure 17*) outer circle (total of Non-SEF women and men), most of the statements (87%) fell into *more negative* (29%), *mixed/neutral* (40%) or *more positive* (18%), and only a few (13%) were explicitly *negative* (8%) or *positive* (5%). Thus, these participants rarely expressed strong beliefs about the attitude object. No major difference can be observed between female participants' (middle circle) and male participants' (inner circle) beliefs regarding their direction and intensity towards the attitude object.

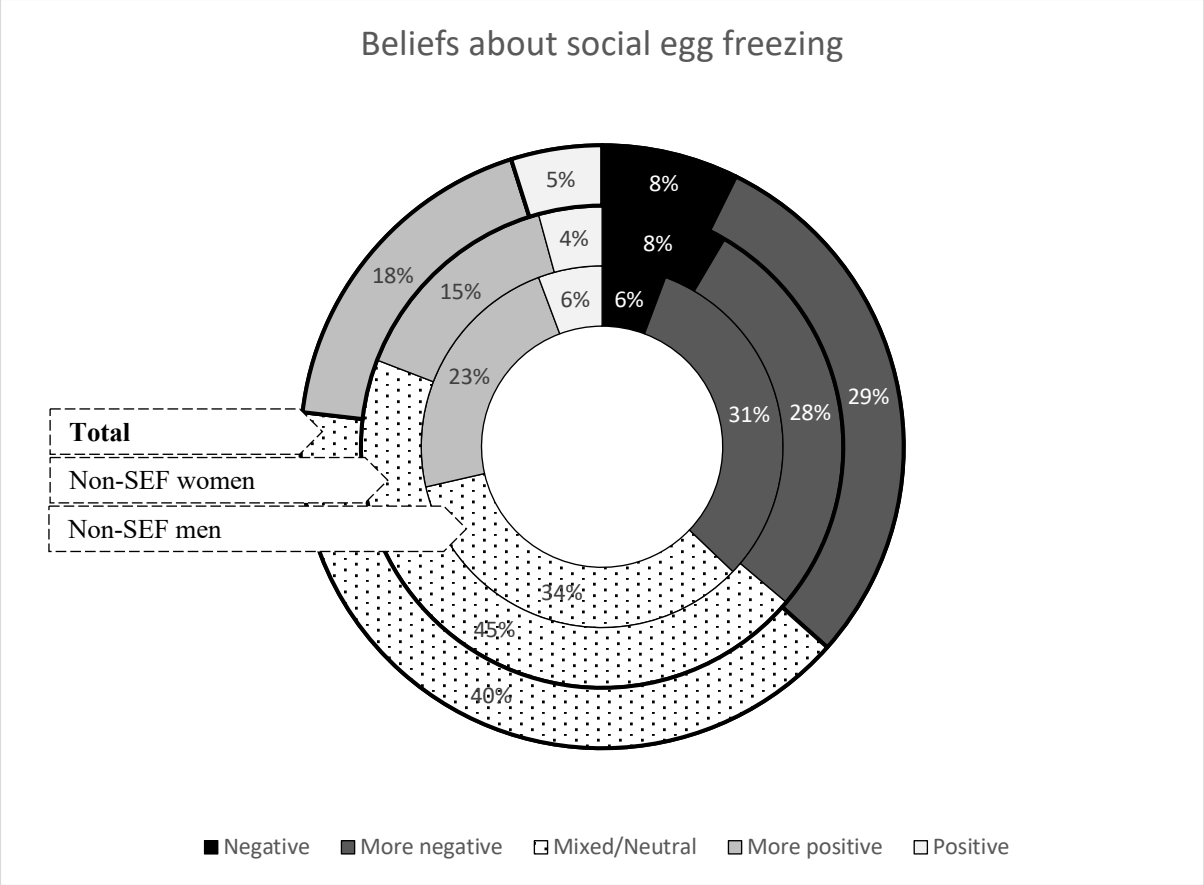


Figure 17 Participants' beliefs about SEF - doughnut chart

Additionally, the heatmaps (*Figure 18* and *Figure 19*) below represent the allocation of statements per participant based on the two target groups: women without personal experience and men without personal experience. The intent of the heatmaps is to show whether a participant's statements poled to one direction or their perception is instead distributed on the scale. I observed that certain participants also had statements that were linked to different positions on the scale for the same dimension. For instance, as to the Potential (P) for SEF, Luca mentioned that SEF is 'not that romantic anymore', which I interpreted as a *more negative* statement. Similarly, he also said that '[w]ell, if there are no health risks, then why wouldn't one do that?', which I interpreted as a *more positive* statement. Likewise, Peter's statement 'but because somehow I see this [SEF] […] actually as a chance, an opportunity', I viewed as *positive*, but he highlighted his concerns by saying 'not everyone can afford it, whether this obviously a further inequality, especially for people who have the money and can pay for it so they can stay longer in their careers and climb higher up the career ladder'.

Furthermore, it can be observed on the heatmap that some participants had more than one or two statements linked to a certain dimension. For example, Petra and Luca (six statements

each) and Esther (four statements), which were all linked to Curiosity, showed higher interest than other participants. Emma and Peter discussed in greater detail the Potential (P) and their concerns about SEF by each offering three statements on a wider range of the scale.

Based on the above analysis, it can be concluded that participants' beliefs about SEF were mostly mixed/neutral or tend to be moving both to the negative or positive direction, but not indicative. Major differences based on gender cannot be observed.

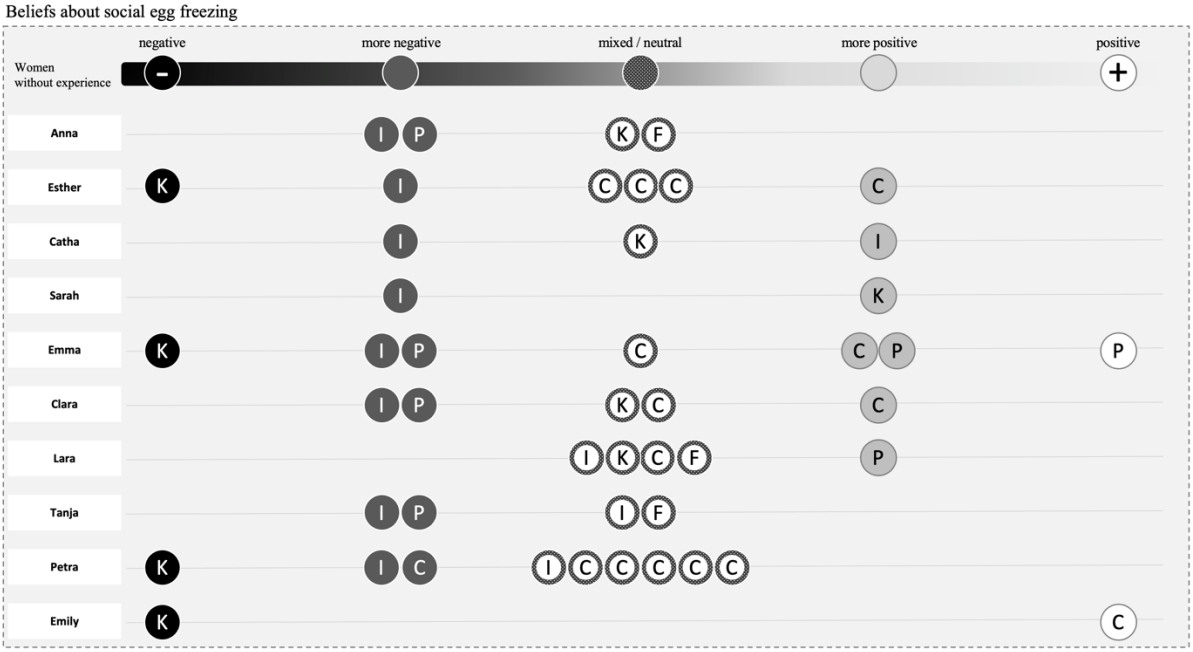


Figure 18 Participants' beliefs about SEF - individual view (non-SEF women)

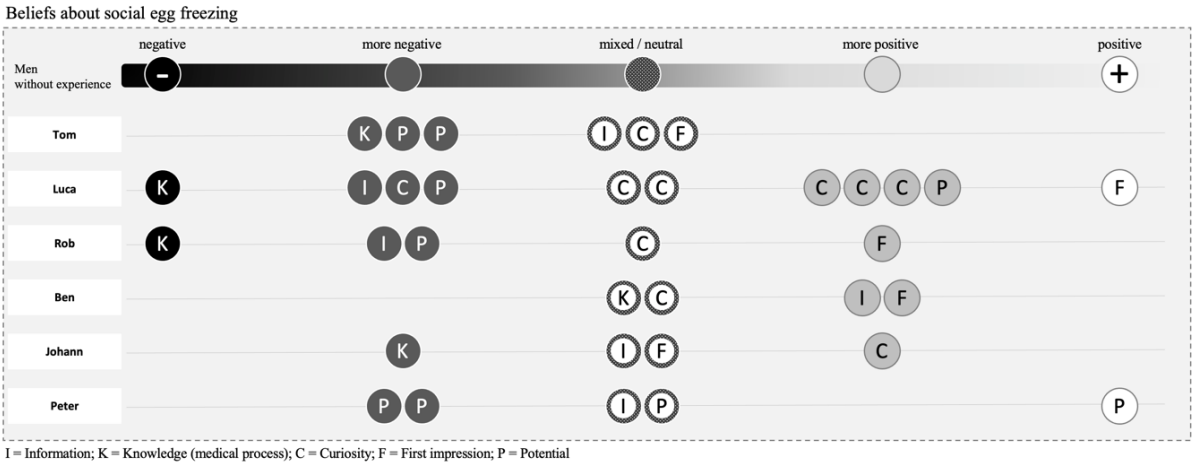


Figure 19 Participants' beliefs about SEF - individual view (non-SEF men)

5.2.4.2 Feelings and behaviour

I measured participants' feelings and behaviours in relation to SEF along one-one dimensions, each on a five-point scale, from very negative to very positive, as presented in *Table 4* below. Participants may express feelings on a scale of negative to positive. I assessed female participants' potential behaviours, that is, their views as to whether they would consider SEF in the future. Statements that expressed no consideration or ruled out the possibility I interpreted as *negative*, whereas statements including the consideration of SEF now or in the future I interpreted as *positive*. I assessed male participants' potential behaviours in relation to SEF in two ways: (1) whether their statements indicated they would support their partner if she chose to undergo SEF and (2) their perception of using their female partner's previously cryopreserved oocytes in an attempt to fulfil their mutual wish for a child. In both cases, I placed statements with no consideration on the *negative* side of the scale, while interpreting potential support and potential use of the cryopreserved oocytes as a *positive* behaviour towards the attitude object.

Feelings; Behaviour examples	Negative	More negative	Mixed / neutral	More positive	Positive
Feelings (F)	'As a woman, I felt bad because for me it wasn't clear whether it's indeed scientifically supported, or whether this also puts even more women under pressure.' (Emily, 34, Paragraph 13)	'[…] which somehow anxiety (inc.), because some of it is still new. And I think it's actually a nice opportunity for women, but also a scary imagination a bit when one thinks about, […] I don't know, whether it's always only positive, if one can push it [childbearing] for later, as is their plan.' (Catha, 25, Paragraph 10)	'I believe I was somehow first confused and surprised that the possibility exists.' (Clara, 22, Paragraph 8)	'I believe it's rather incredible what is biologically possible nowadays, so which possibilities exist (inc.) I was rather curious and yeah, I marvel at everything that can be done. That was, I believe, my feeling at first.' (Petra, 29, Paragraph 8)	'Well, first, really excited, yes, how did I feel? Well, it was first unexpected, because I didn't know that it's possible at all, but then I was curious considering my feelings.'(Sarah, 22, Paragraph 15)
Consideration (C)	'No, I cannot imagine it at all.' (Emily, 34, Paragraph 52)	'I have also thought about it before the interview, but I think not. Not considering the diseases, only to ensure a career, no.' (Tanja, 32, Paragraph 26)	'I don't know. Well, I think you can do that and you don't have to use your oocytes if you can become pregnant naturally. […] I think, indeed, I'm not yet at the age where I need to think about it. I think, I don't know, in 10 years, if I still don't have children, then I would give a thought.' (Emma, 24, Paragraph 65, 67)	'Yes, indeed, I have discussed it a bit with one of my friends, and it's something to be considered, although I think one should have good reasons for it and not just do it for less serious reasons. Let's see, maybe I want to have a child at the beginning of my thirties, but I still do it to be on the safe side, I think one should already have really [good] reasons why one does it.' (Esther, 23, Paragraph 37) 'Hm, I think, yes, yes. […] On the one hand, sure, yes. It's an opportunity, how you would like to postpone it to the future. But if it's based on my personal preference, I don't have the need to push my wish for a child always further into the future. […] if she would want to do it, then I would say, yes, okay. Do that.' (Ben, 24, Paragraphs 35–39)	'Yes, I think, indeed, I could imagine. Yes. Well, I think it's a good option. And whether you actually use it or not is another thing. But simply that you have an opportunity and then without pressure, the career, or she can live her life, and make the decision after that, depending how it fits, well, it would be something that I would consider. Yes.' (Anna, 26, Paragraph 33) 'Yes, okay. Well, let's suppose that it wouldn't matter if we can afford it or not, but if the opportunity would be better to have a healthier child with it, I would be for it. Well, that's positive.' (Rob, 26, Paragraph 51) 'Well, I think a discussion should take place for sure and if my partner wants it really, for 100%, of course I would support her.' (Tom, 34, Paragraph 23)

Table 4 Participants' feelings and behaviour in relation to SEF - heatmap

In total, 29 statements were linked to one of the dimensions on the scale, including 20 statements for non-SEF women (two per participant) and nine for non-SEF men (1.5 per participant). As presented in *Figure 20* below, for the doughnut chart's outer circle (total of non-SEF women and men), almost half of the statements (48%) were more positive (17%) or positive (31%), and only 17% of the statements were negative, 7% more negative and 28% were mixed or neutral. It should be noted that male participants did not name any feelings towards SEF. Although I asked them to do so, I could not interpret their response statements as feelings. The inner circle in the doughnut chart represents these male participants' statements. As their statements showed positive behaviours in relation to SEF by expressing their support of their female partner to undergo SEF or to use cryopreserved oocytes for their mutual child, I associated them all with the *more positive* or *positive* side of the scale. Female participants' statements, as presented in the middle circle, were more diverse. First, women expressed their feelings towards the attitude object, which were partially *negative*, *more negative* or *mixed/neutral*. Second, three female participants clearly expressed that they would not consider SEF, and I also interpreted a further participant's statement as *more negative*. Therefore, in this perspective, one can observe a clear difference between the genders in regard to their behaviours in relation to the attitude object.

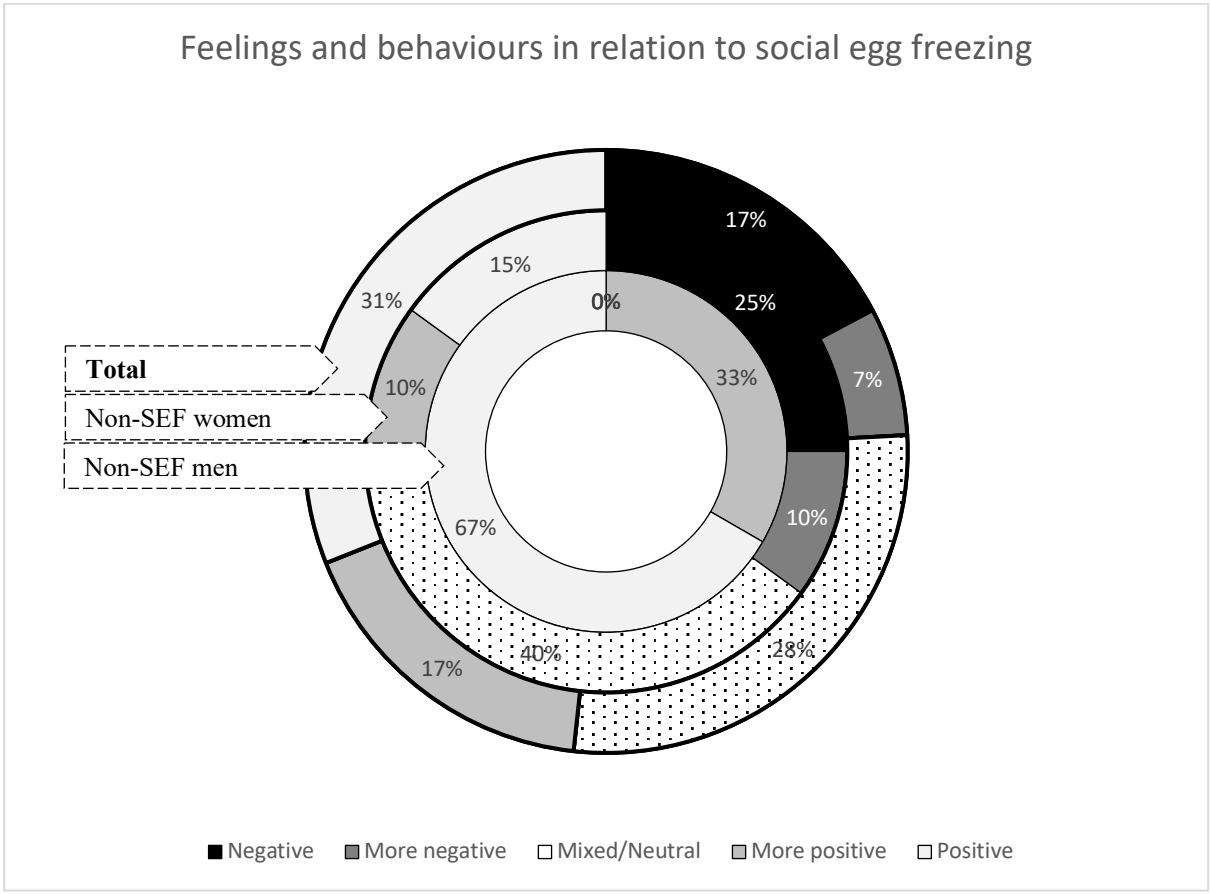


Figure 20 Participants' feelings and behaviour in relation to SEF - doughnut chart

In the chart (*Figure 21*) below, I present the dimensions' distribution. I allocated the 29 statements as follows: 10 to the dimension Feelings (F), expressed by all female participants, and 19 to Consideration (C). As for the female participants' feelings, half of their statements (50%) were mixed or neutral and the rest were distributed almost equally on the negative and positive sides of the scale. Regarding the dimension of Consideration, it must be noted that most of the male participants received two questions to assess their behaviours in relation to the attitude object, whereas women received only one question, due to biological differences and the ability to take advantage of this medical procedure. Therefore, in the interviews conducted with male participants, I identified nine statements to be linked to Consideration (1.5 per participant), compared to 10 statements in the interviews conducted with women (one per participant). In total, participants named eight statements that *positively* support the behaviours, four statements that *more positively* support it, three *mixed or neutral* statements, one *more negative* statement and three *negative* statements.

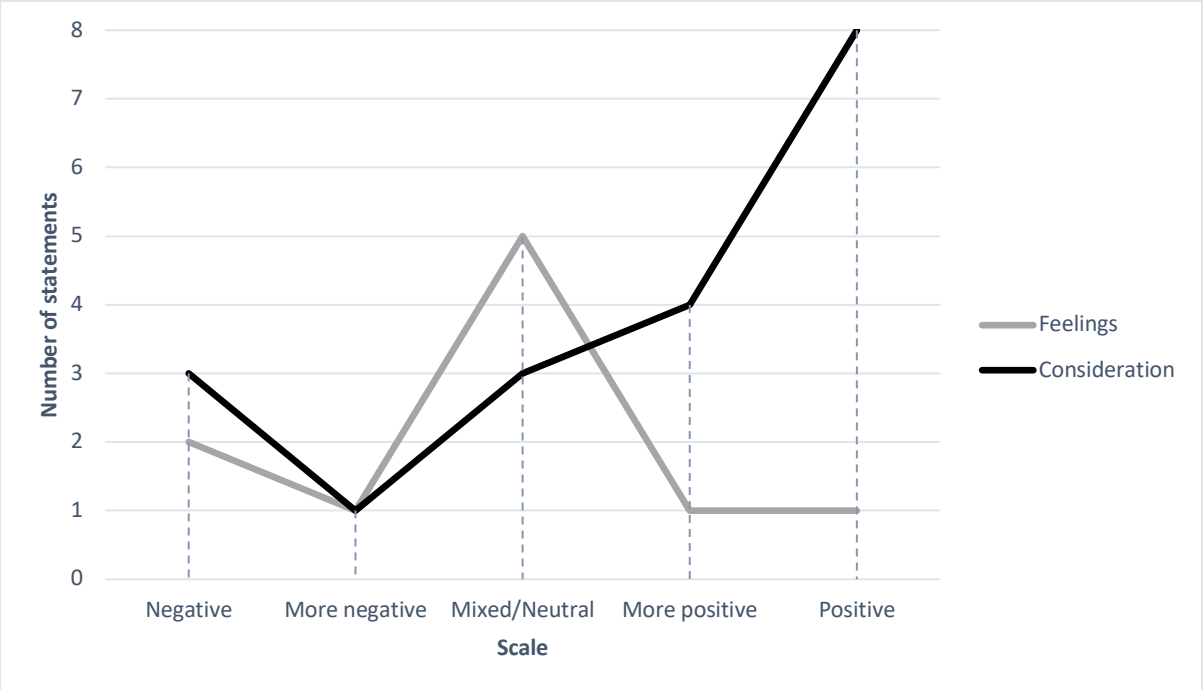


Figure 21 Participants' feelings and behaviour in relation to SEF - statements

Furthermore, the heatmaps (*Figure 22* and *Figure 23*) below represent the allocation of the statements per participant based on the two target groups: non-SEF women and non-SEF men. It can be concluded that three women were *more positive* or *positive* towards considering SEF, three women were *mixed/neutral* and a further three women would rather not or definitely not consider it. All men had *more positive* or *positive* statements about supporting their female partner's choice of SEF and fulfilling their wish for a child with their female partner's

previously cryopreserved oocytes. Furthermore, two participants, after expressing their support, added that such a decision should be made by women rather than by men: 'I think it's the women's decision whether they do it, rather than the men's [decision]' (Luca, 24, Paragraph 40); and 'as I said, the major part of the process of having a child is with the woman, therefore I think in the end she should be able to decide about it' (Johann, 24, Paragraph 25).

The heatmap also illustrates whether a participant's statements were poled to one direction or distributed on the scale, and whether their feelings and behaviours in relation to the attitude object aligned or differed. Unfortunately, not every interview included named feelings towards SEF, thus this cannot be shown for every case. For some participants, it is interesting to observe that they expressed negative feelings but still stated that they would consider SEF. For example, Catha described her feelings towards SEF with the words 'somewhat anxious' or 'scary idea', but would consider it: 'Yes, I think so, I believe it could be something […] if I get a job where I would have good career opportunities and or I would be self-employed in a practice […] then it would be a good option to be able to postpone the family planning a bit. But I still have to make up my mind about it in detail. But for sure, I find the opportunity good' (Catha, 25, Paragraph 45). Conversely, Petra expressed *neutral* and *more positive* feelings as she was excited about SEF: 'I was rather curious and yeah I marvel at everything that could be done', but she could not imagine ever considering it herself: 'Actually not. […] but for my profession I wouldn't do that. Well, I wouldn't opt for it for myself because I would think my career can be also possible with natural family planning at the age when the time is there.'

Based on the above analysis, it can be concluded that many participants had difficulties expressing feelings towards the attitude object and expressed feelings that were mostly *mixed/neutral*. Women's behaviours in relation to SEF were very diverse, ranging from very negative to very positive, whereas men's behaviours were consistent amongst participants and supportive of SEF.

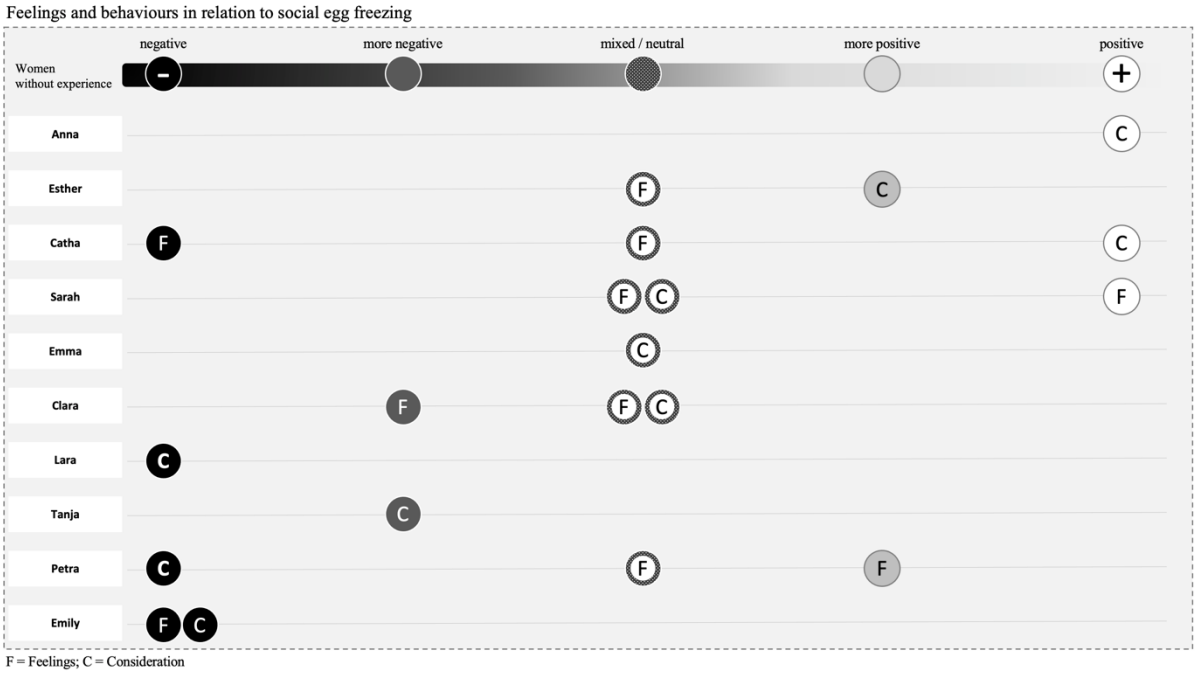


Figure 22 Participants' feelings and behaviours in relation to SEF - individual view (non-SEF women)

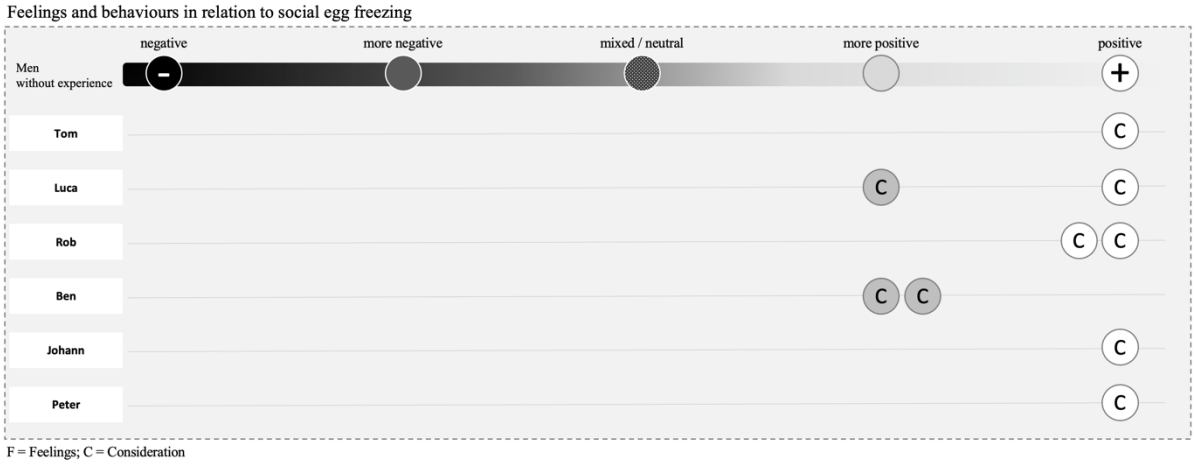


Figure 23 Participants' feelings and behaviours in relation to SEF - individual view (non-SEF men)

5.2.4.3 Summary

Based on my analysis of 110 statements from 16 participants (ten female and six male) about SEF, the attitude object, I can conclude (see *Figure 24*) that their attitudes are mostly (37%) *mixed/neutral* and their statements, which show a tendency either to the positive or to the negative direction, are fairly balanced, as *positive* and *more positive* statements make up 30% of all statements and *more negative* and *negative* statements form 33% of all statements. The mostly equal distribution of the statements, and the observed ambivalent statements from one participant, may be linked to its new and non-widespread attribute, as most of the participants shared little information about SEF and little or no knowledge about the medical procedure, but high interest by posing numerous questions about the opportunity. Men are more open to

considering SEF than women, as most of the women would not approve or would decline the opportunity where they in a situation, due to career or lack of a partner, in which SEF would theoretically be a viable option.

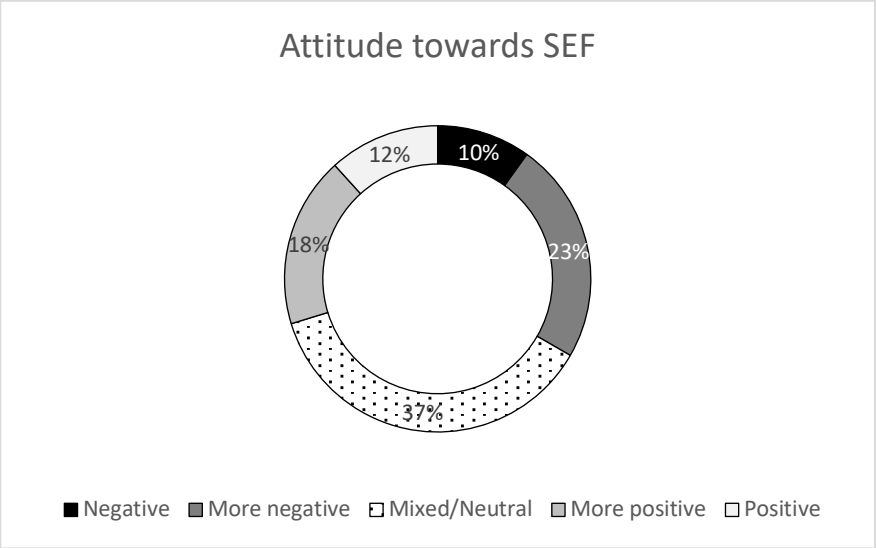


Figure 24 Participants' attitudes towards SEF - doughnut chart

5.3 Attitude towards women opting for SEF

The research question 1(b) addresses the target groups' attitudes towards women who chose SEF on three levels (Allport, 1935; Fishbein & Ajzen, 1975): their (1) beliefs, (2) feelings and (3) behaviours in relation to the attitude object. To understand non-SEF participants' (1) beliefs about these women, I explored their perceptions about the motivation behind these women's decisions –that is, why women actually choose SEF and who they see as the procedure's target group. I also asked them whether they perceive any ethical differentiation between OC for social or medical reasons. Furthermore, I questioned non-SEF participants about their (2) feelings towards these women and about their potential (3) behaviour, i.e., whether participants would regulate SEF either by forbidding this reproductive opportunity or limiting the usage of previously cryopreserved oocytes. I then categorised statements recorded in the interviews about participants' beliefs, feelings and behaviours, based on their direction (positive or negative) and their intensity, in order to assess their attitudes towards women opting for SEF. In the following *sections 5.3.1 to 5.3.3,* I introduce the identified statements to the certain codes and in *section 5.3.4* present my analysis of the statements based on their direction and intensity towards the attitude object (women who opted for SEF) and visualise non-SEF participants' individual attitude analysis.

5.3.1 Beliefs towards women opted for SEF

In this section, I summarise how non-SEF participants describe women opting for SEF, how they portray them (e.g., as career-pursuing or wise women following the most recent medical inventions) and how they perceive their motivations for their decisions, i.e., the ticking biological clock or the lack of a suitable partner pushing them to turn to SEF. Additionally, I assess the rhetorical division between age-related and disease-related infertility as the reason for cryopreservation amongst the participants, including whether they see any ethical differentiation between the two main reasons for cryopreservation or whether they disapprove or approve of one or both reasons.

5.3.1.1 Portrayal of women

Following Mertes (2013) on the portrayal of women opting for SEF in different scientific publications, and the preliminary study (Keglovits, 2015) which referred to this categorisation with minor modifications, I apply the following analytical categories: (1) selfish, career-pursuing women; (2) victims of a male-oriented society; (3) wise, proactive women; and (4) naïve consumers.

5.3.1.1.1 Selfish, career-pursuing women

I assessed the participants' interviews to see whether they contained any perceptions of women as selfish and career-pursuing, identifying three statements in line with such a portrayal. In all statements, women were perceived to be 'ambitious' and 'determined' in regard to their careers, but with negative connotations. For instance, Esther mentioned they are 'brave in terms of leaving ethical aspects out of scope and still dare [to opt for SEF]'; that is, she perceived these women as prioritising career over motherhood, even if it to do so is ethically questionable. Similarly, Clara questioned a woman's intention to have a child if she is choosing her career first and deciding to postpone motherhood: 'but somehow it seems a bit negative to me'. Johann mentioned the phrase 'determined career woman', in 'career woman' has a negative connotation.

> 'I would say that they are rather focused on their careers. I would guess that they are ambitious, and yes, also brave, but brave in terms of leaving ethical reasons out of scope and still dare it. There are also reasons not to do it. Exactly.' (Esther, 23, Paragraph 25)

> 'What I think of them? I think terribly intelligent women, unbelievably ambitious and organised and also what I think is determined [women] who think that maybe career comes first then the family. That I don't find objectionable at all. But I think, that, well, yeah, I ask myself, would someone then want children if she says that the career is much important, one would like to have children first at 40 or 50. I don't know whether I have a right to judge it, but somehow it seems a bit negative to me.' (Clara, 22, Paragraph 26)

> 'Well, indeed, the first picture that comes to mind is someone who is a very determined career woman. But I think that it's quite an incomplete picture.' (Johann, 24, Paragraph 15)

5.3.1.1.2 Victims of a male-oriented society

I found no interview statements that could be linked to the victim narrative.

5.3.1.1.3 Wise, proactive women

Three statements can be linked to the narrative of wise, proactive women. Anna described being 'on the safe side' by opting for cryopreservation in case the woman is not yet sure about her childbearing plans. Luca spoke of the planned aspect of cryopreservation in a negative way, stating that 'it's not that romantic anymore'. Peter called the women not exactly wise or proactive, but did say that they were 'brave, […] emancipated and pioneers in this field'.

> That the women want to be on the safe side, that they are still able to have children when they don't yet want to commit themselves, either right now, and you never know, somehow something happens. Or for any reason you are not fertile anymore.' (Anna, 26, Paragraph 18)

> ‘Of course, it’s also a bit planned. One is, when someone does it, it’s quite planned, like the nature, it’s not that romantic anymore.’ (Luca, 24, Paragraph 16)

> ‘Yeah, first, I think that’s still something new and to try something new, you have to be brave […] Basically, I see these women, I think, brave, and yeah, emancipated and pioneers in this field.’ (Peter, 25, Paragraph 13)

5.3.1.1.4 Naïve consumers

In addition to Mertes’s (2013) three narratives, I assessed the statements against the narrative of naïve consumers. Only Rob mentioned a similar aspect about women trusting this medical procedure but being unable to fulfil their reproductive wishes.

> ‘It would be sad, of course, if someone trust this, that it works, and then due to other reasons, it still doesn’t come off well. Then someone at 40 [years] somehow still cannot be pregnant, although she froze one.’ (Rob, 26, Paragraph 31)

5.3.1.2 Motivations for freezing

5.3.1.2.1 Biological clock

As in several other publications, some interviewees mentioned the biological clock metaphor as one reason why women choose SEF. It must be noted that the FAZ article participants received prior to the interview included this expression—it is therefore unclear whether the article influenced them to use the term, or whether they would have done so anyway. Whichever applies, two participants used the expression as the basis of their reasoning: ‘the biological clock runs out’ and ‘women who must constantly look at the clock’.

> ‘[S]imply the biological clock expires, well, they don’t have any children at some point, or they cannot have them naturally, and they want to ensure, yeah, that they can still have children later, even when the biological clock has run out.’ (Sarah, 22, Paragraph 23)

> ‘[…] but they [men] can plan their lives much easier than a woman who must constantly look at the clock and must take care that [they] find a partner for life in time, which is not that easy. And then have children in time.’ (Luca, 24, Paragraph 14)

5.3.1.2.2 Financial readiness

Participants also brought up financial readiness or financial stability as reasons for delaying childbearing and choosing SEF. Financial security is one of the factors for considering parenthood a responsible choice, as Clara mentioned: ‘[It is what] one should be achieving. That’s a major aim (inc.) also to have a certain security.’. Lara remarked: ‘not to bring a child into financial difficulties’. However, Lara hinted that SEF itself is not necessarily cheap either.

> ‘They might not yet have the financial status that one should be achieving. That’s a major aim. (inc.) Also, to have a certain security. And that is why they should wait. These would be, I think, the reasons.’ (Clara, 22, Paragraph 28)

> ‘It depends on how long someone is studying, which way she is going to go or she is uncertain. What the financial stability in the next three to five years will look like. Or maybe in the next ten years, but you plan to be or stand somehow more financially secure in the future. Thus, one keeps the possibility open and does not bring a child into the financial difficulties. Also, the method [SEF] not actually low-cost either. That is, of course, clear.’ (Lara, 24, Paragraph 19)

5.3.1.2.3 Psychological readiness

In the interviews, one statement by Johann can be interpreted as a reference to women’s psychological readiness.

> ‘Yeah, well, I think, simply because they might want to postpone their wish for a child, either because they are not ready for that or they have not yet decided when it suits best.’ (Johann, 24, Paragraph 13)

5.3.1.2.4 Career

Similarly to other attitude research on SEF (e.g. Cardozo et al., 2020; Gorthi et al., 2010; Lewis, 2016; Stanton et al., 2014; Tan et al., 2014; Tozzo, et al. 2019), participants mentioned careers as one of the major reasons why women opt for SEF. This finding, too, may have been influenced by the FAZ article participants read before the interview, which mentions career concerns as one accelerator for SEF, as well as in relation to companies financially supporting the procedure. In several interviews, participants mentioned that women during a certain period of their lives prioritise career over motherhood or family planning. They do not necessarily assume that these women do not value motherhood, but rather that the time when they are focusing on their careers is simply not the proper period to start a family. I do not interpret the statements below from Tanja, Johann, Petra, Anna, Sarah and Ben as negative, whereas Tom did criticise choosing career over motherhood: ‘I cannot understand at all as a woman somehow wanting to make a career and to combine this with my wish to have a child. […] there are in life always such intersections where you must decide.’ He was clear that he expected these women to make up their minds. Furthermore, he argued that a career should not stop someone from becoming a mother before her fertility declines and that motherhood, in turn, would not stop anyone from pursuing a career: ‘you can actually do that now by 25, to have already done it all, well, to have studied and gathered professional experience by 25, to become a mother and after three to four years to return and make a career. Well, this doesn’t block you now in the end.’ The latter part of his statement makes reference to a three-to-four-year career break to fulfil a mother's role, which could be interpreted as a traditional role model.

> ‘Or even when for a certain period of time the career is simply more important [than having a child].’ (Tanja, 32, Paragraph 13)

> ‘And a major point is probably, indeed, the career somehow, especially for ambitious women. Because she says: I would like to have children at some point and also to have great chances for that, but at the moment the career is to come first, therefore yeah, I’ll do that and later I can decide consciously when it fits better with my life planning.’ (Johann, 24, Paragraph 13)
>
> ‘That, well, someone says first career and then later the pregnancy.’ (Petra, 29, Paragraph 23)
>
> ‘Yeah, I think, which is nowadays more often an important reason, for example, the career. Actually, some women would like to make a career and most of them when they are finished with their studies, they’re already in their late twenties, and when they start to work, they might want to work a couple of years, want to establish themselves. And there the wish for a child is in second place, better to say, it is not so easy to implement it. Also when one would like to have children. And I think, for many this is the opportunity to postpone it a bit. And to first dedicate yourself to your career, and you establish yourself, instead of putting your career behind your wish to have a child.’ (Anna, 26, Paragraph 16)
>
> ‘Yes, I think that nowadays rather often to make a career, or for them it’s also more important that they also want to achieve manager positions, and also the age between 30 and 40 is really important, which is when many currently have their children. And with that the limit is postponed further […].’ (Sarah, 22, Paragraph 25)
>
> ‘Precisely because of her fertility, which is still at 24–25, to be able to also keep it until 38–39, when her career is secured, but her fertility would have already declined.’ (Ben, 24, Paragraph 18)
>
> ‘Well, I mean, well, first, it must be said, I’m not a woman. I’m a man. I have of course a totally different relation to this. As a woman now, which means I cannot understand at all, as a woman somehow wanting to make a career and to combine this with my wish to have a child. […] I can quite understand it from certain points, but I find that there are in life always such intersections where you must decide.’ (Tom, 34, Paragraph 17)
>
> ‘[…] you can actually do that now by 25, to have already done it all, well, to have studied and gathered professional experience by 25, to become a mother and after three to four years to return and make a career. Well, this doesn’t block you now in the end. Yes. But I have, of course, understood that a women may say, hey, I’m currently a manager somewhere and professionally it’s running so well, this is my dream, what I’m doing now, which I’m now enjoying, and she knows that were she to have a child now, she could not be there like this, as she was before. Eventually, I don’t know, couldn’t be working like that, as she worked before. And this career aspiration is bigger than the wish for a child. That I can of course understand.’ (Tom, 34, Paragraph 17)

One participant, Petra, mentioned that ‘nowadays it’s generally very difficult for women, balancing these topics of family and career’. Another participant also highlighted that ‘many women indeed feel themselves under pressure, that they absolutely, absolutely want to have children, or they should have children, but the time is not yet suitable, because they are still

studying or working' (Emily). In this comment we see clearly the pressure on women for childbearing, as they either 'want to have children' or 'they should have children'. Furthermore, not just career or work is present in the motivation, but academic studies are mentioned as well.

> 'I actually think that nowadays it's generally very difficult for women balancing these topics of family and career, and of course for women it could be an opportunity to maybe freeze their oocytes at a fertile age and rather [to have] the idea of security.' (Petra, 29, Paragraph 23)

> 'I assume that many women indeed feel they are under pressure, that they absolutely, absolutely want to have children, or they should have children, but the time is not yet suitable, because they are still studying or working. I believe that work has a big role in it, but not the biggest role in it. That the women think about potentially having children or wanting to have a career and decide to postpone pregnancy.' (Emily, 34, Paragraph 27)

The conflict between career and motherhood was also mentioned: 'there is a danger if women have children early that they won't get ahead in their careers' (Ben).

> 'That women will still feel forced to—better to say they will not be forced, but there is a social pressure somehow that women should not have children too early, or if she does then, or there is a danger that if women have children early, they won't get ahead in their careers. And I think this will be somehow the main reason that they reach out to this social egg freezing […].' (Ben, 24, Paragraph 17)

One participant not only mentioned careers where individuals are expected to constantly achieve more and more, but time-consuming jobs or night work, which could be challenging to combine with family planning.

> 'Yeah, yeah, I believe the time-intensive jobs are simply more difficult to balance. If it's not that classic nine-to-five job, but it is work far beyond that […]. And then, of course, there are lots of professions where it's difficult to balance the time component with the family. If somehow people must work at night, etcetera. But I don't know. I always have this picture that you work way too long in the evenings because there is way too much to do and yes, you have no capacity in your brain for your family because work takes so much of it.' (Johann, 24, Paragraph 34)

5.3.1.2.5 Lack of partner

In almost all interviews, participants mentioned a missing partner or not the right partner as one of the motivations for SEF. In these statements, as the examples below illustrate, blame is not placed on women; these are neutral perceptions. Several participants used the expression of the 'right partner', describing them, for instance, as someone 'that she can count on, with whom she can plan a family' or as a 'life partner'. Clara highlighted that in today's society, long-term relationships are less common and independency is highly valued, which could be a

reason that women do not have the 'right partner' when they are reaching the end of their fertility.

> 'Family planning, whether one has a partner that she can count on, with whom she can plan a family, with whom she would like to have children […], but apart from the career, it strongly depends on the partner, as someone is in her late twenties and sees it will last until family planning.' (Esther, 23, Paragraph 39)

> 'After all, it rather depends on the woman realising at some point, at 28 or 30, oh, I haven't found my life partner yet.' (Luca, 24, Paragraph 108)

> 'Well, the question is whether someone would like to reduce the pressure of looking for the suitable father, for example. […] To find the perfect constellation for herself and to start [her] own family.' (Rob, 26, Paragraph 23)

> 'I could imagine that it depends on that, when women are single, and the right partner is not there at that moment. Let's say under 35 and therefore they decide to get their oocytes frozen in order to preserve them [and to wait for] the partner who will eventually come and with whom she will have children.' (Tanja, 32, Paragraph 13)

> 'It could be that someone doesn't want to have any [children] right now. It doesn't have to be due to the careers, but due to reasons like there is no partner or so on. This could be also a reason.' (Ben, 24, Paragraph 20)

> 'Also, maybe she hasn't found the right partner yet. I mean, nowadays there are a lot of short-term relationships (inc.) and society also suggests this. At least I perceive it is like this among my friends, that, well, there is this independence. Also, that women don't find the right person right away (inc.).' (Clara, 22, Paragraph 28)

5.3.1.3 Rhetorical division between age-related and disease-related infertility

In the preliminary study (Keglovits, 2015), participants' perceptions about the ethical differentiation between age-related and disease-related OC were divided into three categories: participants showed (1) negative attitudes towards women in both cases or (2) positive attitudes in both cases, or they confirmed other studies' results (Cobo et al., 2018; Feiler, 2020; Goold and Savulescu, 2009; Kostenzer et al., 2021; Mertes, 2013; Petropanagos, 2010; Robertson, 2014; Van de Weil, 2014; Van der Ven, 2017) by showing (3) positive attitudes towards women choosing cryopreservation due to disease-related reasons, while showing less supportive or negative attitudes towards women opting for cryopreservation for age-related reasons. Therefore, the research tested whether participants perceived any ethical difference between age-related and disease-related OC.

5.3.1.3.1 Rhetorical division in the interviews

I have concluded that the rhetorical division between age-related and disease-related OC was present in several interviews (see *Figure 25*). These interviews perceived SEF as a voluntary,

luxury medical procedure based on free choice but potentially triggered by social pressure and meritocracy. They viewed the women who chose it as putting their careers first and deprioritising motherhood. One participant expressed sympathy with certain countries' decisions to provide financial support if the medical procedure is due to disease-related reasons, but to withold support if the desire is for social reasons.

Disease-related OC is described as the only opportunity to have a child: as OC is the only remaining option, there is no free choice. The women who use it are perceived to being in a difficult life situation, fighting a disease they cannot be blamed for, and in a challenging emotional state. Thus, opting for cryopreservation provides them with relief and highlights the fact that they want to have children in the future—that is, they are putting family planning in the foreground.

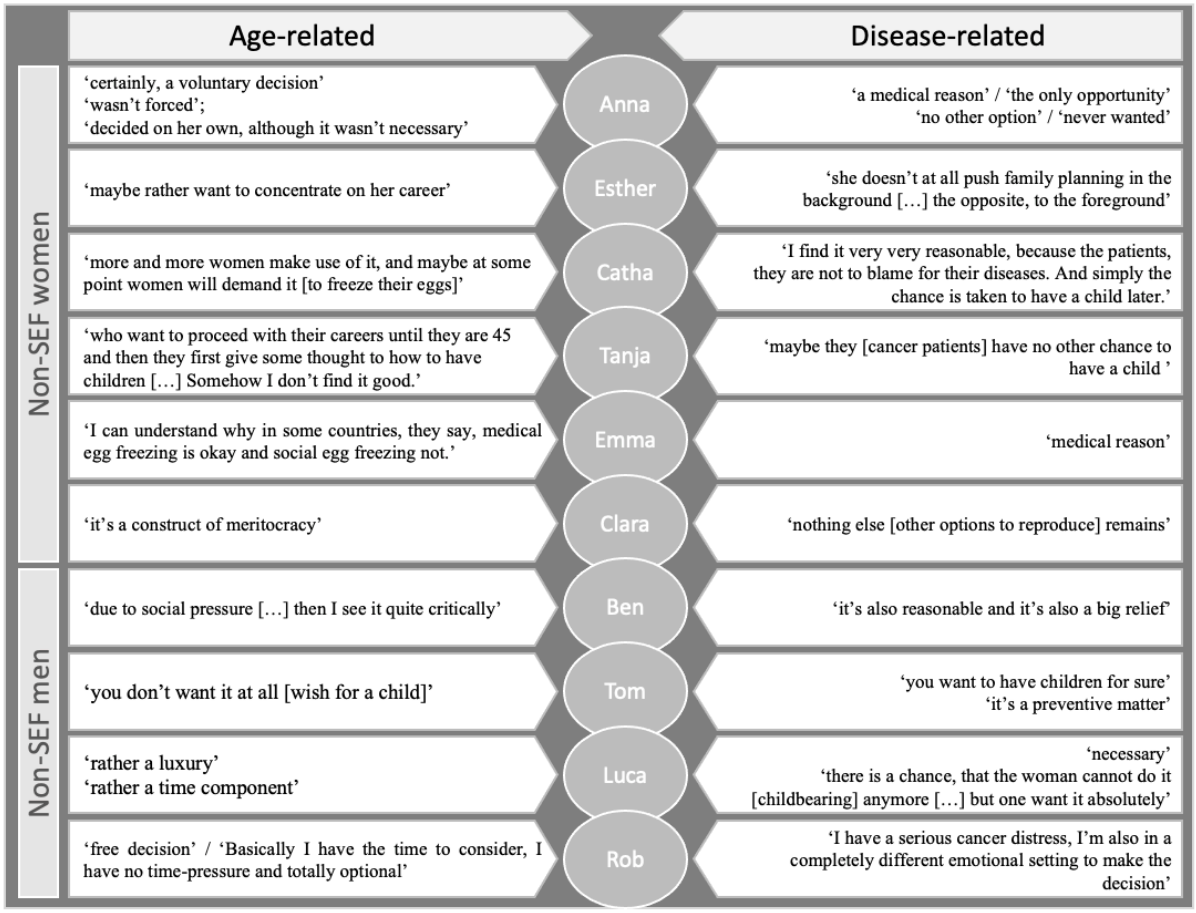


Figure 25 Perception of reason the OC: age-related vs. disease-related

> 'Well, medical egg freezing has a medical reason. This is, bottom line, the only opportunity that the women actually have for children and the woman never wanted to get cancer, or whatever reason she will be irradiated. Therefore, she has no other option. And as for social egg freezing, it is certainly a voluntary decision. Because the women

could likely have had children anyway, or well, earlier, or rather, well, yeah, based on their fertility. One wasn't forced into it but based on one's own (inc.) did and should also have the responsibility for the child. Because she decided on her own, although it wasn't necessary.' (Anna, 26, Paragraph 14)

'[…] maybe they [cancer patients] have no other chance to have a child while they are in this terrible situation. Let's say their lives are suffering from this illness, but on the other hand, I think that the people who want to proceed with their careers until they are 45 and then they first give some thought to how to have children and eventually, I don't know, become parents in their mid-fifties. Somehow I don't find it good.' (Tanja, 32, Paragraph 11)

'Yes, I find this medical egg freezing for sure, I find it very, very reasonable because the patients cannot be blamed for their diseases. And simply the chance is taken to have a child later [in life]. It's really important that this can be done. As for the social egg freezing, at this point I see it a bit critically, when it's offered, more and more women make use of it, and maybe at some point women will demand it [to freeze their eggs].' (Catha, 25, Paragraph 15–16)

5.3.1.3.2 No ethical differentiation

Similarly to Petropanagos (2010) and Goold and Savulescu (2009), some interview-partners did not differentiate between the motivations of OC, be they age-or disease-related. Lara highlighted that, either way, this is a 'personal decision' and that the underlying reasons to opt for cryopreservation may be 'diverse'. She concluded that these motivations should not be treated differently. Emily described her perception similarly and argued for equal treatment in both cases as well.

'I think, no, I think it's relevant. Well, for me in both cases it's about a personal decision. The reason for this personal decision might be biological or medical but it can also be social. In the end, the root cause, the motivation behind the decision to go with it, could be diverse. At the same time, I don't think that one should differentiate ethically.' (Lara, 24, Paragraph 17)

'Yes. As from the ethical perspective both are the same, both should be, in my opinion, treated equally.' (Emily, 34, Paragraph 23)

5.3.2 Feelings towards women opting for SEF

Participants had difficulties expressing their feelings towards women who chose SEF. In their replies, most did not include any feelings but instead restated their beliefs. One participant, Lara, shared her connection to and understanding of these women. Ben clearly stated that he had 'no feelings' and he was "indifferent' to SEF. Therefore, as the second component of attitude, feelings towards the attitude object could not be assessed.

'I ask myself, I feel myself connected, I can understand this. I can also, well, understand the motivation behind this, whether I personally would do this (inc.). That's also the

conclusion, I would also conclude based on this connection, I don't know whether I personally could go through with it [SEF].' (Lara, 24, Paragraph 21)

'I actually have no feelings about it. Basically, for me it's indifferent.' (Ben, 24, Paragraph 24)

5.3.3 Behaviour in relation to women opting for SEF

Based on the interviews, I also assessed the third component of attitude, the behaviours in relation to the attitude object (i.e., women who opted for SEF). I asked the participants how SEF should be regulated, if the choice were theirs. Furthermore, I asked them at what maximum age it would be acceptable for women to use their own cryopreserved oocytes. In other words, what would be the latest acceptable age to become a mother with this medical technology? Currently, in Germany, OC is allowed both for age-related and disease-related reasons. Although there is no regulation on the age limit for a woman who returns to use her cryopreserved oocytes, the recommendation is set at 50 (ESHRE Task Force on Ethics and Law, 2012). Although I analyse perceptions about regulation (i.e., if and who should decide and until which maximum age) in this section, I address participants' perceptions about the latest acceptable age to become a mother and father in *section 5.5.2.1.*

5.3.3.1 Regulation

None of the participants would forbid OC in general or for social reasons. Whereas some participants would regulate OC strictly, for instance by defining a relatively low maximum age limit for women to return to their banked oocytes, there are also participants, like Luca and Peter, who suggested that medical experts, doctors or academics should be giving advice and making decisions based on individual examinations. Luca, Peter and Ben said they would be clearly opposed to regulation, as it would intervene in the individual's right to decide on their own wish to have a child. While Ben defined regulation as a 'big intervention', he also expressed the view that female bodies send a signal when the fertile timeframe ends and after this women should not be allowed to choose in vitro fertilisation.

'I would regulate it in a way that, well, I think the legislator is not allowed to prescribe when you have a child, if you have a child, how you have a child. The only thing which I would eventually let be regulated is that maybe a doctor attests that it functions.' (Luca, 24, Paragraph 24)

'Well, it would be difficult to me to ban it for people. Well, as I said, the health condition of each person is different. I believe I would rather go in the direction of medical consultation or pedagogical consultation.' (Peter, 25, Paragraph 20)

'I thought, on the one hand, it would be a big intervention if you regulate it by law, until when a woman is allowed to have an in vitro fertilisation, or social egg freezing is also

> a type of in vitro fertilisation, more or less. I thought already that if a woman is 55 or something like that and she gets a child in a natural way, then no one says anything against it. But I still think that purely from an ethical perspective, it should be that a woman who is no longer normally fertile, she shouldn't be doing that. Because the body also sends a signal, no, it's not working anymore.' (Ben, 24, Paragraph 28)

Emma argued that the decision should be linked to the women's health conditions rather than to their age. Similarly, Lara also defined access to SEF based on the person's physical, mental and financial situation. Additionally, she mentioned that this is a 'very individual decision' as women are the ones who are aware of their body and its capability and are thus the most competent people to make the decision.

> 'Well, I don't know whether I would define it based on the time. I would rather define it based on the woman's health condition, whether her body is able to cope with a birth and whether a healthy child will come into the world. I would rather base it, then, on her health condition than (inc.) on age.' (Emma, 24, Paragraph 27)

> 'Yes, it's a very difficult question. I think as long as one is physically, mentally and financially in the position to carry a child to term, it should be possible to implant the oocytes. At least to try. […] it's a very individual decision because a woman knows her body the best and can probably evaluate it the best. […] I would rather give a reference value, which in case of doubt could be adjusted to the individual person.' (Lara, 24, Paragraphs 25–27)

5.3.3.2 Age-limit

Feiler (2020, pp. 156–158) interviewed German medical experts about their views on the age limit for the medical procedure of SEF. Experts' arguments were different, as in Germany there is no official age limit for the use of frozen oocytes. It is only advised that medical centres do not conduct in vitro fertilisation after women turn 50. Feiler concludes, on the one hand, it would be easy to set a non-negotiable age limit (e.g., 48 years) when considering the zygote transfer, but on the other hand, there are various individual factors that influence the success of the medical procedure. For instance, a younger but unhealthy woman who is overweight would receive help with assisted reproductive technologies to achieve pregnancy, but not an older, healthy woman who is not overweight.

In the research, the interview-partners were also asked if they would regulate SEF, what age limit would they set. While some participants did not name an age limit but instead linked the decision to other general factors such as a woman's health condition or to the individual decision, other participants named an age limit, or an indicative age limit, such as between 45 and 50. These answers, including the ones from women who had already chosen SEF, are

presented in *Figure 26*[26]. Where participants did not mention a clear number (e.g., 'late forties, early fifties'), I applied the older age (e.g., 50). Certain mathematically non-concrete values are visualised the following way: mid-forties as 45, late forties as 48, early fifties as 52 and menopause as 45.

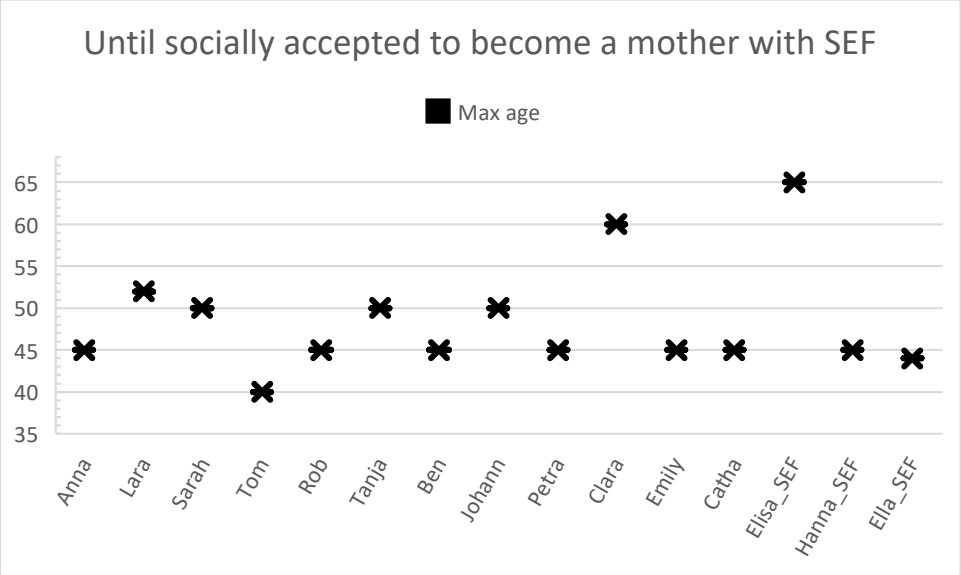


Figure 26 Participants' perception on maximum age to become a mother with SEF

On average, the above-illustrated 15 participants gave 48.4 years as the latest supported age to become a mother. While the average preferred maximum age is 47.6 amongst the 12 non-SEF participants, it is 51.3 for the SEF participants. It should be noted that this difference is due to Elisa, who did not want to set a realistic limit and answered the question with 65. Additionally, she mentioned that she personally did not want to become a mother if she was older than 40. The other two SEF participants, Hanna and Elisa, gave limits under the average noted above. Consequently, we cannot truly say that SEF participants were more supportive than non-SEF participants of motherhood at an advanced age. However, we can observe a slightly higher acceptance by the 11 women (average of 49.6 years) than by the men (average of 45 years), which is due to Elisa's (65 years) and Clara's (60 years) higher age limits. Below are some examples from participants who named 45 to 50 years as the preferred age limit.

> 'Well, I'm flexible. I would even say until 45 […].' (Emily, 34, Paragraph 37)
> 'I could imagine around mid-40s.' (Rob, 26, Paragraph 37)
> 'Well, I think 45 till 50, yes. In this direction.' (Sarah, 22, Paragraph 33)
> 'I think until maximum 45, if at all, the age of 45 should be the latest that one uses the oocytes.' (Catha, 25, Paragraph 29)

[26] Note: Although I have not included SEF women's statements in the attitude analysis towards women opting for SEF, I have included their perceptions in the table for reference.

Furthermore, some participants—such as Anna, Esther, Johann and Clara—commented on the question itself, evaluating it as a 'good question', 'nice question' or a question that is 'difficult to answer'. Clara defined it as 'an ethical, moral question'. Thus, one can expect the answers to have different perspectives and layers.

> 'That's a good question. Yes, well, I would say it now simply, so until, well, until 45. Well, I believe after 45 it's already a bit critical because indeed other risks may arise.' (Anna, 26, Paragraph 25)

> '[…] from a moral perspective, it's difficult to answer this. From a biological perspective, and let's say before menopause for sure, well, at maximum until menopause.' (Esther, 23, Paragraph 33)

> 'Okay, nice question. In principle I believe one should say as long as the wish of the parents is there, […] I would say around 50. I've just named a number, but I believe based on today's life expectancy and yes […].' (Johann, 24, Paragraphs 18–19)

> 'Well, oh. It's an ethical, moral question. It's very interesting. […] Okay, being intuitive, I would set it [age limit] to 60 years. I think this is also a typical retirement age.' (Clara, 22, Paragraph 35)

Participants also described why they named the particular age. However, I have included this analysis in *section 5.5.2.1*, under the expected age of mothers and fathers.

5.3.4 Conclusion: participants' attitude towards women opting for social egg freezing

I assessed the participants' attitudes towards women opting for SEF based on the answers they provided in the interviews. To answer this research question, I asked participants who had no personal experience of SEF (non-SEF participants) about their beliefs, feelings and behaviours in relation to the attitude object. I then categorised the statements related to women who opted for SEF based on their direction (positive or negative) and intensity on a five-point scale. I have visualised this categorisation in the heatmaps (*Table 5* and *Table 6*) below by naming some examples. In cases where a participant's perception showed negative beliefs, feelings and behaviours in relation to the attitude object, for instance, a negative description of these women, these women's motivations and reasons were perceived negatively, or the participant showed negative judgement rather than empathy. Additionally, participants may have expressed negative feelings towards these women and wanted to reduce their rights to choose SEF by suggesting stricter regulation of SEF's application, thereby limiting women's possibilities by defining a lower age limit to use their previously cryopreserved oocytes for pregnancy than the current medically advised age limit. I have placed these statements on the left side, the black part of the heatmap. Less negative statements I categorised in the dark grey part. Mixed or neutral statements I added to the middle of the heatmap and marked dotted. More positive and

positive beliefs, feelings and behaviours in relation to these women included, for instance, positive descriptions of them and their motivations and reasons to cryopreserve their oocytes and participants showed empathy. Participants' positively expressed feelings towards these women and statements to enhance their rights to opt for OC by not suggesting any limiting regulations for choosing cryopreservation at a more advanced age or not advocating for a stricter age limitation than the currently advised limit I marked in light grey or white and placed on the right side of the heatmap. On this heatmap, I counted the categorised statements on the scale and visualised them e.g. in *Figure 27* (beliefs) and in *Figure 31* (feelings and behaviours). For comparability reasons, I have demonstrated the study's two target groups, women and men without SEF experience, in different figures. Furthermore, I have also presented the participants' beliefs on an individual level in *Figure 29* and *Figure 30* and their feelings and behaviours in *Figure 33* and *Figure 34*.

5.3.4.1 Beliefs about women opting for SEF

I measured the participants' beliefs about women opting for SEF on three dimensions, each on a five-point scale, from very negative to very positive, as illustrated with examples in *Table 5* below. The first dimension was the *portrayal* (P) in how participants described women, for example, as *career-pursuing egoistic women* (negative) or women *making a well-informed decision* (positive). The second dimension was the perceived *motivation* (M) to opt for OC, where I assessed whether participants showed *no understanding* or *negative judgement* by naming the motivation, such as that one's career cannot be prioritized over motherhood (negative) or *showed empathy and understanding* towards the motivation of the cryopreservation (positive). A further indicator was whether the *reason* (R) for cryopreservation (i.e., age-related or disease-related) made a difference in perceptions of women opting for cryopreservation. For instance, statements that support women who choose cryopreservation due to disease-related reasons but do not accept those who do so for social reasons I assessed as negative towards the attitude object, whereas statements that support both reasons and make no ethical differentiation I assessed as positive.

Beliefs examples	− Negative	More negative	Mixed / neutral	More positive	+ Positive
Portrayal (P)	No example	'I would say that they are rather focused on their careers. I would guess that they are ambitious, and yes, also brave, but brave in terms of leaving ethical reasons out of scope and still dare it. There are also reasons not to do it. Exactly.' (Esther, 23, Paragraph 25)	'It would be sad, of course, if someone trust this, that it works, and then due to other reasons, it still doesn't come off well. Then someone at 40 [years] somehow still cannot be pregnant, although she froze one.' (Rob, 26, Paragraph 31)	No example	'Yeah, first, I think that's still something new and to try something new, you have to be brave […] Basically, I see these women, I think, brave, and yeah, emancipated and pioneers in this field.' (Peter, 25, Paragraph 13)
Motivation to freeze (M)	'[…] As a woman now, which means I cannot understand at all, as a woman somehow wanting to make a career and to combine this with my wish to have a child. […] I can quite understand it from certain points, but I find that there are in life always such intersections where you must decide.' (Tom, 34, Paragraph 17)	No example	'Yes, I think that nowadays rather often to make a career, or for them it's also more important that they also want to achieve manager positions, and also the age between 30 and 40 is really important, which is when many currently have their children. And with that the limit is postponed further […].' (Sarah, 22, Paragraph 25)	'[…] but they [men] can plan their lives much easier than a woman who must constantly look at the clock and must take care that [they] find a partner for life in time, which is not that easy. And then have children in time.' (Luca, 24, Paragraph 14)	'I actually think that nowadays it's generally very difficult for women balancing these topics of family and career, and of course for women it could be an opportunity to maybe freeze their oocytes at a fertile age and rather [to have] the idea of security.' (Petra, 29, Paragraph 23)
Reasons (age or disease) (R)	'I can understand why in some countries, they say, medical egg freezing is okay and social egg freezing not. […]' (Emma, 24, Paragraph 33)	'[…] maybe they [cancer patients] have no other chance to have a child while they are in this terrible situation. Let's say their lives are suffering from this illness, but on the other hand, I think that the people who want to proceed with their careers until they are 45 and then they first give some thought to how to have children and eventually, I don't know, become parents in their mid-fifties. Somehow I don't find it good.' (Tanja, 32, Paragraph 11)	No example	No example	'I think, no, I think it's relevant. Well, for me in both cases it's about a personal decision. The reason for this personal decision might be biological or medical but it can also be social. In the end, the root cause, the motivation behind the decision to go with it, could be diverse. At the same time, I don't think that one should differentiate ethically.' (Lara, 24, Paragraph 17)

Table 5 Participants' beliefs about women opting for SEF - heatmap

In *Figure 27* below, I present the statement distribution as linked to the dimensions. I have allocated the 48 identified statements as follows: 7 to Portrayal, 28 to Motivation for cryopreservation and 13 to the Reason for cryopreservation. In sum, participants described the portrayal of women opting for SEF with three *more negative*, two *mixed/neutral* and two *positive* comments. As for the motivation for cryopreservation, out of the 28 statements, I have categorised eight as *mixed/neutral*, 12 as *more positive* and seven as *positive*, which indicates that participants assessed women's motivations more on the positive side of the scale than on the negative side. On the other hand, 13 statements that were linked to the Reason for cryopreservation indicate these motivations (i.e., women opted for cryopreservation due to disease-related or age-related reasons) make a difference in participants' perceptions. Ten statements highlighted the ethical differences, and I categorised them as *negative* (n=1) or *more negative* (n=9) statements, whereas only three statements indicated that the reason for cryopreservation makes no ethical difference in women's perception and were categorised as positive.

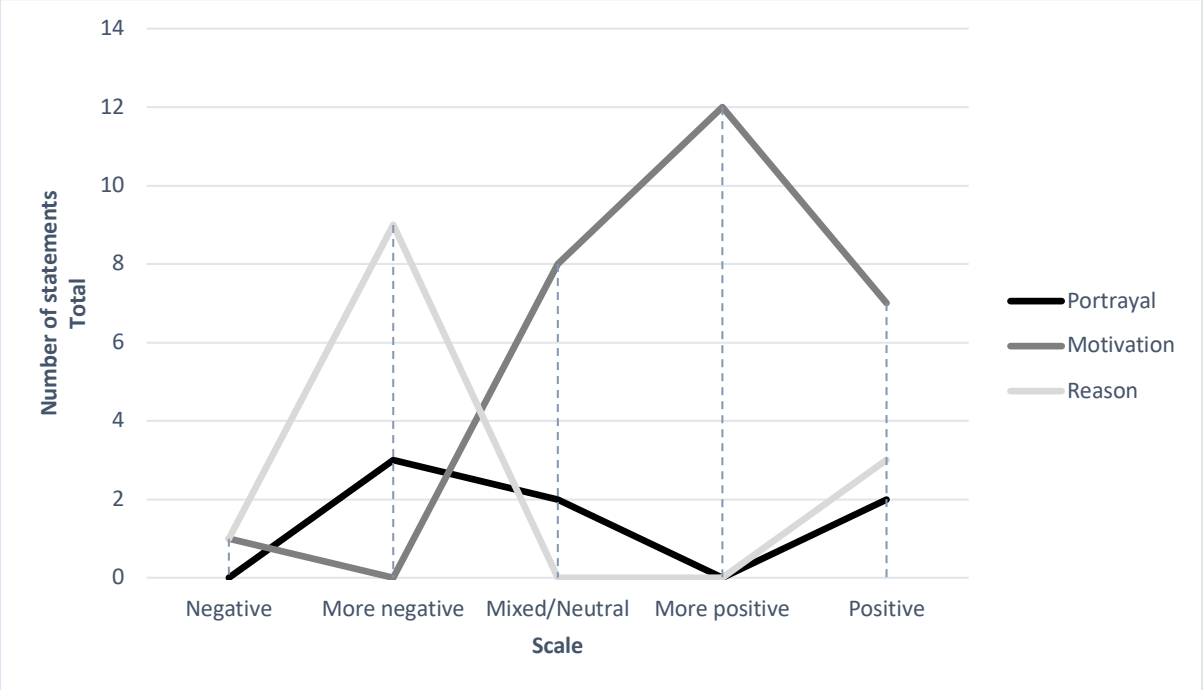


Figure 27 Participants' beliefs about women opting for SEF - statements

In regard to the gender-based distribution of the statements, I observed the following aspects. Non-SEF women made fewer statements linked to the category Portrayal (three in total, 0.3 per female participant), whereas men mentioned four (0.6 per male participant). From the non-SEF women's interviews, I linked 18 statements (1.8 per participant) to the category

Motivation, compared to 10 statements (1.6 per participant) from the interviews with men. As for the reason for cryopreservation, I identified nine statements (0.9 per participant) from the non-SEF women and four statements (0.6 per participant) from men. Therefore, both non-SEF women and men mentioned statements similarly in their interviews. In regard to the direction and intensity of non-SEF female and non-SEF male participants' statements, I would like to highlight one observation: while the majority of statements amongst non-SEF women are linked to the Reason for cryopreservation on the negative side of the scale (one *negative*, five *more negative*), I did categorise three statements as *positive*, which provides a more balanced picture of these perceptions. On the other hand, amongst non-SEF men, I identified only *more negative* statements (4).

In total, 48 statements were linked to one of the dimensions on the scale: 30 statements for women without experience (three per participant) and 18 for the men without experience (three per participant). As presented below in the doughnut chart's (*Figure 28*) outer circle (total of both target groups), I categorised less than one third of the statements (29%) as *negative* (4%) or *more negative* (25%), evaluating 21% of all comments as *mixed/neutral* and placing half of the statements (50%) on either the *positive* (25%) or *more positive* (25%) part of the scale. If the gender-based distribution is analysed, it can be stated that non-SEF men participants mentioned more statements that were placed on the negative side of the scale than non-SEF women. As presented in the inner cycle of the doughnut chart, 39% of the male statements were either *negative* (6%) or *more negative* (33%) and 39% of their statements were *positive* (17%) or *more positive* (22%); therefore, the statements are distributed fairly equally on the scale. Non-SEF women's statements are visualised in the middle circle, representing more positive beliefs about women opting for SEF than their male peers' statements. I interpreted only 23% of the statements as either *negative* (3%) or *more negative* (20%), 20% as *mixed/neutral* and more than half s (57%) as *more positive* (27%) or *positive* (30%).

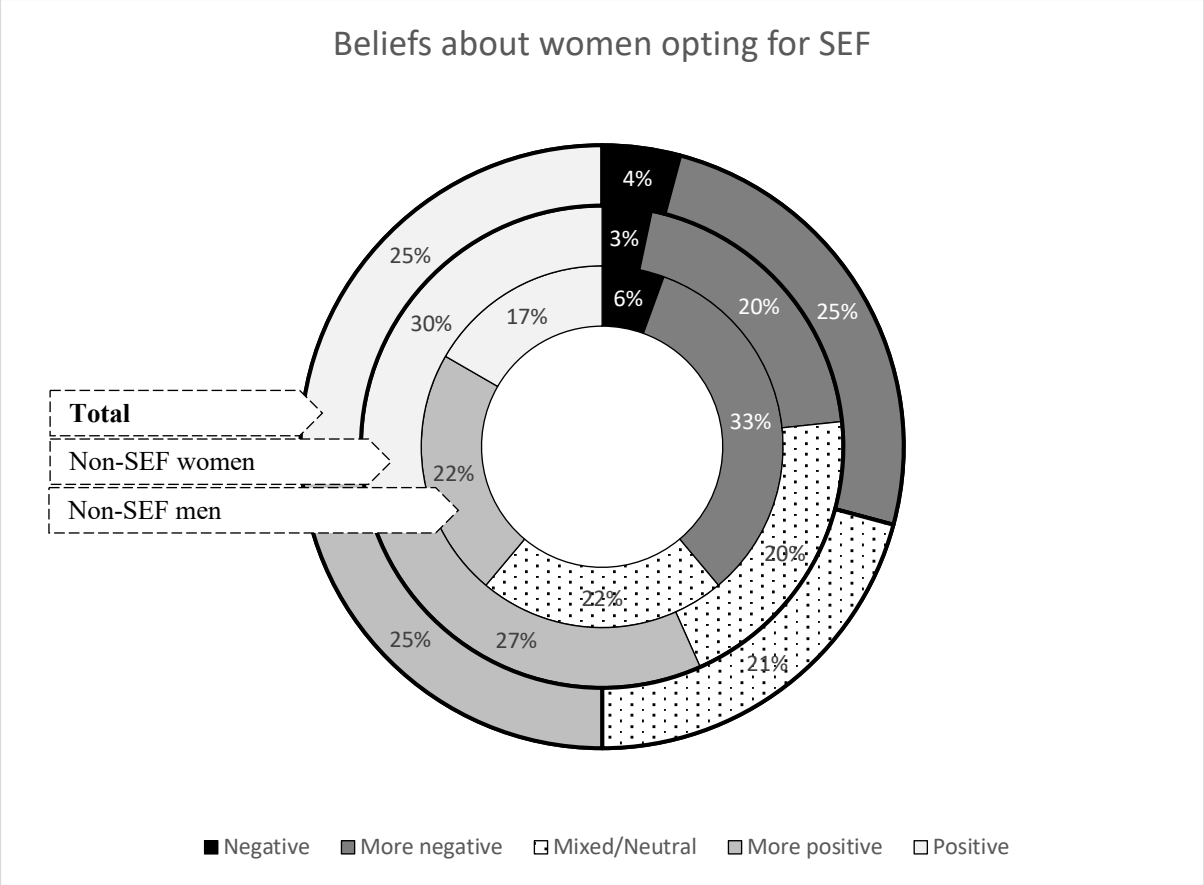


Figure 28 Participants' beliefs about women opting for SEF - doughnut chart

Additionally, the heatmaps (*Figure 29* and *Figure 30*) below represent the allocation of the statements per participant based on the two target groups: women without personal experience (*Figure 29*) and men without personal experience (*Figure 30*). With the heatmap I intend to show whether a participant's statements were poled to one direction or whether they are distributed on the scale. Many participants, it turns out, have have a wider span of statements, mentioning both negatively or more negatively categorised statements as well as statements I categorised as more positive or positive. In certain cases, participants describe the motivations of the women opting for cryopreservation positively or more positively (e.g., by showing understanding and empathy), but then, when discussing the reason for OC, they show less understanding if women are choosing it due to age-related infertility than due to disease-related infertility. For instance, Esther's statement involves empathy towards the women, as she describes how challenging it is to find the right partner to have a child with: 'Family-planning, whether one has a partner, also then, with whom she can count on, with whom she can plan a family, with whom she would like to have children' (Esther, 23, Paragraph 39). On the other hand, when she described the reasons for cryopreservation, she argued that women

were consciously 'pushing[ing] back family planning', prioritising career over family planning:

> 'but there [are] differences depending on the reasons for why one does it. And as for social, it's about someone maybe rather choosing to concentrate on her career as a woman and wanting to push back family planning and for the medical it is like the woman maybe doesn't push family planning to the background, but the opposite, to the foreground, and it doesn't play a side role. That she always wants to have children later.' (Esther, 23, Paragraph 17)

Similar perceptions can be observed in Clara's statements. When asked about why women opt for cryopreservation, she showed empathy, not blaming the women, and differentiated the motivations and set them in the context of society (i.e., having financial security and the right partner before family planning). For example:

> 'They might not yet have the financial status that one should be achieving. One big goal is also to have a certain level of security. And that is why they should wait. These would be, I think, the reasons. […] Also, maybe she hasn't found the right partner yet. I mean, nowadays there are a lot of short-term relationships (inc.) and society also suggests this. At least I perceive it is like this among my friends, that, well, there is this independence. Also, that women don't find the right person right away (inc.).' (Clara, 22, Paragraph 28)

This can be interpreted as Clara supporting women's decisions, as she mentioned that they 'should wait' with childbearing as long they do not have the financial security. Furthermore, she judged the lack of long-term relationships and the focus on independence as caused by society rather than by the women—'society also suggests this'. Similarly, when discussing the reason for cryopreservation, Clara argued that for women opting for cryopreservation for disease-related reasons (e.g., cancer), this is their only chance at a future pregnancy. In relation to women opting for SEF, Clara described the decision as the 'construct of meritocracy' and was inconsistent in her argumentation; for instance, women not having a partner or financial stability by the time they approached the end of their fertility and cryopreservation would be the only option for them to have a chance at a future pregnancy: 'I think in cases if you have cancer, women or at least younger women do that. If they don't have children but still want to have [children] and they are still relatively young. And in this perspective, nothing else [other options to reproduce] remains. That's their chance to become pregnant. Social egg freezing […] became a construct of the meritocracy.' (Clara, 22, Paragraph 24)

Tanja's interview contains a further example. She described that women might opt for SEF because they do not have the right partner for family planning:

> 'I could imagine that it depends on that, when women are single, and the right partner is not there at that moment. Let's say under 35 and therefore they decide to get their

> oocytes frozen in order to preserve them [and to wait for] the partner who will eventually come and with whom she will have children.' (Tanja, 32, Paragraph 13)

In her statement, she is not attributing blame to the woman as to why she was not able to ensure a partner during her reproductive age. Tanja's description can even be interpreted as casting the woman as the victim, laying the blame on the man who, so to say, did not find her or left her, as Tanja said 'the right partner is not there' or the woman waits for the 'partner who will eventually come'. Yet discussing when the reason for cryopreservation, Tanja perceived cryopreservation as the only chance of motherhood for sick women, but made women opting for SEF responsible for their decision:

> '[…] maybe they [cancer patients] have no other chance to have a child when they are in this terrible situation, let's say, their life is suffering from this illness, but on the other hand, I think that the people who want to proceed with their careers until they are 45 and then they give some thought somehow to having children, and eventually, I don't know, become parents in their mid-fifties, somehow I don't find it good.' (Tanja, 32, Paragraph 11)

Tanja described women opting for SEF as making conscious decisions, that they 'want to proceed with their careers'; she did not name any further reasons, such as not having the right partner, only the prioritisation of career over children. And after these women reach '45', presumably ready to de-prioritise their careers, they 'give some thought somehow to having children', also indicating that women are late in addressing reproduction, thus blaming them implicitly. Tanja closed her statement with disapproval, 'somehow I don't find it good', referring to becoming a parent when older.

I observed this same tendency amongst the male participants. For instance, Luca described the biological disadvantage women have compared to men when it comes to the fertility window. He also mentioned that it is not easy to find a partner with whom one can have a child: '[…] but they [men] can plan their lifetime much better than a woman, who must constantly look at the clock and must watch that [they] find a partner for life in time, which is not that easy. And then have children in time […]' (Luca, 24, Paragraph 14). Here, Luca was showing understanding and empathy towards women opting for SEF. Yet when discussing the reason for cryopreservation, he, too, argued that there is a difference between someone choosing cryopreservation due to disease-related or age-related infertility: 'Yes, one is necessary, and the other one is rather a luxury?' (Luca, 24, Paragraph 137). By describing SEF as a luxury

procedure, Luca emphasised its perceived needlessness, casting it as an unjustifiable method, whereas previously he had highlighted the difficulties of family planning for women.

Meanwhile, Ben discussed the challenges women face, also due to social pressure to have children at the right time, meaning not too early in their lives to not jeopardise their careers:

> 'That women will still feel forced to—better to say they will not be forced, but there is a social pressure somehow that women should not have children too early, or if she does then, or there is a danger that if women have children early, they won't get ahead in their careers. And I think this will be somehow the main reason that they reach out to this social egg freezing […].' (Ben, 24, Paragraph 17)

Furthermore, Ben also noted that the lack of a partner could be the motivation for women opting for SEF: 'It could be that someone doesn't want to have any [children] right now. It doesn't have to be due to the careers, but due to reasons like there is no partner or so on. This could be also a reason.' (Ben, 24, Paragraph 20). In these first statements, he did not directly blame women for missing their fertile reproduction years, but rather highlighted the social pressure they face, the 'danger' to their careers and the lack of a potential father. Yet Ben judged social reasons for cryopreservation as less acceptable, viewing them 'rather critically' when considering the ethics:

> 'But this is also reasonable and also a strong relief. But, if I consider it, that you could have some other reasons, as I said, one may do it as she wishes. But based on the social pressure, or something like that, or someone thinks she absolutely must have it, for whatever reason, then I see it rather critically. Well, from an ethical perspective.' (Ben, 24, Paragraph 15)

Moreover, the heatmap reveals that some participants had more than one or two statements linked to a certain dimension. For example, participants named several motivations why a woman might opt for cryopreservation; I thus describe their motivations in detail, classing most as positive, more positive or mixed/neutral.

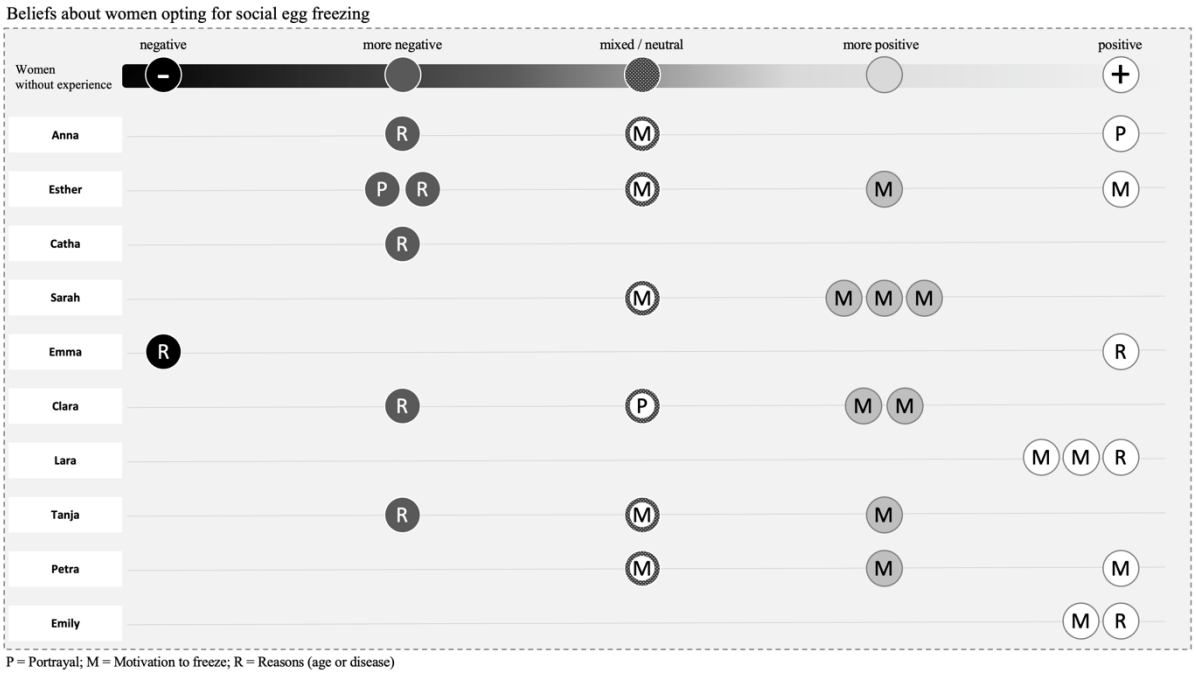


Figure 29 Participants' beliefs about women opting for SEF - individual view (non-SEF women)

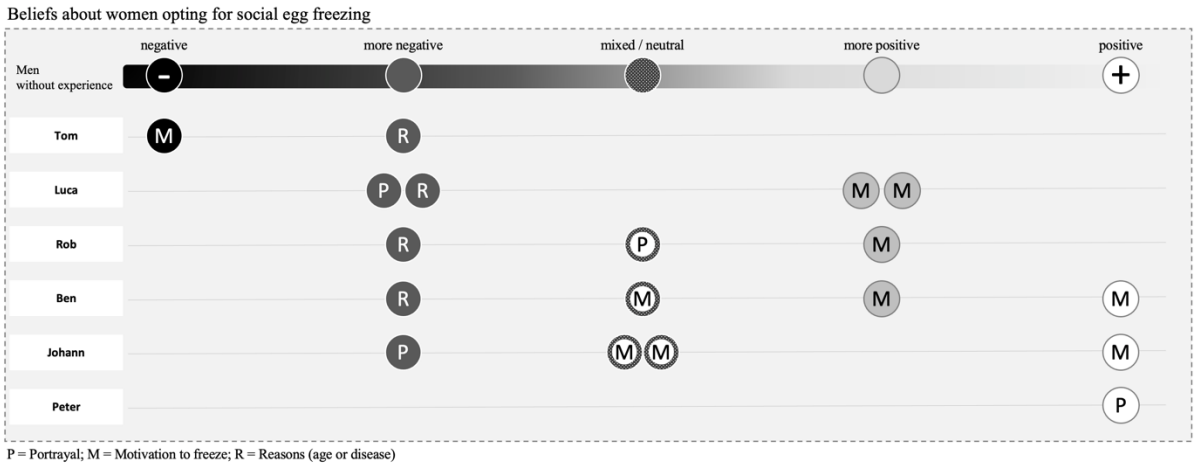


Figure 30 Participants' beliefs about women opting for SEF - individual view (non-SEF men)

Based on the above analysis, it can be concluded that participants' beliefs about SEF were mostly *positive, more positive*, or *mixed/neutral*, rather than *more negative* or *negative*. I observed differences based on gender: in general, women showed more positive beliefs about the attitude object than men. In both groups, participants also showed more positive beliefs about women's motivations for choosing SEF, but if the reason for cryopreservation was discussed, they tended to negatively assess women who chose it for social reasons.

5.3.4.2 Feelings and behaviours in relation to women opting for SEF

I assessed participants' feelings and behaviours in relation to the attitude object, women opting for SEF, on three dimensions, each on a five-point scale, from very negative to very positive, as presented in *Table 6*. Participants may express Feelings (F) on a scale of negative to positive towards the attitude object. I. measured the participants' behaviours based on their statements as to whether they would control women's medical options to access OC by introducing or strengthening existing Regulations (R). If participants would forbid OC or decide it should not be allowed in cases of age-related infertility, I perceived their behaviours as negative in relation to the attitude object. If their preference was that women have the option to make their own decisions, thus giving individuals the widest freedom medically possible, I perceived their behaviours as positive. Furthermore, I asked participants until which Age (A) it would be acceptable for women to use their own cryopreserved oocytes—in other words, what is the latest acceptable age to become a mother with this medical support? To assess their perceptions, I used the current valid German medical recommendation regarding the age limit for using stored frozen oocytes, which is a maximum of 50 years (ESHRE, 2020, p. 38). Most participants were not aware of this age limit. In cases where participants stated that SEF should not be allowed, I categorised their statements as negative, and if they named a lower age limit than the current recommendation in Germany, I also categorised their statements as negative. I categorised statements that included an age limit 50 as more positive and age limit higher than 50 years as positive, and did the same with statements that referred to no age limit at all.

Feelings; Behaviour examples	Negative	More negative	Mixed / neutral	More positive	Positive
Feelings (F)	No example	No example	‘I actually have no feelings about it. Basically, for me it’s indifferent.’ (Ben, 24, Paragraph 24)	No example	‘I ask myself, I feel myself connected, I can understand this. I can also, well, understand the motivation behind this, whether I personally would do this (inc.). That’s also the conclusion, I would also conclude based on this connection, I don’t know whether I personally could go through with it [SEF].’ (Lara, 24, Paragraph 21)
Regulation (R)	No example	‘I think until maximum 45, if at all, the age of 45 should be the latest that one uses the oocytes.’ (Catha, 25, Paragraph 29)	‘I could imagine around mid-40s.’ (Rob, 26, Paragraph 37)	‘Okay, nice question. In principle I believe one should say as long as the wish of the parents is there, […] I would say around 50. I've just named a number, but I believe based on today’s life expectancy and yes […].’ (Johann, 24, Paragraphs 18–19)	‘Yes, it’s a very difficult question. I think as long as one is physically, mentally and financially in the position to carry a child to term, it should be possible to implant the oocytes. At least to try. […] it’s a very individual decision because a woman knows her body the best and can probably evaluate it the best. (Lara, 24, Paragraphs 25)
Age (A)	No example	‘That’s a good question. Yes, well, I would say it now simply, so until, well, until 45. Well, I believe after 45 it’s already a bit critical because indeed other risks may arise.’ (Anna, 26, Paragraph 25) ‘[…] from a moral perspective, it’s difficult to answer this. From a biological perspective, and let’s say before menopause for sure, well, at maximum until menopause.’ (Esther, 23, Paragraph 33)	„[…] But now, an exact age as limit I couldn’t specify.” (Tanja 23, Paragraph 19)	‘Well, oh. It’s an ethical, moral question. It’s very interesting. […] Okay, being intuitive, I would set it [age limit] to 60 years. I think this is also a typical retirement age.’ (Clara, 22, Paragraph 35)	‘Well, I don’t know whether I would define it based on the time. I would rather define it based on the woman’s health condition, whether her body is able to cope with a birth and whether a healthy child will come into the world. I would rather base it, then, on her health condition than (inc.) on age.’ (Emma, 24, Paragraph 27)

Table 6 Participants' feelings and behaviour in relation to women opting for SEF - heatmap

Figure 31 visualises how participants statements are distributed in relation to the dimensions. In total, I identified and allocated 34 statements to one of the following dimensions: two statements to Feelings (F), 16 to Regulation (R) and 16 to Age (A). Unfortunately, participants did not express many feelings towards women opting for SEF. Of the two available statements, I categorised one as *mixed/neutral* and one as *positive*. As for the Regulation dimension, none of the participants suggested forbidding SEF, while two statements referred to a stricter regulation and were therefore categorised as *more negative*. A further four statements included conditional or indecisive reference to regulation and were thus categorised as *mixed/neutral*. In sum, nine statements suggested a more liberal approach to the regulation of SEF and were thus categorised as *more positive* (n=6) or *positive* (n=3). As for the Age (A) limit for SEF, six statements reflected a stricter regulation than the current recommendation; I categorised four statements were categorised as *mixed/neutral*; and I assessed the six statements suggesting no or a more flexible age limit than 50 years as *more positive* (n=1) or *positive* (n=5).

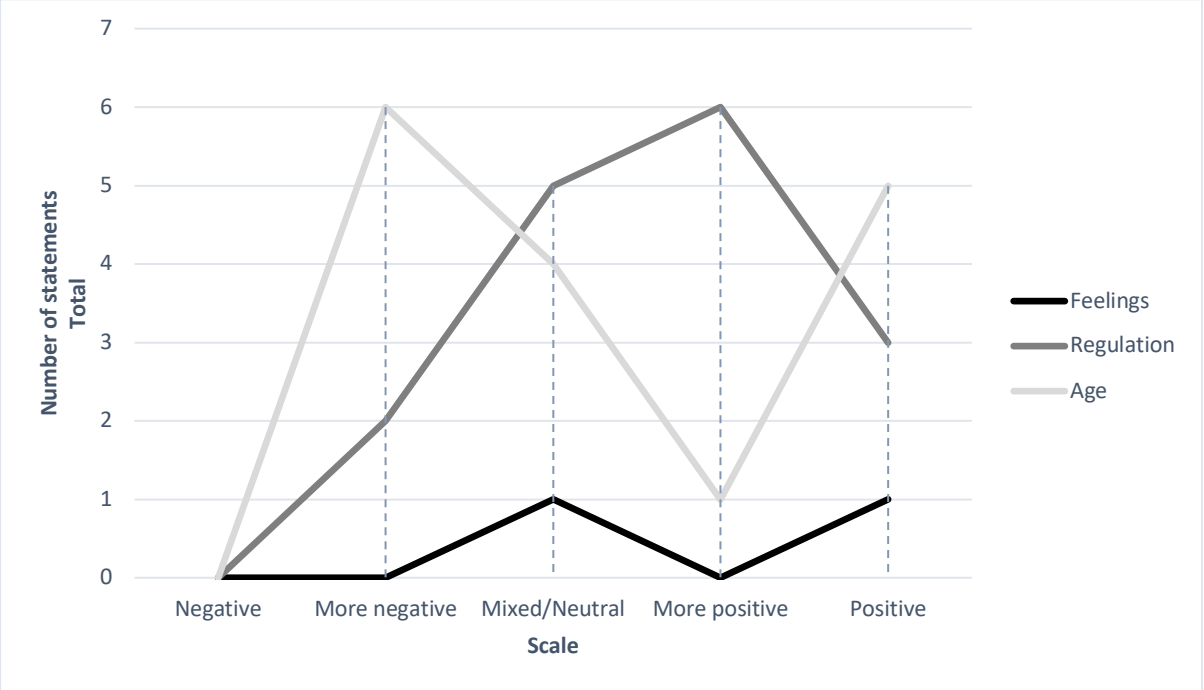


Figure 31 Participants' feelings and behaviours in relation to women opting SEF - statements

As for the gender-based distribution of the statements, non-SEF women mentioned 21 statements related to Feelings (F), Regulation (R) and Age (A), with an average of 2.1 statements, which was similar to their male peers, who provided 13 statements in total and 2.2 statements on average per participant. As for the non-SEF women, I categorised half of their statements—that is, five out of ten—on the positive side of the scale, such as when they named

a specific age in relation to the regulation or a stricter age limit than the current recommendation. This slightly contradictory picture is due to statements like Emily's: 'Well, I'm flexible. I would even say until 45 […]' (Emily, 34, Paragraph 37). She describes herself as 'flexible' when it comes to regulation, but the set age is fairly low. I did not observe this ambivalence amongst the male participants.

In total, I linked 34 statements to one of the dimensions on the scale. As visualised below in the doughnut chart's (*Figure 32*) outer circle (total of both target groups), I categorised no statements as *negative* and less than a fourth (24%) of the statements as *more negative*. Slightly more than a quarter of the statements (29%) were *mixed or neutral*, another quarter *more positive* (21%) and the last quarter *positive* (26%). Male participants showed a more positive perception than their female peers towards the attitude object, as represented in the inner circle of the doughnut chart. As only 8% of their statements were *more negative*, I placed more than half of their statements (53%) on the positive side of the scale, as 15% were *more positive* and 38% were *positive*. In contrast, non-SEF women, represented in the middle circle of the doughnut chart, made statements that were 33% *more negative*; less than half of their statements (43%) tended to be positive, namely 24% were *more positive* and 19% *were positive*.

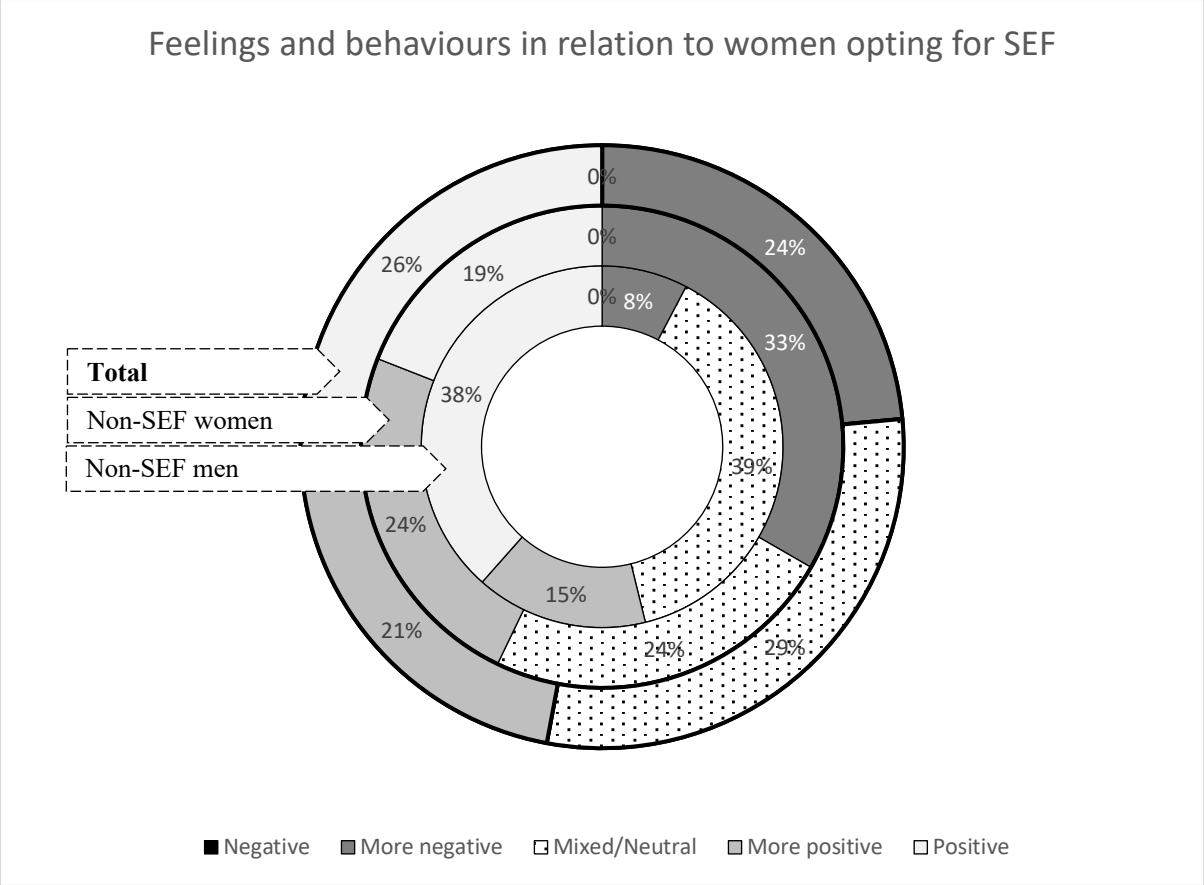


Figure 32 Participants' feelings and behaviours towards women opting for SEF - doughnut chart

The heatmaps (*Figure 33* and *Figure 34*) below visualise the distribution of participants' statements. The statements are distributed almost equally amongst the participants, as 14 participants made two statements and two participants made three statements. Participants, on the individual level, do not have shared statements that can be located on different poles of the scale. Participants tended to either (a) support the individual choice over the strict regulation and link the choice of SEF to women's individual health conditions and name an age limit, if any, that is higher than the currently advised 50 years; or (b) offer a stricter perception of SEF and suggest regulation of its use, including setting the age limit to 50 years or lower. None of the participants suggested banning OC in general, regardless of the reason for cryopreservation.

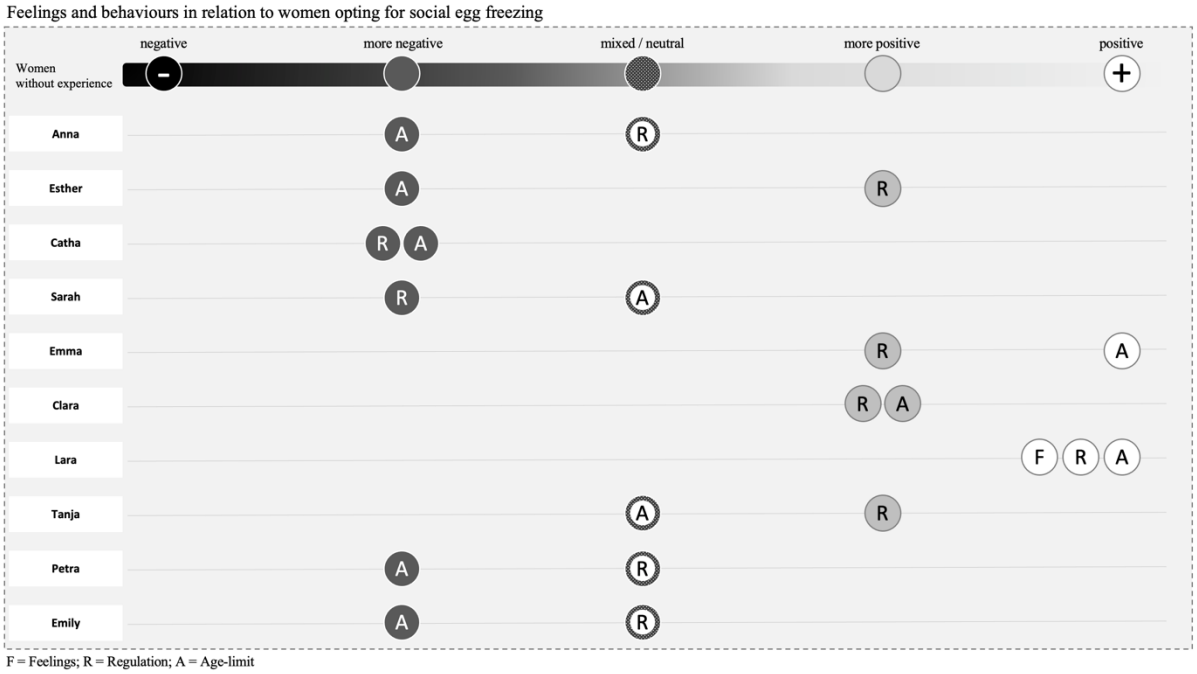


Figure 33 Participants' feelings and behaviours in relation to women opting for SEF - individual view (non-SEF women)

Figure 34 Participants' feelings and behaviours in relation to women opting for SEF - individual view (non-SEF men)

5.3.4.3 Summary

Based on the above analysis of 82 statements from 16 non-SEF participants (ten female and six male) towards women opting for SEF, the attitude object, it can be observed, as presented in *Figure 35*, that approximately half of the statements (49%) showed empathy and understanding towards women choosing SEF, which I categorised as *more positive* (23%) or *positive* (26%). About one quarter of the statements (24%) were *mixed/neutral*, about one quarter (24%) were *more negative* and only 3% were *negative*. Based on the interviews and statement analysis, it can be concluded that participants' attitudes towards women opting for SEF have a positive direction, even if it is not very strong.

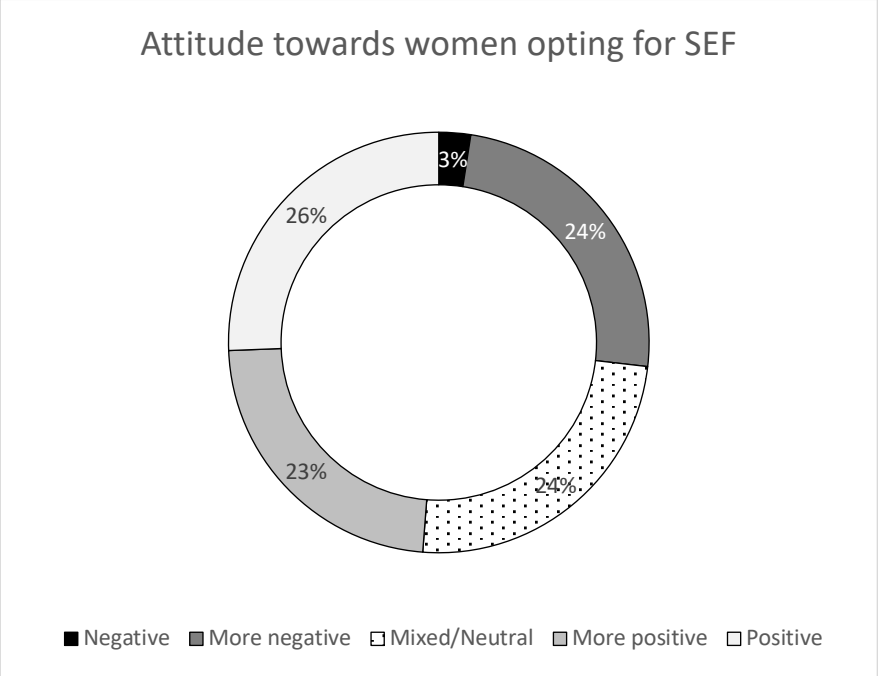


Figure 35 Participants' attitudes towards women opting for SEF - doughnut chart

5.4 Attitudes towards SEF as an employee benefit

With research question 1(c), I examine non-SEF and SEF participants' attitudes towards SEF as an employee benefit, based on three attitude components (Allport, 1935; Fishbein & Ajzen, 1975): (1) beliefs, (2) feelings and (3) behaviours in relation to the attitude object. I assessed the participants' (1) beliefs based on their perceptions as to whether SEF supports gender equality in the labour market or why they believe companies offer SEF as a benefit to their employees. I also gathered and analysed their (2) feelings towards the opportunity. And, finally, I assessed their (3) behaviours based on the perceived attractiveness of an employer offering SEF as a benefit and on the participant's intention to choose a company as their employer based on this benefit. Contrary to the attitudes towards SEF and women opting for SEF, where I assessed only the attitudes of female and male participants without any experience of SEF (n=16), I assessed the attitudes towards SEF as an employee benefit amongst all participants (n=20), including the four women who had personal experience of SEF. In the following discussion in *sections 5.4.1* to *5.4.3*, I summarise the statements attributed to the relevant codes, and in *section 5.4.4* detail the analysis based on the direction and intensity of participants' attitudes towards the attitude object (SEF as employee benefit). I then present my individual attitude analysis.

5.4.1 Beliefs about SEF as an employee benefit

As for the participants' beliefs, I assessed their perceptions as to whether SEF supports gender equality in the labour market. To introduce the topic, I asked the participants whether they identify gender inequality as a current social problem in general. I also assessed their perceptions of the intentions of companies that offer SEF as an employee benefit.

5.4.1.1 Gender equality in the labour market

First, I asked participants whether they perceived any gender inequality in the labour market. I defined this introductory question based on the results of the preliminary study (Keglovits, 2015), as the participants of one focus group had claimed that gender inequality in the labour market was not a problem present at the time of the interviews (i.e., in 2015 in Hungary). Therefore, I could not assess in detail whether SEF would provide a solution to gender inequality from that particular focus group. In my current research, I therefore asked the participants how they perceived gender inequality in the labour market and whether they had any positive or negative experience in this regard. Five participants could not or did not want to mention any personal experience (positive or negative) in regard to gender inequality, however, they did not question the inequality's existence as such.

5.4.1.1.1 Negative example

Negative examples about gender inequality in the labour market outweighed the positive examples amongst participants. One of the major topics was the lack of equal pay between women and men,—no one shared a personal experience, but instead made general observations.

> '[…] that somehow equal pay. […] That women indeed earn much less money, they leave the profession, and then indeed they don't get the full salary.' (Emma, 24, Paragraph 45)

> 'I've actually heard from other doctors that there are different salaries even though the tariff agreements exist […].' (Catha, 25, Paragraph 38)

> 'Also, all the equal pay, well, the whole equal pay. That men earn more than women. This is indeed so omnipresent that we don't even think about it anymore.' (SEF_Elisa, 32, Paragraph 88)

One participant described negative behaviours in relation to women and their pregnancies, or potential pregnancies: Elisa, the only interviewee who is a parent, related her personal negative experience of how her boss reacted when she shared the news of her pregnancy. She also highlighted that her boss's negative reaction to her pregnancy and break from work was such a common reaction that 'we don't even realise' how negative or discriminatory it is.

> '[…] my boss back then then was not so amused when I said I was pregnant and I will drop off now. Well, I think that this is such an everyday issue that we don't even realise it.' (SEF_Elisa, 32, Paragraph 88)

Furthermore, Emma explained a situation when a man was chosen over a woman for a certain position because she was at an age when she could have been expected to be pregnant.

> 'I've heard it from a friend of a friend who is working for a business consultancy […] there were other men and they were talking about a recruiting interview, about a woman and a man, who had about the same qualifications. The woman was even better qualified for the position. But she was, well, still in a reproductive age, she was, I think, in her early thirties. And then they said, no, we cannot hire the woman because she can be pregnant. And then they decided for the man.' (Emma, 24, Paragraph 47)

Maria shared a situation that was described very briefly, but she assumed that a female colleague had a disagreement with their employer, and that this disagreement was linked to this woman's pregnancy or maternity leave. As a result, the woman left the company.

> '[…] a female colleague was on maternity leave […] and the employer was a bit unfriendly to her. And in the end and then she had trouble with the employer and yes, then after the maternity leave, she didn't come back to the company.' (SEF_Maria, 41, Paragraph 109)

Emma made a general statement about the 'punishment' of women for being biologically able to reproduce. Although she did not mention a concrete example, her thoughts imply that this is her general perception.

> '[…] that women shouldn't be punished for that, that they can simply be pregnant. And men not.' (Emma, 24, Paragraph 43)

5.4.1.1.2 Positive example

Participants also mentioned positive examples that were intended to reduce the existing gender inequality. Ben explained a certain speaking list, which he believed to support gender equality by ensuring that both genders contributed equally to a discussion.

> '[…] it's a cool speaking list or something like that. First, always a woman talks, then a man. They let the woman talk, then again a man, but then if a woman comes forward, then the discussion is over. This is, I think, actually a good example. For this. Men like to speak more than women.' (Ben, 24, Paragraph 71)

Johann shared an experience where a fellow student had children during her studies and what kind of support she received as a mother.

> '[…] someone I know had children during her studies and this is a special situation. Because it's not something usual. But I know that she received a lot of support, both from her family, but first of all from the state, from the institute, which made it easier than she would have previously expected. I didn't know that there are so many offerings. But I still believe that nevertheless many negative aspects exist.' (Johann, 24, Paragraph 54)

Emma positively described how she learned about a tech start-up in which half of all employees are women.

> 'I've read or heard about a start-up that 50%, well, 50% of the employees are women. And I found it totally interesting, a start-up in the technology industry. It's not quite usual that so many women work there.' (Emma, 24, Paragraph 51)

5.4.1.1.3 Inequality or not?

Two participants described examples of certain situations that, in their perceptions, were not clearly inequalities. Maria highlighted that 'in Germany no one talks about salary, therefore I don't know whether women indeed earn less than men' (SEF_Maria, 41, Paragraph 109). Furthermore, Tanja shared her childhood experience that reflected a traditional family model, as her mother primarily had childcare responsibilities, whereas her father was the breadwinner. She was unsure how this situation was perceived by the parties involved. Tanja clearly stated that the problem of the breadwinner model exists, and she did not question the existence of gender inequality in general.

> '[…] in my case and in the case of my friends, the moms always stayed at home, also quite long, and the dads were always at work, and they were the only breadwinner. The

> question is whether or was it seen by them as unfair. […] It is a difficult question, I think, it is still an issue, that men are still the only breadwinner, and women stay at home and pulled to the background. But I wouldn't in all cases describe it as unfair, if it's preferred by the one involved.' (Tanja, 23, Paragraph 50)

Although not all the participants mentioned negative or positive personal experiences in relation to gender inequality (or equality) in the labour market, none of the participants questioned or disagreed with its existence, in contrast to the preliminary study conducted in Hungary (Keglovits, 2015), even though Maria and Tanja gave examples where they were unsure whether certain cases were indeed rooted in gender inequality.

5.4.1.2 Perception as to whether SEF supports gender equality

I asked the participants whether the opportunity for SEF supports gender equality. Whereas most of participants argued for or against its support, several interview-partners made partially contradictory arguments. I observed the following tendencies: (1) SEF supports gender equality in career planning and (2) SEF does not support gender equality because (2a) there are other problems in society that cannot be solved with this medical solution and (2b) it leads only to postponing the conflict between career and motherhood.

5.4.1.2.1 SEF supports gender equality

(1) SEF provides women more flexibility in their career planning because it allows them to extend their fertility. Therefore, SEF supports gender equality in this regard. The supporting attribute of SEF can be observed in participants' perspectives on different levels. Participants like Sarah, Luca and Johann argued that SEF gives women the freedom in general to decide when they would like to have children in a wider timeframe than is biologically possible without medical intervention. Thus, the opportunity allows them to balance career and family plans.

> 'Well, I think the reason is that women simply have more freedom to postpone their wish for a child when they, for instance, first start in a company and they have career ambitions instead, and now they simply don't want to have a child […].' (Sarah, 22, Paragraph 74)

> 'Well, equality in this perspective means that she can decide from [age] 18 to 50 when she would like to have children and when not.' (Luca, 24, Paragraph 67)

> 'I think it's a step in the direction of equality. When she is able to make a decision, when exactly she would like to have children and it doesn't collide then with the career.' (Johann, 24, Paragraph 15)

Other participants, like Peter and Hanna, highlighted that with SEF women can afford the same chances for reproduction as men. They thus addressed not just women in general and their

possibilities, but their relation to their male peers: ‘it would be fairer between both genders’ (Peter) or ‘she has the same chances as her male colleagues’ (Hanna).

> ‘In the sense that women must make a decision much earlier when it comes to family planning. And men have more time than women. In this sense, it would be fairer between both genders.’ (Peter, 25, Paragraph 31)

> ‘And this way she has the same chances as her male colleagues in the first career phase after her studies because she can, for instance, focus energy in the first ten years to get the positions that women who have a child or two at thirty and fell out [of the labour market] wouldn’t even attain, because after that [having children] they work part-time. Therefore, I believe for sure that it would support the chance of [gender] equality.’ (SEF_Hanna, 32, Paragraph 80)

Additionally, in Esther’s example, offering SEF would reduce the perceived discrimination towards women that they might experience in job interviews and the rejection in the job application process for being of childbearing age. Therefore, in this example, societal behaviours like prejudice would not change per se, but women would remove reasons for being negatively judged.

> ‘That someone doesn’t get rejected due to the prejudice, that she is at the age in which she could be pregnant, well, it happens a lot, that someone is probably perceived like this, in the interviews. […] and with social egg freezing, it would be like she wouldn’t have the prejudice anymore.’ (Esther, 23, Paragraph 71)

Similarly, in Catha’s statement, she mentioned that SEF would reduce the risk of women ‘dropping out’ from the labour market, as it can be assumed that SEF would make them an *ideal worker*, with no responsibilities apart from their professional role.

> ‘Simply, the risk that the woman is dropping out is not that big anymore.’ (Catha, 25, Paragraph 36)

5.4.1.2.2 SEF does not support gender equality

(2) Some participants thought differently, arguing that social egg freezing would not solve the existing problems between the genders. These arguments can be divided into two groups: (a) participants who believed that the problems behind gender inequality in the labour market are rooted in deeper sociological aspects, such as in descriptive and prescriptive gender roles, and (b) participants who highlighted that SEF only postpones, but does not resolve, the challenges of balancing motherhood and career or paid work.

In his interview, Rob highlighted that the technical solution of SEF will not address society’s structures and problems, which generate the existing gender inequality. He felt that because SEF is communicated as, or is expected to, solve the problem, it is a ‘technical gimmick’, indicating it has a manipulative attribute.

> ‘This is somehow an argument, one says, we have here a technical possibility and it now solves society’s problem. And it doesn’t work like this. The social structures don’t change by making a technical possibility available. […] I think social freezing is only a technical gimmick, more or less.’ (Rob, 26, Paragraph 69)

Ben thought similarly, calling SEF the ‘suppression of the symptoms’. Again, one interpretation is that the statement highlights SEF’s manipulative character and failure to address the real problems. Clara also judged SEF negatively, naming it a ‘construct of the meritocracy’. By her closing comment on ‘women could be emancipated differently’, she indicated that offering SEF is not the path to emancipation—rather, taking action is needed.

> ‘Well, I don’t think that it would support gender equality. Because I think if so, it would be only a suppression of the symptoms.’ (Ben, 24, Paragraph 65)

> ‘Social egg freezing […] became a construct of the meritocracy. […] women could be emancipated differently.’ (Clara, 22, Paragraph 24)

Further participants, Petra and Ella, had a less negative tone about SEF as a gender equalizer, but they clearly highlighted that it would not achieve real equality. Petra also observed that SEF is ‘not family-friendly politics’. They named examples they believed would more strongly impact equality. I analyse participants’ alternative ideas for supporting gender equality in *section 5.4.3.2.*

> ‘I think it’s good it exists for individual reasons, but it would be a pity if too many people opt for it because I think it, rather, new alternative working models should be created by the states and countries, especially more compatibility for professional [lives] and families, and not to delay pregnancies for women. Well, I think it’s not family-friendly politics.’ (Petra, 29, Paragraphs 25–27)

> ‘But I think real neutrality can be experienced if one, rather, that parental leave is more established for men, that kindergardens are created to enable greater quality childcare, that equal measures are outlined […]. (SEF_Ella, 32, Paragraph 84)

Three participants—Clara, Emma and Anna—claimed that SEF only postpones the challenges women face in the labour market from their twenties or thirties to their forties or fifties. This is because, as Rob argued previously, SEF does not analyse or fix the real problems—that is, the underlying social structures,—but the symptoms, as Ben referred to them.

> ‘[…] it rather pushed the problem further. […] But then also later out, or? But then it would be at 50, but also for two to three years. Well, I think it pushes the problem out further [into the future].’ (Clara 22, Paragraph 46)

> ‘I would not completely support this argument. […] Because women still become pregnant later and then still drop out from work for a longer time. And for that, something should be figured out.’ (Emma 24, Paragraph 41)

> '[…] whether at 30 or at 45 she will drop out for a certain time, therefore, the question is whether it's really equalising. But it for sure makes it easier.' (Anna, 26, Paragraph 59)

5.4.1.3 Companies' intention in providing financial support for SEF

I asked participants why they believed employers would financially invest in the extension of their female employers' fertility by offering support for SEF. More specifically, I asked them about the companies' underlying strategies and intentions, either those that are clearly communicated or the perceived hidden goals the companies wish to achieve. I categories the participants' beliefs around seven topics. Participants argued that these employers are keen to (1) attract and retain female talent, (2) retain younger employers because they are perceived to be more productive, motivated and quicker learners than their senior peers and also to (3) keep their employees '*ideal*'. Furthermore, employers aimed to (4) enable women to concentrate on their careers by providing flexibility for family planning. Others believed that offering SEF as a corporate benefit may (5) turn this possibility into an unspoken expectation and that these employers intended to (6) use the individuals. Lastly, some participants believed there is (7) no specific expectation behind this offering.

5.4.1.3.1 Attract and retain female talents

The participants largely believed that companies would like to be competitive employers and use SEF to attract or keep their talented women employees. Additionally, participants highlighted that employers wish to create a strong bond for female employees to the organisation.

> 'Maybe to attract more women. […] for women, indeed, it's a nudge. Someone knows, okay, this will be paid here, then it's worth maybe checking out this company.' (Anna, 26, Paragraph 55)

> 'The attractiveness of the employer, that one applies there.' (Esther, 23, Paragraph 67)

> 'The individual's feeling of belonging to the company can be ensured.' (Lara, 24, Paragraph 66)

> '[…] if you get something from your employer, then you have somehow more belonging.' (Tom, 34, Paragraph 35)

> '[…] the perspective, one of a moderate and long-term, aligned, thought-through HR approach, the more loyal my employees are to me, the more cuddling up, the more thankful they are on a long term. And they feel like working for me.' (SEF_Ella, 32, Paragraphs 77–78)

Participants also perceived employers as keen to attract and retain their female talent to fulfil certain female quota targets within the organisations.

> '[…] to increase their female quotas in their firms' (Tom, 34, Paragraph 33)

> 'There is this women quota, I think, in quite a lot of countries in the meantime. […] And they have to make it [their company] attractive.' (Emma, 24, Paragraph 39)

5.4.1.3.2 Retain younger employees

Some participants believed that employers are keen to keep younger employees, regardless of their gender, in their organisations, because they perceive them to be quicker learners and more motivated and engaged than their senior peers. Lara and Esther explicitly highlighted young employees' greater ability to acquire information. Lara even underlined her belief by referring to a psychological model.

> '[…] one aspect is indeed the learning, better to say the capability to learn at a younger age […] there is, in psychology, as far as I know, models, theories which confirm that indeed learning capability decreases with age, better to say, the capacity in general as to the time which one should invest in learning, will be simply longer in order to learn now the competences and capabilities.' (Lara, 24, Paragraph 70)

> 'In addition, I also think that women after their studies, for example, where they just started their professional life, can be better educated […].' (Esther, 23, Paragraph 69)

Participants claimed that newly graduated employees also have more up-to-date and relevant knowledge of their fields compared to more senior employees. Furthermore, they addressed the view that employees lose motivation and focus and may face more illnesses after a certain age, costing their employers labour power. In other words, employers would prefer their older employees take time for parental leave or only work part-time once they are less efficient workers.

> '[…] that younger employees, who are just coming from university, or so on. That they are fitter in their field, maybe. And someone who is younger is also a bit fitter to work, more motivated and something like that, more efficient all in all.' (Tanja, 23, Paragraph 46)

> '[…] that someone with age [is] more ready to give up their career and won't jump anymore, therefore if someone has a child when they are older, there is less manpower, the potential manpower is lost because it's reduced by age anyway. The drive is fading because other things in life are simply more important. Therefore, from an employer's perspective, it makes a difference at which age someone becomes a parent.' (Johann, 24, Paragraph 61)

> '[…] the older the employee is, the more (inc.), the more illnesses he has, therefore I prefer if my employee drops out in his mid-forties than if my employee drops out in his mid-thirties or mid-twenties. And then it's also how many women are coming back to work full-time. Well, if I start to work again, I'll be working half-days and that's a difference, it reduces my work from my mid-twenties and the half of the manpower is gone, because the person in on maternity leave for one year and then working part-time, or this whole situation is happening 20 years later.' (SEF_Elisa, 32, Paragraph 84)

5.4.1.3.3 To keep employees longer as 'ideal workers'

In addition to be above-mentioned phenomenon that younger employees are perceived to be better valued by employers, so-called 'ideal workers' seem to also be preferred by employers. Based on the definition of *ideal worker* (Correll et al., 2007), this employee is flexible and always available, committed to their work and preferably not committed to anything else.

Some participants believed that employees perceived as ideal were easier to plan with and therefore that employers wish to keep them longer and benefit from their presence in their organisation, assuming that when they become mothers they 'are gone for two to three years' (Anna, 26, Paragraph 57), become less flexible, work less (i.e., part-time) and therefore become less desirable as workers. Additionally, participants felt that replacing women on parental leave may be costly and time intensive. Thus, with SEF, they can 'make sure' that these employees will not be 'pregnant right away' (Ben, 24, Paragraph 63). Luca concluded that employers could make female employees more projectable, that is, easier to plan with as long as possible, by offering SEF.

> 'That they say, now we did a five-year plan with them and it would be good if they would be staying with us over these five years and after that they can get pregnant easily.' (Esther, 23, Paragraph 69)

Not just women who become mothers face the prejudice that they are less motivated, less ideal workers, but also women who 'plan to have children', as can be seen in Sarah's response:

> '[…] women, if they plan to have children, they are already thinking about this and that they don't want to take on any new challenges because they say, I want to have a child soon, and then I'm not there anymore. And this way, that they have the opportunity to make it in the future, let's say, it's out of their mind, and therefore they take on other challenges, and they are more productive in them.' (Sarah, 22, Paragraph 84)

> '[I]f she gets a child, then she is gone, which means I need someone else […] to cover for her, so I try to offer to pay somehow for this egg freezing, which is otherwise not very affordable.' (Tom, 34, Paragraph 35)

> '[I]t's a bit of [self-]interest […] for the company it's a disadvantage if a woman has a child and then for a shorter or longer period of time she leaves the position, she is out of work and then to replace these people, to work someone in, I believe, is extensive and more expensive for the company. […] the main reason, simply, that women can say, okay I can have children later.' (Peter, 25, Paragraph 26)

> '[T]he danger is always there that the woman can get pregnant relatively quickly. And first she drops out. I believe if someone offers something like this [social egg freezing] together with the employment contract and someone takes advantage of it as employee, then the company has first the certainty that the topic is delayed for now. So, they can make first profit through the employee.' (Petra, 29, Paragraph 34)

> ‘That they simply work longer and get fewer children.’ (SEF_Elisa, 32, Paragraph 82)

Hanna summarised several of these previous points, such as the perceived productivity of a younger, 30-year-old employee versus a 45-year-old one and that childless employees are more flexible and able to work longer hours and focus more on their work and career. Additionally, she mentioned that younger employees may even be cheaper to the organisation than their more senior peers.

> ‘Because then the question for the company is, is the 30-year-old or the 45-year-old more productive. Maybe. For sure the 30-year-old is cheaper, who stays first and continues working, and eventually is still flexible and has no kids, no kids to take care of, she can work full-time, she can still sit in the office at 10 p.m. and fully concentrate on her career. And later, when she is 45, then she can make it more flexible.’ (SEF_Hanna, 32, Paragraph 74)

5.4.1.3.4 To enable women focus on their careers

The other reason why employers offer SEF is to enable women to concentrate on their careers and not to worry about family planning, as they will be able to do so later in their lives; having the frozen oocytes acts as ‘security’. This gesture could even give ‘mental relief’ and ‘create more space for work in the head’ (Peter, 25, Paragraph 27).

> ‘[…] first you don’t have to worry about children and just see how it fits.’ (Anna, 26, Paragraph 55)

> ‘[…] on the one hand, actually women who would like to have children at some point, but first they want to focus on their careers, they have then, or already in the beginning they can do it, this is of course a good argument.’ (Ben, 24, Paragraph 63)

> ‘[…] that it’s ensured for women that they don’t have to do that, think about when they have children, how they plan everything, but they can be relaxed and can focus on their education and, exactly, simply be productive, because they have the security that they froze their oocytes and in theory also at a later time, after, they can start family planning.’ (Catha, 25, Paragraphs 33–34)

> ‘[…] in principle the companies support it [SEF], that a woman at 30 or mid-30s can instead focus on her career.’ (SEF_Hanna, 32, Paragraph 74)

> ‘[…] in case the company can also communicate it in a way that this option aims to enable the best possibilities for their employees, that you feel yourself relieved in your private life, to give your best somehow at work (inc.) it’s definitely [possible] that an unfulfilled wish for a child could hit mentally. So, what do you have from your employee who’s mentally unavailable, who is constantly mentally distracted in her thoughts, who potentially develop some difficulties, you can spin it around.’ (SEF_Ella, 32, Paragraphs 77–78)

According to some participants, like Emma, Anna and Sarah, companies wish to enable women to focus their attention and invest their energy into their careers for a longer period of time.

Emma mentioned that with SEF employers give women the opportunity to achieve higher positions within the organisation before they become mothers, as having a child makes it more difficult from the biological perspective.

> '[…] They must give the opportunity to get in higher positions and it's still like that, that it's difficult if someone would like to have children, if someone is leaving for a period of time.' (Emma, 24, Paragraph 39)

> '[T]he women simply have the freedom to push back their wish for a child if, for instance, first they have some career ambitions in the company, and now they simply don't want to have children, and then, so to say, it's optional whether they want to have it later. […] Because it's also the case, exactly the time, when women usually become pregnant, it's a crucial phase in life for it [career].' (Sarah, 22, Paragraphs 74, 78)

Anna brought up perceptions similar to those previously outlined by Brehm (2017), Kearny (2012, as cited in Bertram, 2017) and Bertram and Deuflhard (2014, as cited in Bertram, 2017), of women's and men's career courses taking different paths after they become parents. As Anna described it, women 'drop out' at a fairly young age, while still in the lower part of the organisational hierarchy, and her peers 'pass by and get promoted'. Once women have established their careers, she does not perceive the 'drop off' as equally disadvantageous.

> 'Yeah, the woman would drop out already earlier at 30, which means she hasn't gathered the experience one can gather until 45, and I think if someone drops off so young, then she will stay low [in the hierarchy]. In the bottom line, in this period of time, [others] pass by and get promoted. But the other way around, if she has a child only at the age of 45, she is already established in the company. And it's a better argument for her and better chances in the end.' (Anna, 26, Paragraph 57)

5.4.1.3.5 To turn into expectation

Participants also observed that employers not only want to use SEF to keep women as 'ideal workers' or in the organisation as long as possible, but that this benefit package may go hand in hand not just with the possibility of using it, but with an implicit expectation that women employees should choose SEF. This expectation can even cause 'feeling of indebtedness' (Anna, 26, Paragraph 71). Employers are perceived may not to understand women who wish to be mothers at the beginning in their careers and who are not willing to opt for SEF. Pressure will then build up and the boundary between private life and work life blurs and diminishes.

> 'That the company provides already something, offers, better to say, pays for it. That she has a feeling of indebtedness' (Anna, 26, Paragraph 71)

> '[E]ventually to put a woman under pressure and expect from a woman that she do this. […] So with this option and offer, she will be put under some kind of pressure by the company.' (Esther, 23, Paragraph 75)

> '[…] there is also a certain pressure that they can tell me when I should be having my child and when not. […] if a company says, as a woman you are now in the right age to have children, but we need you or we want you, and now we have the opportunity to give you, to have children later, now you can apply for the opportunity. And that's actually nothing positive.' (Luca, 24, Paragraph 61)

> 'Well, in the end it's a pressure that's behind this, if I have to decide when I think, basically, I would like to have children, I have the biological clock on my neck, then I usually decide to have children and I drop out from the office or generally from the job. And that's how it goes, of course, for a company, that young people drop out because they have children. So, you push the problem further back and then there are probably a lot of people who say it at the age of 40, (inc.)not anymore, and in the end the company paid €3,000 for social egg freezing, but in exchange it kept the employee permanently, because [s]he decided of course maybe not to use the oocytes anymore and not to have any children after all. Well, for the company, this is quite a clever thing.' (SEF_Elisa, 32, Paragraph 82)

Ella mentioned that offering SEF was a clever strategy from an employer point of view, however, she questioned whether it was ethical.

> 'If someone uses the option to put pressure, sure, I definitely wouldn't want that. To improve career options, let's say, to suggest it, I find it ethically (inc.), I'm not so convinced.' (SEF_Ella, 32, Paragraphs 77–78)

5.4.1.3.6 To use the individuals

Some participants had even stronger opinions, not just highlighting employer pressure but even identifying 'potential power structures' or 'exploitation' of women in their 'best years'. Luca concluded that neither the state nor the employer should influence one's choice to become a parent.

> 'I see there are also potential power structures. Because the option (inc.) [reflects] the power structure of the company against the individuals.' (Lara, 24, Paragraph 66)

> '[…] it is selfishness, the self-interest comes first, really extremely, to exploit the woman in her best years.' (Clara, 22, Paragraph 42)

> 'Well, as I said, to have a child, neither should the state decide when one has them and how to have them, nor any company where someone works.' (Luca, 24, Paragraph 61)

Maria shared her perception that companies actually aim to steer their employees' decisions in the direction of postponing family planning by offering SEF. She branded this benefit as selfish on the company's part.

> 'Well, for the company such offers are good, but on the one hand, also a bit selfish from the company's perspective. […] automatically a bit tempting for the employee to postpone family and the wish for a child. Of course, the decision is on both sides. The women should also consider the issues, whether they do it or not.' (SEF_Maria, 41, Paragraph 91)

> ‘Just as I said it in the beginning, my feeling […] I can do it this way, then I work further, further and then I have already postponed my own life plan, family plan, voluntarily. I think the employer has already steered it a bit anyway, these thoughts of the employee or the decision.’ (SEF_Maria, 41, Paragraph 105)

5.4.1.3.7 No expectations

On the other hand, other participants did not perceive that the employer’s offer of SEF would mean an explicit or implicit pressure; rather, they described it as an opportunity that women may either take advantage of or not, that it is their personal decision. Rob viewed it as a benefit that scales to the bigger picture, such as giving as much as possible to the employees so they are generally happy and can focus on their work. Ella, who had already chosen SEF through self financing, clearly stated that ‘if I were a woman at Facebook, I would find it cool. I’m pleased to take it. If there are not binding expectations to it, then it’s all fine for me. Simply pay it for me. And I still can do whatever I want’ (SEF_Ella, 32, Paragraphs 77–78).

> ‘If someone goes to such a company and then makes use of it, there is no expectation that some conditions must be fulfilled.’ (Anna, 26, Paragraph 71)

> ‘I don’t think that someone would wilfully decide and say we offer this to put women under pressure. And to now put much more energy into their careers. I think instead, I don’t think that it’s planned, I think it rather comes from this whole model in which they give everything to the employees so they are happy and they do their best.’ (Rob, 26, Paragraphs 66–67)

5.4.2 Feelings towards SEF as a benefit

Although I asked participants about their feelings towards the employee benefit, they clearly stated that they did not understand the question, that they could not answer it or they provided an answer but included no description of feelings, only of beliefs. Therefore, I could not analyse these feelings.

5.4.3 Behaviour in relation to SEF as a benefit

5.4.3.1 Company attractiveness

I asked my interview-partners whether they would find a company attractive if it offered SEF as a benefit, and whether they would prefer and choose a company with a SEF benefit over another company without this benefit.

5.4.3.1.1 More probably yes

Twelve participants expressed positive behaviours in relation to an employer offering SEF and they found the opportunity attractive. The reasons for their approval included the financial support (Anna and Tom), although several participants highlighted that is just an offer, so

employees should not be forced to opt for it (Emma), and that this benefit should be offered to all employees, not only to managers (Tom).

> ‘Yes, I would say, for sure [I find it attractive]. Because if you are interested, it’s already a big incentive if someone covers the costs. And when other companies don’t then I would of course consider whether I don’t then choose that company that doesn’t give me the opportunity. Well, quite clearly, yes. For sure, more interesting.’ (Anna, 26, Paragraph 69)

> ‘[…] I would only do it if I feel comfortable with it myself and if it won’t be forced. Well, I don’t think that it would be a fixed component of my employment contract. [...]’ (Emma, 24, Paragraph 61)

> ‘Yes, I think offers are always offers. I can decline them when they don’t fit me. But I think that the offer is quite generous and […] I would find it attractive, for sure.’ (Peter, 25, Paragraph 33)

> ‘Yes, for sure. I think whether someone takes advantage of it, that is still their own decision, but that it’s offered at all. I find that it’s a good opportunity […].’ (Catha, 25, Paragraph 40)

> ‘Yes, I mean, yes, sure. Well, it’s yeah, we know what this one costs, well, as I said, not everyone can afford it. If it’s not just offered for the manager positions, but also to normal employees. Then it’s of course a good sign that they are appreciated, they are important for the company. Yes, that’s always good, that’s always good.’ (Tom, 34, Paragraph 41)

However, while these twelve participants found the benefit attractive, they would not necessarily simply base their choice of employer on an offer of SEF. But some (Sarah and Petra) preferred a company with a SEF benefit over another company without a SEF benefit, if the other working conditions were the same. Luca mentioned that although he would not select the company based on the benefit, he would opt for it if it were available and if he or his partner needed it. Hanna, who had already decided for SEF and expected to bear the costs herself, fed back in her employer’s survey that she would have appreciated SEF as a benefit in the company.

> ‘It wouldn’t be a reason for me now to want to change companies, but I think it isn’t, well, attractive, I think it’s a bit strongly expressed, but well, after all, I would find it attractive, because at least I can see the effort.’ (Lara, 24, Paragraph 72)

> ‘Well, I would find it attractive for sure, whether I would actually prefer another company if they, in the bottom line, they offer the same things, and I would have exactly the same conditions, then I would rather take the company where SEF is supported.’ (Sarah, 22, Paragraph 90)

‘[…] if I would have another offer [working contract] where I would earn €10,000 pre-tax more or €5,000 or so, then I would prefer the other company. Well, if, yes, if it comes on top of a comparable offer, then yes. Otherwise not.’ (Petra, 29, Paragraph 39)

‘Well, I wouldn’t decide based on that, of course, to which company I’m going to, but I would take the opportunity if it exists. Also, I wouldn’t say I’m going to the company because there is [SEF], or to that one, because there isn’t. For sure not. But if the company offers it, then I would probably also do it. If I need it. Or when she needs it.’ (Luca, 24, Paragraph 71)

‘Well, I for sure […] but I wouldn’t choose my job based on that.’ (SEF_Ella, 32, Paragraph 80)

‘Yes, for sure. I think it’s a good thing.’ (SEF_Maria, 41, Paragraph 113)

‘Yes, totally. I would totally welcome it. I also indicated it in the last employee survey. There was the question, which benefits they should offer, and then I wrote there that I found social freezing super.’ (SEF_Hanna, 32, Paragraph 86)

5.4.3.1.2 More probably no

Five participants expressed more negative behaviour in relation these companies. Similarly to the previous section, these participants perceived this offer as potentially pressuring employees and being motivated by the company’s own interest rather than a real benefit for the women. Additionally, Tanja and Elisa described that opting for cryopreservation is something personal and that the employer should not be involved at any level. Rob suggested he would expect such an offer from the health insurance.

‘No, not really. […] I wouldn’t necessarily find it negative, but already concerning […] maybe to put a woman under pressure, as they would expect from the woman that she does it.’ (Esther, 23, Paragraph 75)

‘No, I think no. […] if health insurance would offer it, there it would fit for me.’ (Rob, 26, Paragraph 77)

‘[…] it’s somehow arrogant and an intervention in the private life. Well, I don’t know whether I want to talk about it with my employer.’ (Tanja, 32, Paragraph 52)

‘No. Not attractive, rather even unattractive. Probably first disinterested […] something sympathetic, that it seems like simply only the company’s interest to keep young women as long as possible non-pregnant, well, not yes, to encourage them to have children later, so they can pay the least possible salaries. Because younger women are cheaper than older women. And yes, but more efficient and formable. And that feels like something with self-interest. That’s why I find it a bit unattractive.’ (Ben, 24, Paragraph 77)

‘I’m ambivalent here. Well, that I personally would have benefited from it if my employer had paid the whole thing. On the other hand, I think, though, that my own family planning is not really my employer’s business. Because it’s my decision, and

> therefore (inc.) it indirectly intervenes in my decision when I have children, I wouldn't say that I would prefer a company that finances it.' (SEF_Elisa, 32, Paragraph 96)

5.4.3.1.3 Neutral

Furthermore, Johann expressed mixed perceptions of the companies and the benefit and Clara showed disinterest towards the offer.

> 'One can market this, well, under gender equality, nevertheless it's about my feeling, and I still always sense this undertone that it brings, that the company does this to keep the manpower. Both of these things stand in contradiction. […]' (Johann, 24, Paragraph 58)

> 'Well, it wouldn't be a disadvantage. This would be somehow actually irrelevant.' (Clara, 22, Paragraphs 48–50)

5.4.3.2 Other benefits preferred benefits

I asked participants which benefits other than SEF they would appreciate from employers in order to support work-life balance and gender equality.

5.4.3.2.1 Company childcare

The most frequently mentioned preferred employer support was childcare in different forms. Participants would welcome companies offering their own free childcare, or organising one near to the workplace. Alternatively, financial support for nannies would make employers attractive. Furthermore, free-time activities for children, especially for the school holiday season, would be beneficial for parents. In total, of the 20 interview-partners, 13 mentioned some form of childcare as an attractive employee benefit.

> 'A daycare from the company, for example. The free care offered for children. Or financial support for nannies who are taking care of the small children.' (Esther, 23, Paragraph 77)

> 'Yes, for instance, company kindergardens or something like that. For sure I believe it's a big support […] to offer activities, free time for the children or something, or care during the holidays in some form. Something like that would make a company more attractive to me.' (Tanja, 32, Paragraph 54)

5.4.3.2.2 Flexible working conditions

Several interviewees mentioned either flexible working hours or flexible working locations, such as working from home. They believed that such possibilities would create a better work-life balance. One interviewee mentioned a hypothetical situation in which he could work from home if child were to fall sick, therefore combining parental responsibility with still being able to work.

> '[T]hat someone doesn't have a set time at which he has to absolutely must start, must be there, but that he has a flexible start.' (Luca, 24, Paragraph 73–75)

> ‘For instance, the offer […] of working from home sometimes […].’ (Ben, 24, Paragraph 79)

> ‘My child is sick today. I’m working from home.’ (Tom, 34, Paragraph 43)

Part-time working models may also be attractive solutions to combine parenthood and career. As one interview-partner mentioned, even in leadership positions, job sharing would enable women to share responsibility in their career and in parallel fulfil their caregiver role with their children.

> ‘[…] especially in higher positions, that women share a position, thirty hours, thirty hours each, which one can still combine and still with greater responsibility.’ (Anna, 26, Paragraph 73)

5.4.3.2.3 Fathers as caregivers

In several interviews, participants suggested that further support for fathers would be beneficial. On the one hand, when considering changing corporate culture, men may be more motivated to take parental leave, making childcare not only the mother’s responsibility.

> ‘I would simply welcome it if a company also gives the space for men, that men also have more opportunities to take care of their families. (inc.) not just always the women’s duty […]. Yes, that it’s equally possible for both genders.’ (Catha, 25, Paragraph 42)

> ‘I would find it attractive that if maternity leave is paid, that mother and father are both paid.’ (Clara, 22, Paragraph 44)

5.4.3.2.4 Reintegration

Participants mentioned additional ideas, such as special support to mothers and fathers returning to work after parental leave in the form of some kind of position guarantee (i.e., having the opportunity to return to a certain position). One interview-partner welcomed a standardised programme in which women would have the opportunity to return part-time, with the option to increase the working hours in due course. Another idea related to bringing work life closer to family life by allowing employees’ families to visit them at work, such as during an organised open day.

> ‘A guarantee that one can return to the certain position, also if the father or the mother is on parental leave. […]’ (Rob, 26, Paragraph 83)

> ‘Reintegration programme after the pregnancy, that someone with a small child doesn’t have to work full-time right away. Almost none of the women want that, I think. A few want it. That one would get the option, that you start slowly, and the hours can be slowly raised. So, it’s somewhat more flexible, better to say that the company schedules an extra programme.’ (Esther, 23, Paragraph 77)

'[…] totally practical measures such […] an open day where families can visit.' (Rob 26, Paragraph 83)

5.4.4 Conclusion: Participants' attitude towards social egg freezing as an employee benefit

In this section I assessed non-SEF and SEF participants' (n=20) attitudes towards SEF as an employee benefit, based on their statements. I asked participants about their beliefs, feelings and behaviours in relation to the attitude object. In the transcript I identified the relevant statements and categorised them based on their direction (positive or negative) and intensity on a five-point scale, as visualised in the heatmaps (*Table 7* and *Table 8*) below, including some examples. Statements, which showed negative beliefs, feelings and behaviours in relation to SEF as an employee benefit, for instance, the employers' financial support for SEF would not support gender equality, or employers would only offer to SEF for their own benefits to use women, additionally, if participants would not find attractive and dislike a company with such an offer. These statements were placed on the left side, the black part of the heatmap and less negative statements were categorised in the dark grey part. Furthermore, statements, which I identified mixed or neutral, I added to the middle of the heatmap and marked dotted. Positive or more positive statements, such as SEF benefit as a good mean of gender equality and an enabler for reproductive freedom and work-life balance, or statements referring to companies' good and attractive intention, which makes participants prefer an employer with this offer over another. I marked these statements in light grey or white and placed on the right side of the heatmap. I counted the statements categorised on the scale and presented them e.g. in *Figure 36* (beliefs) and in *Figure 41* (behaviours). Additionally, I have also underscored the participants' beliefs and behaviours on an individual level and presented them in *Figures 38-40* and in *Figures 43-45*.

5.4.4.1 Beliefs about SEF as an employee benefit

I measured participants' beliefs towards women opting for SEF on two dimensions, each on a five-point scale, from very negative to very positive, as presented below in *Table 7*. The first dimension shows how participants perceived whether SEF would *Support* (S) gender equality in the labour market. In cases where they argued that offering the medical solution for family planning would not support equality, I categorised their statements as negative. Statements expressing support of gender equality I assessed as positive. A further indicator was how participants perceived the Intention (I) of an employer who offers SEF as an employee benefit. Participants' statements expressing the belief that companies aim to make use of the ideal

worker and prioritise their corporate goals over the employees' interests I categorised as more negative or negative. Statements highlighting that employers wish to support women to expand their fertility and enable them to be more flexible in terms of family planning and career, thus prioritising the employees' interests, I perceived as more positive or positive, depending on the statement's intensity.

Beliefs examples	Negative	More negative	Mixed / neutral	More positive	Positive
Supports gender equality (S)	'This is somehow an argument, one says, we have here a technical possibility and it now solves society's problem. And it doesn't work like this. The social structures don't change by making a technical possibility available. […] I think social freezing is only a technical gimmick, more or less.' (Rob, 26, Paragraph 69)	'I would not completely support this argument. […] Because women still become pregnant later and then still drop out from work for a longer time. And for that, something should be figured out.' (Emma 24, Paragraph 41)	'But I think real neutrality can be experienced if one, rather, that parental leave is more established for men, that kindergardens are created to enable greater quality childcare, that equal measures are outlined […]. (SEF_Ella, 32, Paragraph 84)	'[…] whether at 30 or at 45 she will drop out for a certain time, therefore, the question is whether it's really equalising. But it for sure makes it easier.' (Anna, 26, Paragraph 59)	'I think it's a step in the direction of equality. When she is able to make a decision, when exactly she would like to have children and it doesn't collide then with the career.' (Johann, 24, Paragraph 15)
Intention of the employer (I)	'[…] it is selfishness, the self-interest comes first, really extremely, to exploit the woman in her best years.' (Clara, 22, Paragraph 42)	'[I]t's a bit of [self-]interest […] for the company it's a disadvantage if a woman has a child and then for a shorter or longer period of time she leaves the position, she is out of work and then to replace these people, to work someone in, I believe, is extensive and more expensive for the company. […] the main reason, simply, that women can say, okay I can have children later.' (Peter, 25, Paragraph 26)	'[…] if you get something from your employer, then you have somehow more belonging.' (Tom, 34, Paragraph 35)	'I don't think that someone would wilfully decide and say we offer this to put women under pressure. And to now put much more energy into their careers. I think instead, I don't think that it's planned, I think it rather comes from this whole model in which they give everything to the employees so they are happy and they do their best.' (Rob, 26, Paragraphs 66–67)	'If someone goes to such a company and then makes use of it, there is no expectation that some conditions must be fulfilled.' (Anna, 26, Paragraph 71)

Table 7 Participants' beliefs about SEF as employee benefit - heatmap

The line chart (*Figure 36*) below presents the distribution of statements linked to the dimensions. I allocated the 86 statements (4.3 per participant) related to beliefs about SEF as an employee benefit as follows: 29 statements to the dimension of Support (S) of gender equality and 57 statements to the Intention (I) of the employer. In sum, the statements are distributed on both dimensions on the entire scale. However, I placed the majority of statements (18 of 29) related to gender equality Support (S) on the positive side of the scale (14 *positive* and 4 *more positive*), whereas I interpreted only 10 statements negatively (3 *negative* and 7 *more negative*). Conversely, more participants described the employer's intention in offering SEF negatively than positively. More specifically, I attributed more than half of the statements (32 of 57) to the negative side of the scale by identifying 11 *negative* statements and 21 *more negative* statements. I placed only 12 statements out of the 57 on the positive side of the scale, as I interpreted 10 statements as *positive* and one statement as *more positive*. I categorised 13 out of the 57 statements as *mixed/neutral*.

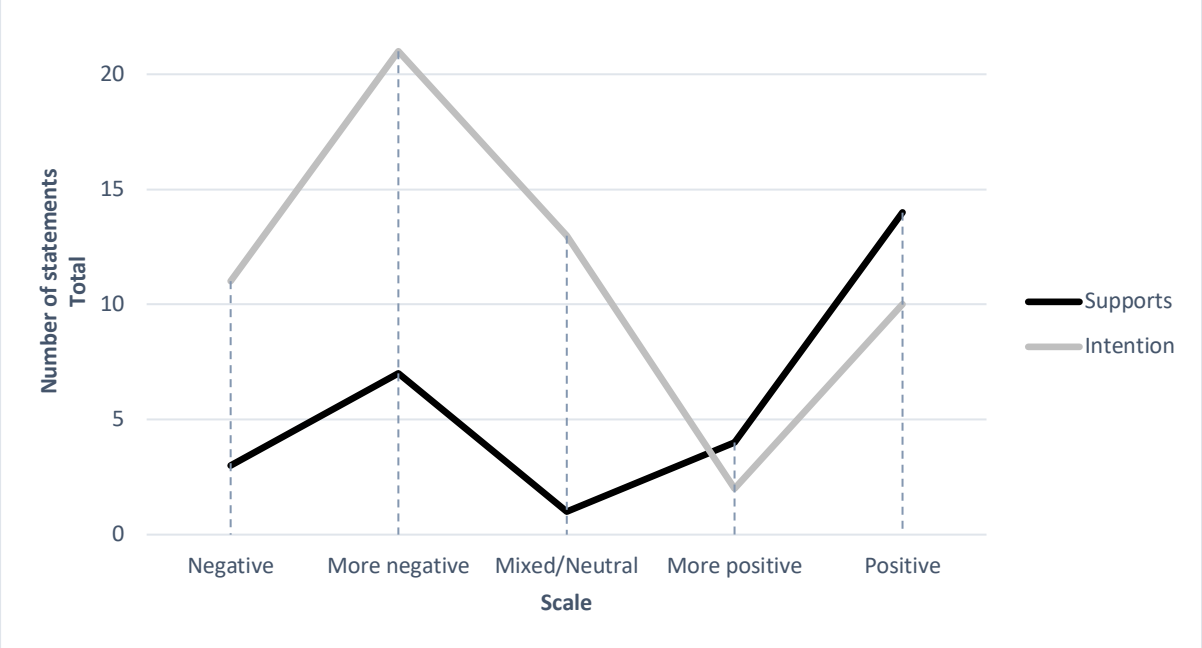


Figure 36 Participants' beliefs about SEF as an employee benefit - statements

I analysed the target group-based distribution of statements on three levels: non-SEF women, non-SEF men and SEF women. While non-SEF women equally expressed that SEF would or would not **Support** gender equality, non-SEF men and SEF women instead argued that SEF would support gender equality. Non-SEF (n=10) women provided two *negative* and six *more negative* statements, two *more positive* and seven *positive* statements and no *mixed/neutral* statements. Therefore, the statements are almost equally distributed on the negative and positive sides of the scale, with eight on the negative side and nine on the positive side. Non-SEF men (n=6) mentioned seven statements allocated to Support; I assigned two to

the negative side of the scale (one *negative* and one *more negative*) and five to the positive side (two *more positive* and three *positive*). Similarly, the statements of SEF women (n=4), I allocated mostly on the positive side of the scale (four *positive* statements), and I categorised one as *mixed/neutral*.

Based on the 57 statements I identified, all target groups perceived employers' Intention in providing financial support for SEF perceived negatively or more negatively. Non-SEF women, however, also expressed six *positive* statements, which equals 0.6 statements per participant; non-SEF men made two *positive* and one *more positive* statements, meaning 0.5 statements per participant; and SEF women made two *positive* and one *more positive* statements, totalling 0.75 statements per participant. At the same time, these statements were outweighed by statements allocated to the negative side of the scale, as non-SEF women mentioned five *negative* and eight *more negative* statements, for a total of 13, thus equalling 1.3 statements per participant (n=10). Non-SEF men shared three *negative* and eight *more negative* statements, totalling 11, so 1.8 statements per participant (n=6). Lastly, SEF women provided three *negative* and five *more negative* statements, for a total of eight and two per participant (n=4).

In total, 86 statements were linked to one of the dimensions on the scale. As presented below in the doughnut chart's (*Figure 37*) outer circle (total of all three target groups), I placed about half of the statements (49%) on gender equality Support (S) and employers' Intention (I) on the negative side of the scale, by assessing 16% of statements as *negative* and 33% as *more negative*. I interpreted 16% of all statements as *mixed/neutral*, and placed more than one third of statements (35%) on the positive side of the scale, with 7% as *more positive* and 28% as *positive*. Non-SEF men, visualised in the inner circle of the doughnut chart, viewed the gender equality aspect of SEF and employers' intentions most negatively, compared to the two other target groups. More specifically, I placed 52% of non-SEF men's statements on the negative side of the scale (16% *negative* and 36% *more negative*) and only 32% of their statements on the positive side (12% *more positive* and 20% *positive*), while I labelled 16% of the statements as *mixed/neutral*. The second most critical group in relation to these aspects were the non-SEF women. I linked 48% of their statements to the negative side of the scale (16% *negative* and 32% *more negative*) and 34% to the positive side of the scale (30% *positive* and 4% *more positive*), while 18% were *mixed/neutral*. Their perceptions are presented on the second inner circle of the doughnut chart below. I found very similar beliefs to those of non-SEF participants amongst the SEF women, as presented in the third outer circle of the doughnut chart. I placed 47% of their statements on the negative side of the scale (18% *negative* and 29% *more negative*)

and 41% on the positive side (6% *more positive* and 35% *positive*), while 12% were *mixed/neutral*.

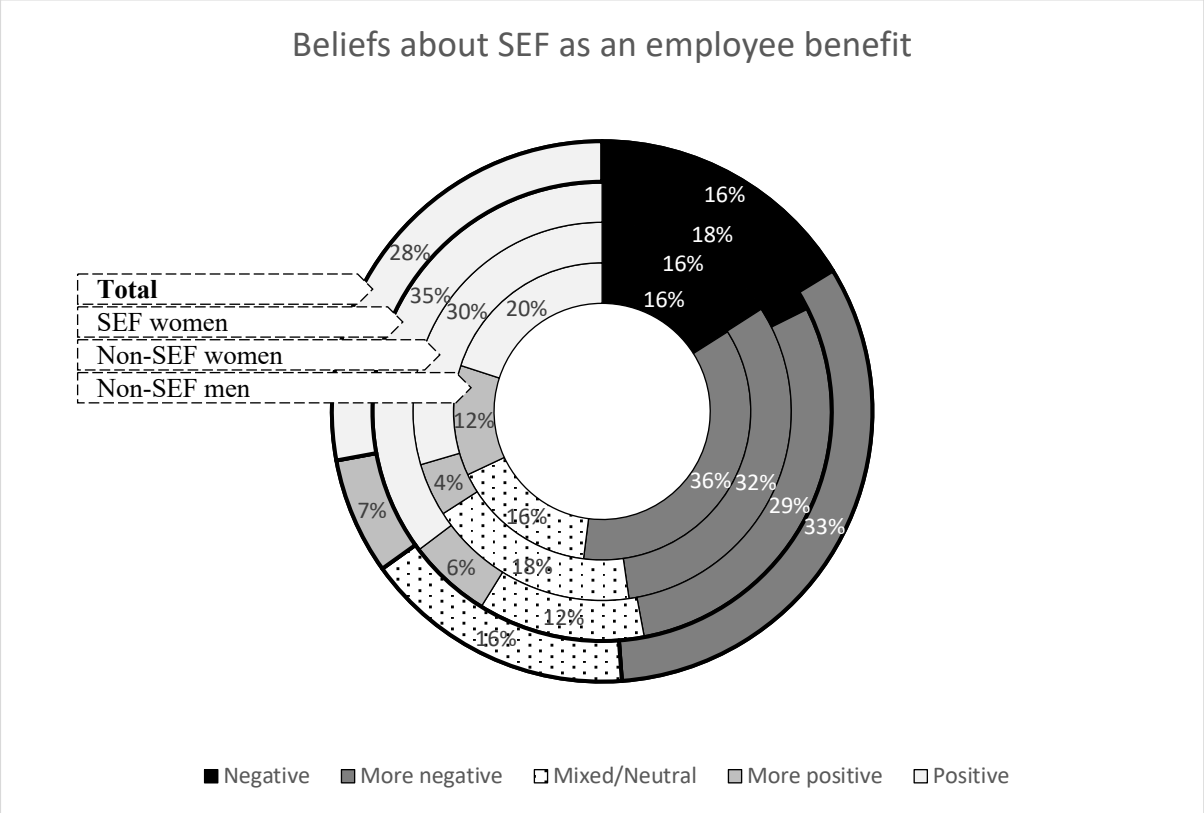


Figure 37 Participants' beliefs about SEF as an employee benefit – doughnut chart

Additionally, the heatmaps (*Figures 38-40*) below represent the allocation of statements per participant based on the three target groups: non-SEF women, non-SEF men and SEF women. The heatmaps show whether a participant's statements were poled to one direction or if their perceptions are distributed on the scale. I observed that certain participants also had statements that were linked to different positions on the scale for the same dimension. For instance, Catha argued that SEF supports gender equality because women do not have to leave their job too early: 'Yes. I believe so, because women don't necessarily, must fall out between the age of 25 and 30. […] Simply the risk, that the woman is dropping out is not that big anymore' (Catha, 25, Paragraph 36). However, later she mentioned that SEF alone will not achieve gender equality:

> 'I think it [gender inequality] stays still. Well, you cannot make it totally equal through social egg freezing, you cannot. The difference will yet stay somehow, because the woman must have children also with social egg freezing at some point. If she wants to have a family, she can only push it back.' (Catha, 25, Paragraph 36)

I observed a similar line of thought in Esther's interview as well. She argued that with companies offering SEF, younger women might face less prejudice in the interview process,

as companies will not view them as high risks likely to leave their jobs due to their mother roles:

> ‘That someone doesn’t get rejected due to the prejudice that she is at the age in which she could be pregnant, well, it happens a lot, that someone probably is perceived like this in the interviews […] and with social egg freezing, it would be like, that she wouldn’t have the prejudice anymore.’ (Esther, 23, Paragraph 71).

At the same time, Esther also mentioned that the challenge of combining motherhood and career is only postponed to the future:

> ‘At some point she has to go on a maternity leave and that’s probably before retirement, so if you look at it as a whole, the entire career years, you have in the end the same minus during the pregnancy, so to say, whether you do it at 25 or at 45, in the end it doesn’t make a difference.’ (Esther, 23, Paragraph 71)

As for the employer’s intention, Anna stated that if a company offers SEF as a benefit and pays for someone’s cryopreservation, this might create a ‘feeling of indebtedness’ for the women. At the same time, she also highlighted that companies are giving women a chance to optimise their careers and not to drop out due to pregnancy and childcare purposes during a very important period of their careers. Similarly, Ella (SEF women) named the two sides of the coin: on the one hand, a negative interpretation of the benefit: ‘If someone uses the option to put pressure, sure, I definitely wouldn’t want that. To improve career options, let’s say, to suggest it, I find it ethically (inc.), I’m not so convinced.’ (SEF_Ella, 32, Paragraphs 77–78). On the other hand, if the offered benefit is not linked to any expectations, she shifts to a positive interpretation: ‘‘[I]f I were a woman at Facebook, I would find it cool. I’m pleased to take it. If there are not binding expectations to it, then it’s all fine for me. Simply pay it for me. And I still can do whatever I want’ (SEF_Ella, 32, Paragraphs 77–78).

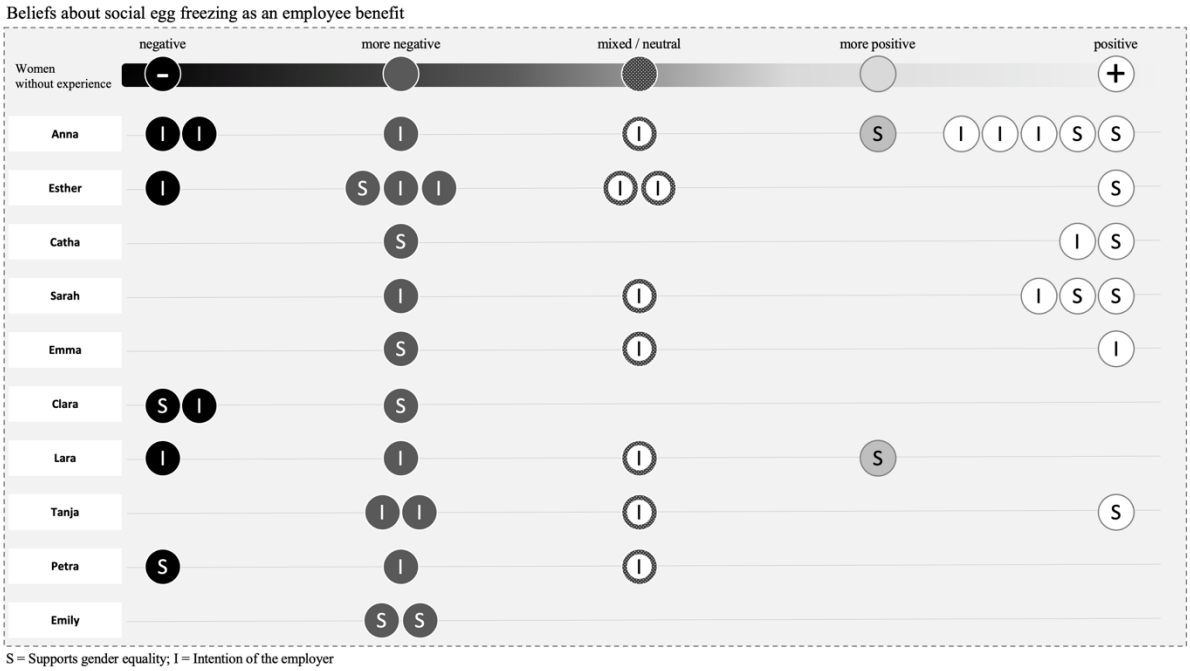


Figure 38 Participants' beliefs about SEF as an employee benefit - individual view (non-SEF women)

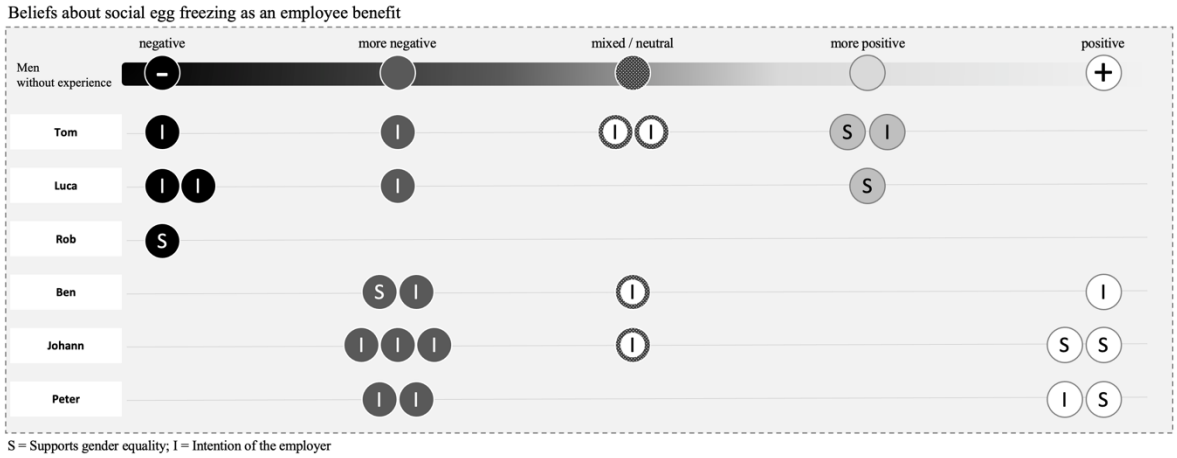


Figure 39 Participants' beliefs about SEF as an employee benefit - individual view (non-SEF men)

Figure 40 Participants' beliefs about SEF as an employee benefit - individual view (SEF women)

Based on the above analysis, I can conclude that participants' beliefs about SEF as an employee benefit are more negative, although many participants, especially SEF women, non-SEF men and some non-SEF women, believed that SEF would support gender equality. However, most participants strongly believed that employers' intentions in financing such a

medical opportunity originated from their own interests, rather than from a desire to provide women with sustainable, real career support.

5.4.4.2 Feelings and Behaviour in relation to SEF as an employee benefit

I did not assess participants' feelings towards women opting for SEF as an employee benefit, as I could identify no feelings in the interviews. I measured their behaviours in relation to the attitude object on one dimension, Attractivity (A), on a five-point scale, from very negative to very positive. I asked the participants whether they would find an employer attractive if they offered SEF as a benefit. If a participant described an employer offering SEF as a benefit as unattractive, or if they would exclude an employer with such a benefit, I assessed their statement was assessed as negative. I categorised those statements that showed attraction to such an employer, or expressed a preference for an employer offering SEF, as positive. I present examples of the categorisation for this dimension regarding its direction and intensity below in *Table 8.*

Feelings; Behaviour examples	Negative	More negative	Mixed / neutral	More positive	Positive
Attractivity (A)	No example	'No, not really. […] I wouldn't necessarily find it negative, but already concerning […] maybe to put a woman under pressure, as they would expect from the woman that she does it.' (Esther, 23, Paragraph 75)	'Well, it wouldn't be a disadvantage. This would be somehow actually irrelevant.' (Clara, 22, Paragraphs 48–50)	'[…] I would only do it if I feel comfortable with it myself and if it won't be forced. Well, I don't think that it would be a fixed component of my employment contract. [...]' (Emma, 24, Paragraph 61)	'Yes, I think offers are always offers. I can decline them when they don't fit me. But I think that the offer is quite generous and […] I would find it attractive, for sure.' (Peter, 25, Paragraph 33) 'Yes, for sure. I think whether someone takes advantage of it, that is still their own decision, but that it's offered at all. I find that it's a good opportunity […].' (Catha, 25, Paragraph 40)

Table 8 Participants' feelings and behaviours in relation to SEF as employee benefit – heatmap

In the line chart (*Figure 41*) below, I present the distribution of statements linked to the dimension Attractivity (A). Out of 20 statements, 10 were mentioned by non-SEF women (n=10), six by non-SEF men (n=6) and four by SEF women (n=4). Each participant had exactly one statement. I categorised none of the participants' statements as *negative*, interpreted five statements as *more negative*, three statements as *mixed/neutral*, one statement as *more positive* and 11 statements as *positive*.

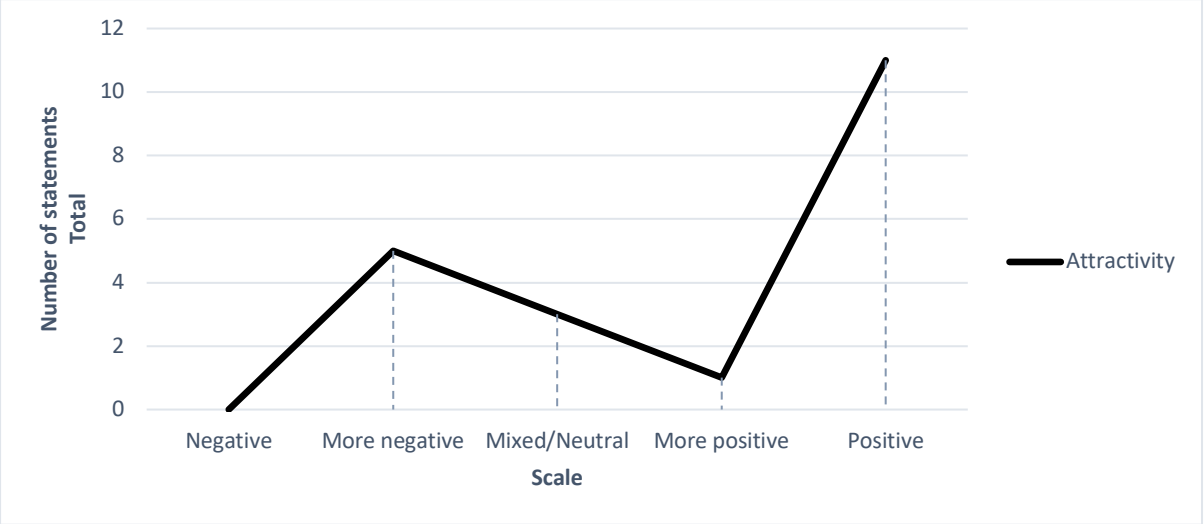


Figure 41 Participants' feelings and behaviours in relation to SEF as employee benefit - statements

As presented below in the doughnut chart's (*Figure 42*) outer circle (total of three target groups), I placed one fourth of statements (25%) on the negative side of the scale; all were *more negative* and none were *negative*. SEF women would find an employer the most attractive if they offered SEF as a benefit, as 75% of them provided a *positive* statement; one participant, however, was indecisive, as presented in the second outer circle of the doughnut chart. The third outer circle of the chart shows that 60% of the non-SEF women provided *more positive* (10%) or *positive* (50%) statements regarding the attractiveness of an employer. 10% of the statements were *mixed/neutral* and 30% of the statements were *more negative*. The inner circle of the chart represents non-SEF male participants' responses, highlighting that 50% of them provided statements assessed as *positive*, 17% were *mixed/neutral* and 33% were *more negative*.

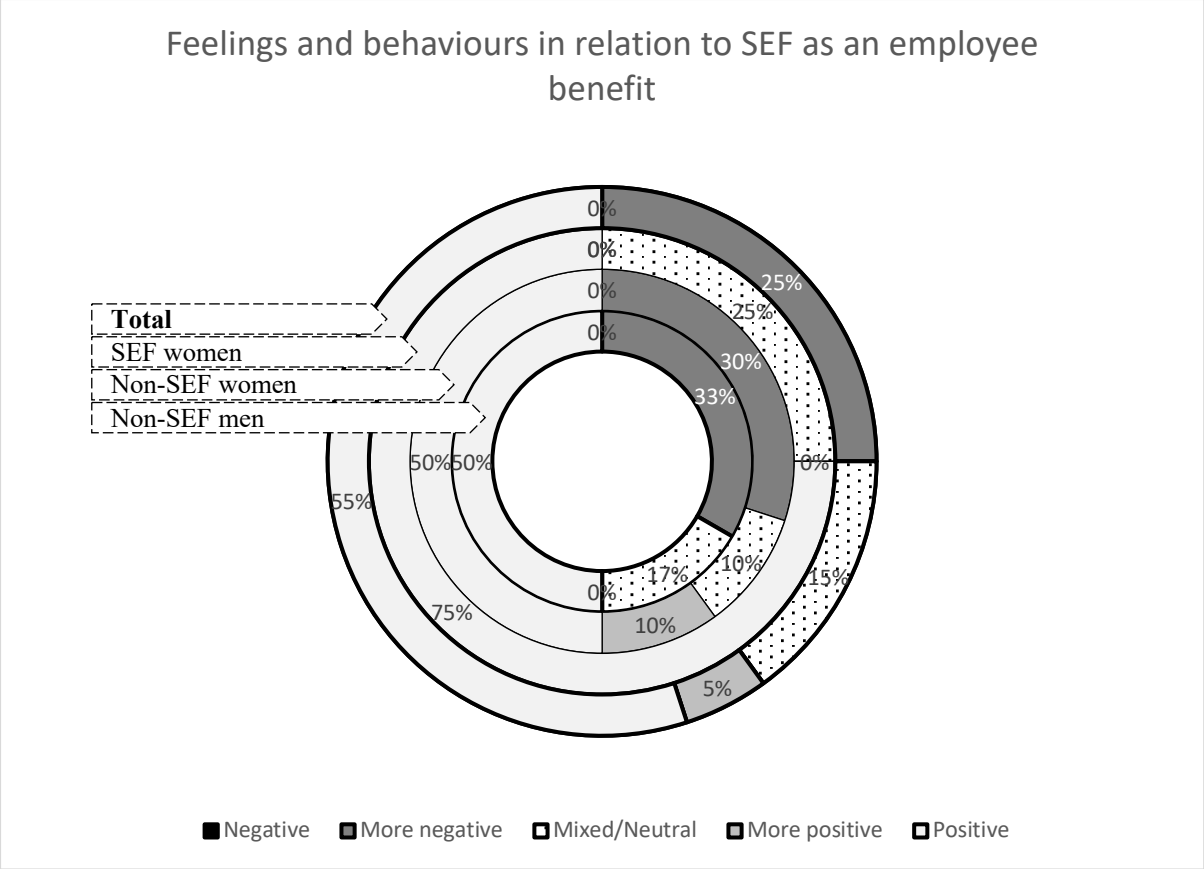


Figure 42 Participants' feelings and behaviours in relation to SEF as employee benefit – doughnut chart

The heatmaps (*Figures 43-45*) below represent participants' statements and their distribution. All participants provided one statement. While with one dimension and one statement the heatmaps may not be as insightful as the previous ones, I show it for reasons of completeness and further reference. Note, as no feelings were identified, only the behaviours are visualised.

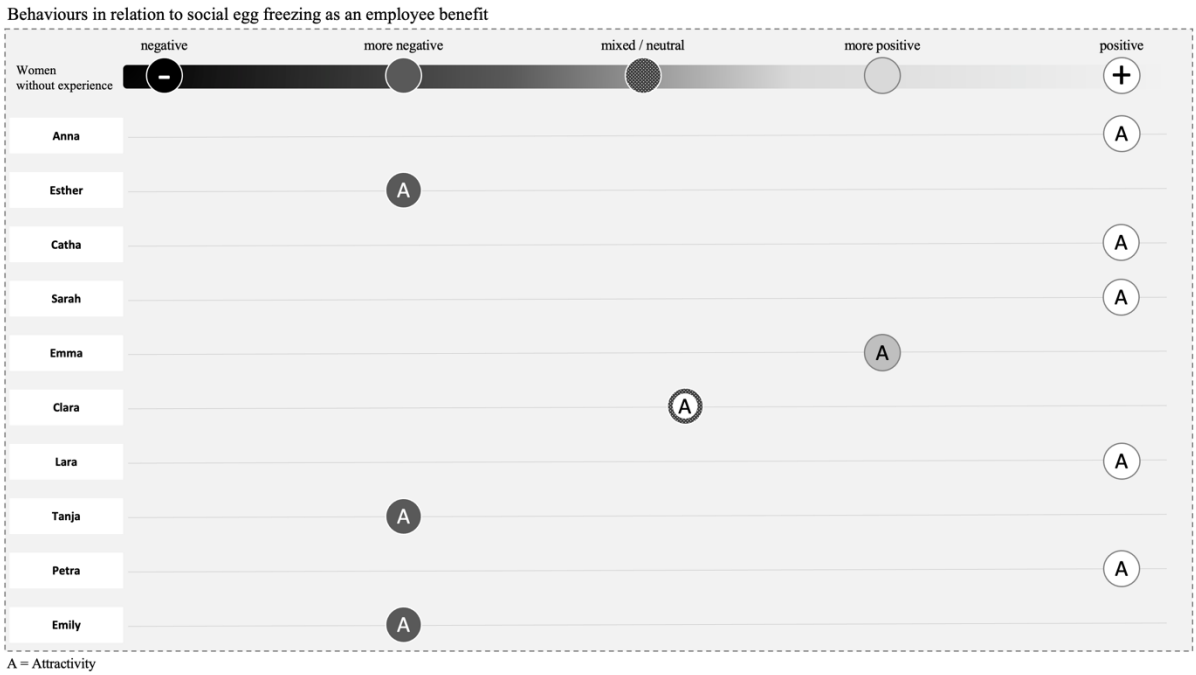


Figure 43 Participants' feelings and behaviours in relation to SEF as employee benefit – individual view (non-SEF women)

Figure 44 Participants' feelings and behaviours in relation to SEF as employee benefit – individual view (non-SEF men)

Figure 45 Participants' feelings and behaviours in relation to SEF as employee benefit – individual view (SEF women)

5.4.4.3 Summary

Twenty participants (10 non-SEF women, six non-SEF men and four SEF-women) provided a total of 106 statements that were linked to the attitude object, SEF as a benefit, of which I

categorised 86 statements as beliefs about the attitude object and 20 statements as behaviours. None of the statements expressed clear feelings towards SEF as an employee benefit. As presented in *Figure 46*, less than half of the statements (44%) are positioned on the negative side of the scale, with 13% interpreted as *negative* and 31% as *more negative*. 16% of the statements were *mixed/neutral*. 40% of the statements are located to the positive side of the scale, with 7% interpreted as *more positive* and 33% as *positive*.

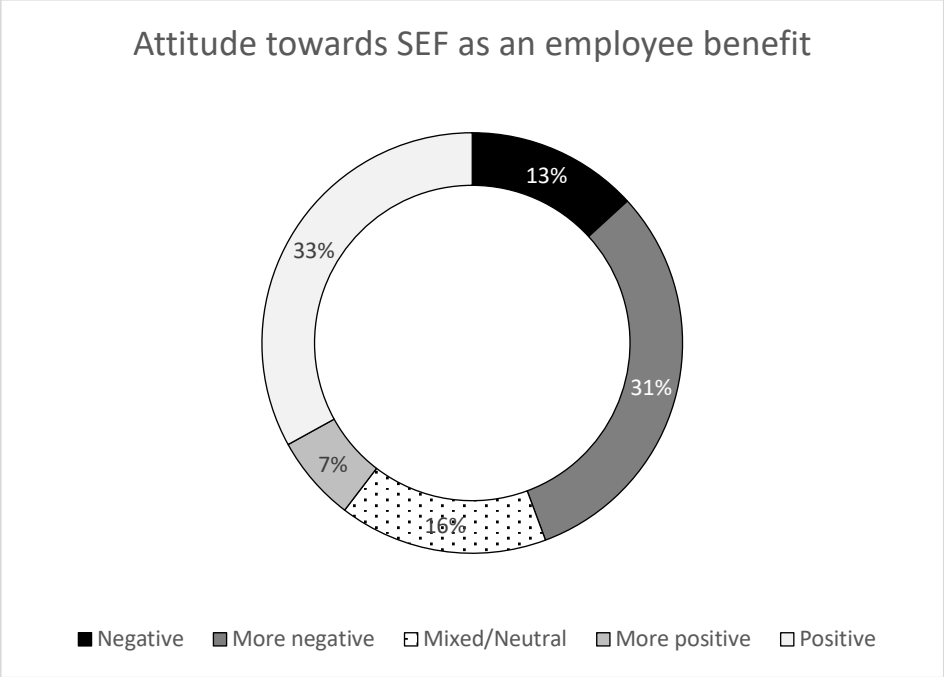


Figure 46 Participants' attitude towards SEF as employee benefit – doughnut chart

I could observe that certain participants perceived employers' Intention (I) in providing SEF as a benefit as motivated by self interest, rather than a desire to support women's careers. At the same time, the same participants would find an employer offering SEF Attractive (A) and in some cases would even prefer an employer with this benefit. In *Figure 47* I present examples from this observation. For instance, Lara highlighted the 'potential power structures' behind this benefit, but she still described such an employer as attractive 'because at least [she] can see the effort'. Petra speculated that an employer's main aim could be to take advantage of employees by keeping them longer in the organisation, but also said that if she received two comparable employment offers, she would select the company offering SEF. Luca indicated that employers might pressure employees to postpone childbearing and that the childbearing decision should be with the individual, not with the state or with the company; however, if an employer gave him the opportunity, he would probably make use of the benefit if the need was

there. Peter also highlighted in detail the employer's own self-interest in financing SEF for employees, but he found the offer 'generous' and 'attractive'. Hanna mentioned that employers may aim to keep younger and more ideal workers in the company, thus rooting SEF financing in the company's self-interest. Nevertheless, she explained that she had mentioned in her employer's survey that financing SEF would be a preferred benefit for her. Maria argued that offering SEF is 'selfish' from the employer's point of view; however, she found these employers to be attractive, as SEF is a good thing.

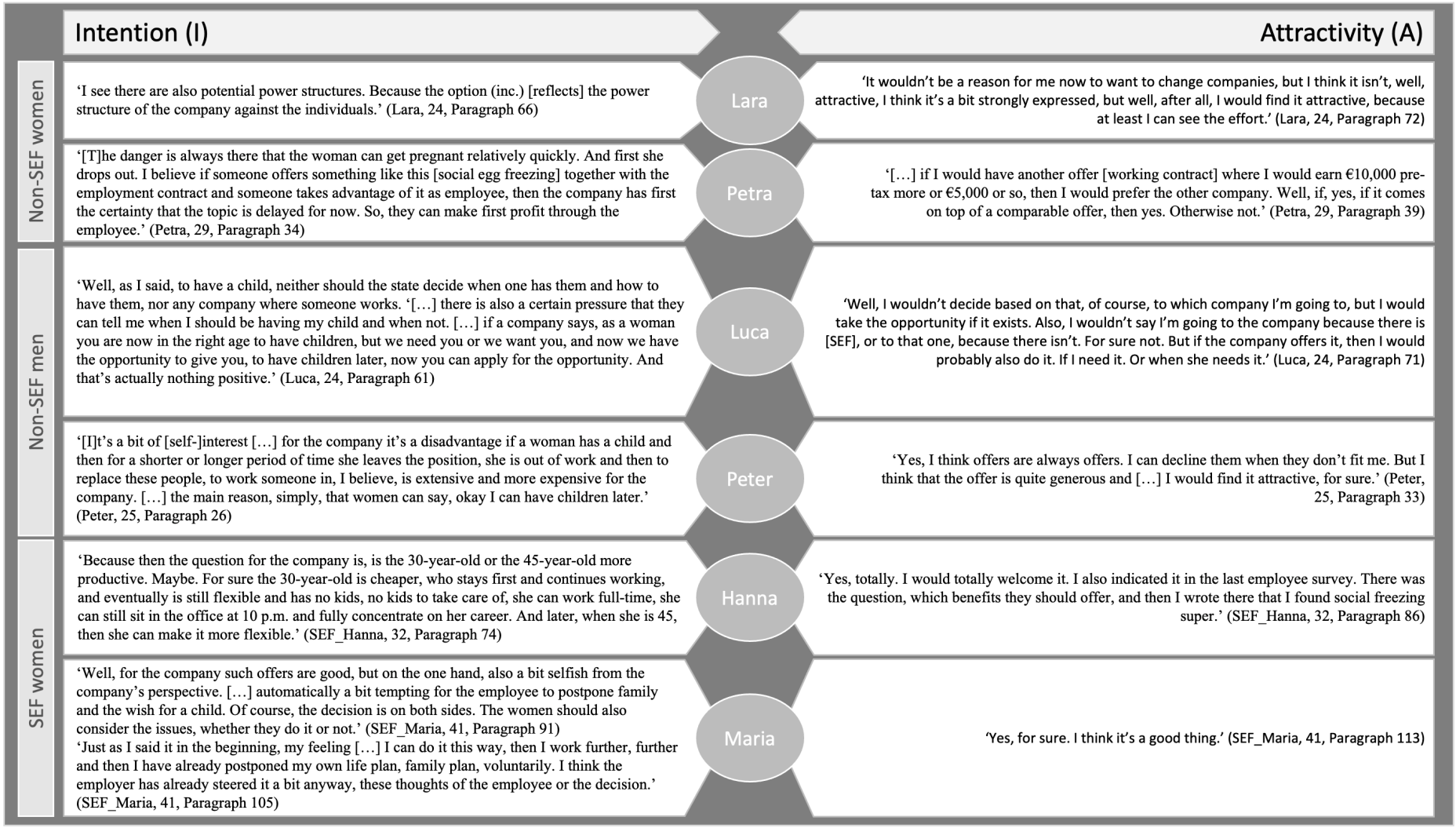


Figure 47 Participants' perceptions towards employers' Intention (I) and Attractivity (A)

5.5 Perceived social norms of opting or not opting for social egg freezing

In this section, I focus on research question 2(a), which addresses participants' perceived social norms of opting or not opting for SEF. I asked SEF women to reflect on their decisions to choose SEF and whether they could identify a social influence or pressure for why they cryopreserved their oocytes. Similarly, I asked non-SEF participants whether they would consider SEF to answer RQ 1(a), and following that asked them to reflect on their hypothetical decision and share their perceptions of social influence or pressure that would impact it. Furthermore, I asked both SEF and non-SEF participants how they believed society perceives SEF or women who choose SEF. I analysed their responses based on the narrative of neoliberal feminism in *section 5.5.1*; I describe the social norms associated with reproduction in *section 5.5.2*, I discuss both as iternalised social norms in *section 5.5.2.1* and the meta-perception of SEF in *section 5.5.2.2*; and I analyse the research question in *section 5.5.3*.

5.5.1 Social norms linked neo-liberal feminism

Critics have claimed that SEF provides an individualist solution to a problem rooted in social structures and described it as the product of neoliberal feminism. Researchers have also linked this reproductive method narratives such as *choice, individualistic responsibility, having it all, privileged women* and *consumerism* (Cattapan et al., 2014). I therefore tested these narratives in participants' responses.

5.5.1.1 The narrative of choice

When participants referred to *choice*, they several times verbalised the freedom aspect. For example, 'social egg freezing, it is certainly a voluntary decision' (Anna, 26, Paragraph 14) and it is a 'very individual choice' (Lara, 24, Paragraph 25). Participants indicated that the decision is an 'intimate, personal choice' (Lara, 24, Paragraph 66) and women gain 'the opportunity to have an autonomous and sovereign decision about [their] life-planning' (Lara, 24, Paragraph 9). One participant highlighted that in this matter 'society's expectations wouldn't be that important' to her (Sara, 22, Paragraph 54).

> '[T]hat the woman can make the decision based on her own wishes, whether now already at 30 she takes the free time to get a child or whether she waits, works for a couple of years and then she does that later. So, this is freedom for the woman that she earns [with SEF].' (Anna, 26, Paragraph 59)

One participant argued that the opportunity enables women to 'make their own decision, when they would like to have a child and they don't feel pressured' (Emma, 24, Paragraph 21).

One male and one female interview-partner also mentioned that the opportunity for SEF is just an option: 'I think offers are always offers. I can decline them when they don't fit me'

(Peter, 25, Paragraph 33). ‘Yes, but there is nevertheless the opportunity to decide against it. Just because one had the option, the opportunity, it doesn’t mean you will actually do it’ (Lara, 24, Paragraph 58). While participants clearly argued the freedom aspect that one can be against the opportunity and decide against SEF if it is offered or available, it does not mean the decision will remain without consequences or judgement from third parties (e.g., the employer) who enabled the offer.

> ‘[…] but I think the decision is mainly with the woman.’ (Anna, 26, Paragraph 41)

> ‘Well, I feel good. I think it’s something positive. That women indeed have the choice, have the free choice. That’s progress.’ (Emma, 24, Paragraph 25)

> ‘Well, of course, everybody must make their own decision.’ (Clara, 22, Paragraph 26)

> ‘But I think every woman can make her own decision.’ (Emily, 34, Paragraph 35)

5.5.1.2 The narrative of individual responsibility

Interviewees addressed the aspect of individual responsibility in discussions in which they compared SEF to medical egg freezing. Several times, they described women opting for OC due to expected age-related infertility (SEF) as women making an individual decision, that is, choosing an option that was not necessarily needed, making both the decision and its outcome their responsibility. Additionally, Rob noted that SEF is a technical solution for the individual, but that it cannot provide an overarching solution for societal challenges.

> ‘ […] One wasn’t forced into it but based on one’s own (inc.) did and should also have the responsibility for the child. Because she decided on her own, although it wasn’t necessary.’ (Anna, 26, Paragraph 14)

> ‘This is somehow an argument, one says, we have here a technical possibility and it now solves society’s problem. And it doesn’t work like this. The social structures don’t change by making a technical possibility available. […] I think social freezing is only a technical gimmick, more or less.’ (Rob, 26, Paragraph 69)

5.5.1.3 The narrative of having it all

I here analysed the so-called ‘have it all generation’ (van de Wiel, 2014), represented by university graduates and young professionals, and how they viewed SEF as an opportunity and what this generation wished to have. Put simply, it is career, studies, relationships and children.

The main point several interviewees addressed it that women cannot have it all because the age biologically best for childbearing conflicts with the age where gathering professional experience is crucial for a traditional successful career path. However, if childbearing could be postponed to a later age, when women are established their careers, they could better focus on motherhood. This phenomenon was, for example, described by Sarah, Rob and Anna.

> ‘Because it’s also the case that exactly the time when women usually become pregnant, it’s a crucial phase in life for it [career].’ (Sarah, 22, Paragraph 78)

> ‘So, first at 25, 30, you don’t deal with family planning, but you get on with your profession, you build up something, but you still have the opportunity in your late thirties, or something like that, to have a child. So, it is the balance between family plans and career.’ (Rob, 26, Paragraph 21)

> ‘[…] But the other way around, if she has a child only at the age of 45, she is already established in the company. And it’s a better argument for her and better chances in the end.’ (Anna, 26, Paragraph 57)

Petra also mentioned this negative perception that women are expected to make a choice between pursuing a career and becoming a mother. Therefore, she can see how SEF can be a solution for this conflict.

> ‘I can also understand it when it comes to your career, I just think it’s a shame that you somehow always have to decide.’ (Petra, 29, Paragraph 54)

Alongside careers, but strongly linked to it, some women even highlighted that they would have barely finished their studies when their biological window for childbearing approaches its end or the last years. And as Tanja mentions, the more women aim to pursue higher education, the more women face this challenge.

> ‘[…] at the earliest I’m gonna be ready [with the studies] when I’m 27, and the biological clock ticks […].’ (Esther, 23, Paragraph 47)

> ‘Because I think the more women are studying, the more frequently we have the problem. Because I’m 23 and until I’m done and after that I have to do the traineeship, or something similar. Then I’m basically 30. And actually I would like to have children at a younger age, but it just simply doesn’t fit to the life planning. […]’ (Tanja, 23, Paragraph 15)

Furthermore, Rob added that opting for SEF may allow more time to find the right partner and set the desired or optimal environment for childbearing.

> ‘Well, the question is whether someone would like to reduce the pressure of looking for the suitable father, for example. […] To find the perfect constellation for herself and to start [her] own family.’ (Rob, 26, Paragraph 23)

There were also critical voices in the interviews, highlighting that ‘having it all’ is either not possible or has its risks. These statements were similar to van de Wiel’s (2014, p. 11) note that even if some women could realise being a supermom, having a picture-perfect family life and a successful career, many might pay a high price for waiting and pursuing a myth. Tanja observed that having a child would mean one has to change their previous life, shifting focus

and ‘holding back’ on other life spheres. Therefore, this perception doesn’t fully support the concept of ‘having it all’.

> ‘If you decide to have children, then you shouldn’t, then you can’t live your old life completely like before and at the same time have children when it suits. But having children is somehow always a deprivation and a bit one has to be held back […].’ (Tanja, 23, Paragraph 15)

Maria, who opted for SEF, shared her experience that while she was focusing on her aspirations and dreams, including studying, working and relocating to Germany, she postponed relationships and motherhood and clearly admitted that *‘for my dream you have to make a little contribution and you have to pay the price a bit’.* She was fully aware of the trade-off she made with her life decisions, however, at the time of the interview, at 41years of age, we do not know whether she will stay childless or if she can fulfil her strong wish to become a mother, either naturally or with her cryopreserved oocytes.

> ‘Like me, when you first want to have your own life aspirations, for example, at first I studied and worked in China, but then later I said I wanted to see the world, so I decided to continue my studies in Germany and then yes, then that was my dream, but for my dream you have to make a little contribution and you have to pay the price a bit. Of course, it’s your time. Your time, your life experience, thus a relationship or desire to have children or family, has automatically been postponed.’ (SEF_Maria, 41, Paragraph 83)

Anna’s thinking addressed several facets of the ‘having it all’ discussion.

> ‘[…] it would be really good because it’s very difficult somehow as a young woman, who would like to achieve something, to juggle everything. Of course, it’s not ideal, sure, I believe no one would have wanted to do it this way. It means, of course, effort and risks, but all in all I think, it’s still [important] that one has the opportunity at all, every woman can decide it, whether she would like to do it.’ (Anna, 26, Paragraph 21)

First, Anna assessed SEF positively and believed that it could help with the challenges ‘young women’ who want to ‘achieve something’ are facing. The expression ‘juggle everything’ also indicated that a constant state of concentration and high energy level are required to keep everything under control. Anna described SEF as ‘really good’, but added that ‘of course, it’s not ideal’ and emphasised the thought ‘I believe no one would have wanted to do it this way’. Therefore, we can assume a woman, such as her, would not choose this way for realising parenthood if there were better solutions to manage these challenges. Anna did not lose sight of SEF's negative side and clarified: ‘of course, effort and risks’. She concluded that ‘every woman can decide it, whether she would like to do it’, curving back to the individual perspective that the decision is with the women, and that they can weigh the opportunity’s pros and cons. Additionally, if Anna believed that ‘no one would have wanted to do it this way’ ,

would that mean that ultimately it is still the price women pay for *having it all*? Although Anna said 'every woman', the target group of women to whom SEF is available and who can really 'decide' about it freely the narrow—I discuss this in the next section. In the context of 'having it all', Tarasoff (2014) also highlighted that SEF is clearly not available to everyone, even if it exists, or may not even be desirable to many women. Even if SEF were the eternal solution for 'having it all', it must be recognised that some women will not have access to this solution.

5.5.1.4 The narrative of privileged women

5.5.1.4.1 Perceived privilege

Similarly to Tarasoff (2014), participants addressed the aspect of social inequality in relation to SEF. For example, Tanja believed that it is 'the privileged women who can afford something like that' (Tanja, 23, Paragraph 17). I analysed the interviews based upon which aspects these women were perceived to be privileged in. I linked this privilege to the concept of socioeconomic status, which may be defined based on the individuals' income, education, occupation, residence, ethnicity or religious background, and then looked for patterns in the interviews.

However, the interviewees did not explicitly address all aspects of socioeconomic status. Participants highlighted that the high costs prevented all but a 'certain class of women' (e.g., 'the middle class, upper middle class' [Tom]) from accessing SEF.

> 'This social thing, this is anyway a matter, I mean, it's possible only to a certain class of women. I mean, not all women can afford it.' (Tom, 34, Paragraph 13)

> 'Exactly, therefore the bottom line is not all the women can afford it, so it's again for, I don't know, for the middle class, upper middle class, who can do this based on social reasons at all.' (Tom, 34, Paragraph 15)

Clara mentioned that 'top managers', who I presume have a higher education, higher income and may belong to a certain group of occupations, are more able to afford this method.

> 'I have to say, (inc.) it costs a great amount of money, (inc.) also not, this only gets done by probably just the top managers […]' (Clara, 22, Paragraph 24)

Tanja also noted that women who do not have a higher education or a job with a high income may not be potential candidates for SEF due to its high costs. Furthermore, she addressed a woman's personal status, the lack of a relationship and how being single may lead to less financial privilege. Emma highlighted an additional aspect, women's age. She assumed that younger women might have more difficulty affording the €3,000 basic costs of one round of

oocyte retrieval. Emma thus expected age to correlate with completed education and higher income, increasing women's socioeconomic status.

> 'Well, the woman who is maybe single, or I don't know, who didn't necessarily study or has a job, with which she would earn that kind of money, couldn't currently afford the costs at all.' (Tanja, 23, Paragraph 17)

> 'Exactly. It's about a good €3,000. If you are relatively young, it's quite some money.' (Emma, 24, Paragraph 35)

As Rob and Luca linked SEF to the phenomenon of luxury due to its costs, one would expect that they would also associate the process with individuals who have a higher income. Rob called SEF a 'luxury problem', indicating that financially less privileged women do not have to deal with this 'problem' because they do not have the option to choose it. In the interviews, when age-related and disease-related OC was discussed, Luca mentioned that although disease-related OC is needed, the age-related one is a luxury. With this statement, Luca not only framed SEF as unnecessary, but defined it as a product for privileged individuals who can afford it.

> 'As it's so expensive, it costs a couple of thousands of euros, says the text, it's still rather a luxury problem.' (Rob, 26, Paragraph 25)

> 'Yes, one is necessary and the other one is rather a luxury.' (Luca, 24, Paragraph 137)

The fact that someone may be able to afford a 'luxury' product such as SEF, in this participant's perception, may lead to envy and establishes emotionally separated groups of women who can afford and who cannot, thus creating a gap between privileged and non-privileged women.

> 'And, of course, many who don't even have the opportunity to do this. Well, they might feel disadvantaged compared to the ones who can make it their priority.' (Tom, 34, Paragraph 19)

> 'And that's why I think that these women will rather be seen with respect […] and be envied by the ones who cannot afford it. Well, monetarily.' (Luca, 24, Paragraph 14)

5.5.1.4.2 Further (reproductive) inequality

Participants raised the point of whether the privileged status to financially be able to choose SEF may trigger another inequality. Peter argued that women who can afford SEF (and indeed undergo cryopreservation) create a career advantage in comparison to women who cannot (or decide not to) opt for it. Because these women can focus on their careers, potentially succeed and get into higher positions, pregnancy and childrearing responsibilities do not have to compete with their professional activities—or at least not in their thirties, which are deemed to be a very important decade in one's traditional career development. Therefore, this privileged status leads to further privileges, emphasising and conserving the existing one. Clara went a

step further in her thinking, as she called this phenomenon the emergence of the top elite due to the above-named social inequality.

> ‘The question is, as not everyone can afford it, whether this obviously creates a further inequality (inc.), especially for people who have the money and can pay for it to stay longer in their careers and to climb higher in the career ladder.’ (Peter, 25, Paragraph 4)

> ‘[…] don’t know, if there’s a top elite that will potentially emerge because of the social equality, inequality.’ (Clara, 22, Paragraph 24)

5.5.1.5 The narrative of consumerism

I did not explictly test the issue of consumerism or the potential advantage of the medical centres, and the subject appeared in none of the interviews. There were two indirect associations which can be linked to consumerism. First, when I tested the attitudes towards women opting for SEF, one perception was the *naïve consumer*. That is, one interview-partner made reference to this category. I describe this analysis in *section 5.3.1.1.4*. Second, I tested the attitudes towards SEF as a corporate benefit. In some interviews, young women were seen as cheaper and more effective labour power for employers, compared to their older peers; accordingly, companies could make the benefit available and profit from the fact that women were postponing their wish for a child. I describe this analysis in *section 5.4.1.3.2.*

5.5.2 Social norms associated with reproduction

5.5.2.1 Internalised social norms

Following previous research (e.g., Feiler, 2020; Keglovits, 2015; Petropanagos, 2010; van de Wiel, 2014), I tested the social norms strongly related to SEF in the interviews. For example, the *right time* to become a parent and the *ageism* linked to this expectation; the *value of a genetically related child* or alternative parenthood; the phenomenon of *childlessness* and whether SEF is seen as the *next step* in reproductive freedom; and finally, how it relates to *transgender individuals and non-heterosexual couples’ reproductive choices*.

5.5.2.1.1 Right time and ageism

In the interviews, I addressed the age of women opting for pregnancy, especially in the part of the discussion when we focused on the potential regulation of the age limitation of SEF. I asked the interviewees whether they believed an age limit should be defined by legislators— that is, laying down a maximum age at which a women can use her previously cryopreserved oocytes to fulfil her wish to have a child. My detailed analysis of this aspect can be found in *section 5.3.3.2.* Here, I focus on the statements in which participants mentioned what would be the

latest acceptable age for becoming a mother from a social perspective, what their arguments are and whether they see any difference between an older mother and an older father.

Latest acceptable age for women

When I asked the participants about the latest age at which they would still support women becoming mothers, their answers covered a wide range of perceptions. Please note that although the original interview question relates to potential age limits regarding becoming mothers with the OC method, the answers imply that the participants set their latest acceptable ages at the point where fertility naturally runs out. Some participants argued that becoming a mother, even with SEF, should be linked to the natural boundaries of fertility. The reason, which is raised in numerous discussions, is that the human body has its limits, not just considering the age of the oocytes, but in general, as pregnancy and labour are challenging for the female body. And these challenges have higher health risks in advanced age. Therefore, some interviewees, such as Esther, suggested opting for a pregnancy would be ideal until the end of the menopause, which would mean extended fertility wouldn't be welcomed. She named an example: 'I would say it's a quite utopian way, being pregnant at 70, when the body, from the biological perspective, would be exhausted' (Esther, 23, Paragraph 33). Other interviewees were less inclined to define an acceptable final age for a pregnancy, but rather linked it to the individual's fitness to cope with stress and to handle the responsibility of having a child. Similarly, Luca, Lara and Emma stated that the main factors to be considered should be physical, mental and financial stability for childbearing, and whether the woman is healthy enough to manage a pregnancy and give birth.

> '[…] as for childbearing, it's less about the age, but rather about whether you are still young enough for this stress, for the responsibility that you have to take. And I think, rather, that is the limit.' (Luca, 24, Paragraph 20)

> 'I think as long as one is physically, mentally and financially in the position to carry a child to term, it should be possible to implant the oocytes.' (Lara, 24, Paragraph 25)

> 'Well, I find as long as one believes that she is healthy and can cope with carrying a child nine months long and can give birth to a healthy child, I find it acceptable.' (Emma, 24, Paragraph 98)

Other participants named certain ages, from approximately the age of 40 until the age of 65, where they would set the age limit at which pregnancy is acceptable; I present these age limits in *Figure 26* in *section 5.3.3.2.* The average latest age to become a mother the 15 participants mentioned is 48.4 years. Whereas for non-SEF participants the average of the 12 participants is 47.6 years, for the SEF participants it is 51.3. It should be noted that this difference is due to

Elisa's (SEF) statement, as she clearly did not want to set a realistic limit and answered the question with 65.

Some participants explained why they set the limits they did. Ben believed that 'due to the ethical perspective, it should be that a woman who is no longer normally fertile, shouldn't be doing that anymore. Because the body already sends a sign, no, it's not [happening] anymore' (Ben, 24 Paragraph 28). Like other participants, such as Emma and Luca who did not mention any age limit, Ben also referred to the limits of the body, in this case explicitly to female fertility.

Emily and Ella gave reasons for their age limits, stating that they personally know women who became mothers over the age of 40 and thus have positive examples in which older mothers had successful pregnancies and gave birth to healthy children.

> 'Well, I'm flexible. I would even say until 45 , I actually had a colleague who became pregnant at 45 and the pregnancy was healthy and she gave birth to a healthy child. Therefore, I think […] mid-40, I find it's totally okay.' (Emily, 34, Paragraph 37)

Ella stated that she was not sure which age would be best for her to become a mother:

> 'I also know parents, or women, who became parents at 48, but I don't know whether I would want that. It's always, as one thinks about it, when you just turned 30, then the word seems to end at 33. And when you are 33 then shift your limit again further, then okay, the word ends at 37. I think I would behave also like this. Therefore, as for now, I would probably say, okay, I would want to be become a mother the latest at 43, maybe 44, but who knows how it's going to be when I'm actually 40.' (SEF_Ella, 32, Paragraph 51)

In the latter part of her statement, Ella described how age limits change as time passes and as the realisation of becoming a mother may be pushed to a more advanced age. Ella also referred to 'all the celebrities who all somehow become parents at 50, 48, etc." (SEF_Ella, 32, Paragraph 59). Thus, the decisions of well-known people and their representation in the media may form or set lifestyle norms—in this case, not only regarding fashion but also the acceptance of new parenthood in one's late forties, fifties or at an even more advanced age.

Another participant, Tanja, described her feelings after learning from the media about women being older than 60 and having toddlers: 'it was coverage about mothers over 60 who have small children and I find it very bad. I think one cannot over-simplify that you say, until 50, then it's over. I think it depends on how healthy this woman is and how fit she is physically, also even to still be there for a child' (Tanja, 23, Paragraph 19). While Tanja had more negative feelings towards women becoming mothers in their late fifties or sixties, Clara identified 60 years of age as the latest acceptable time to become a mother: 'Being intuitive, I would set it [age limit] at 60 years. I think this is also a typical retirement age' (Clara, 22, Paragraph 35).

She referred to the life stages and linked childbearing to them and she saw someone becoming a mother as long as the person is of working age.

In contrast, Tom defined the ideal age for pregnancy and giving birth between 18 and 40 years of age. He highlighted the importance of individual cases in this matter: "if a woman now, for example, who tries to have a child somehow for 20 years and it doesn't work, and suddenly she is pregnant at the age of 42, then of course it's the best gift one can get' (Tom, 34, Paragraph 55).

Latest acceptable age for men

When discussing the latest acceptable female age for pregnancy and childbearing, in some interviews I also asked participants the same question about fatherhood. Participants who based their age limits on the physical, mental and financial capability to raise a child rarely named a significantly different age limit for men. Two interview-partners, Peter and Catha, argued that there should not be any, or only a minor, difference regarding the age limit for fathers compared to mothers.

> 'I would use the same criteria […] I wouldn't make any difference between the genders.' (Peter, 25, Paragraph 24)

> '[…] exactly the same point as for the woman […] the child wants to grow up with his father. However, of course, health doesn't play a role here. […] because well, he doesn't have to experience the pregnancy […] nevertheless, I think, the limits should be similar.' (Catha, 25, Paragraph 31)

> 'Maybe plus five years, then I would also say, also the same argument, one will be there for their children.' (Tanja 23, Paragraph 22)

Tanja suggested the additional five years for fathers based on her observations and experiences: 'in my private life I've experienced that men are a bit older than women in relationships. Well, I don't have any couples in my circle of acquaintances where men would be at the same age or younger. That's why.' (Tanja 23, Paragraph 24)

Furthermore, the fact that the female bodies are highly affected by pregnancy and childbearing, whereas male bodies are not, encouraged some participants to set the fatherhood limit to a higher age than the motherhood limit. Anna stated: 'Yes, as for men, it's seen less strictly. Well, for men it's indeed okay when they are older, they don't have to give birth to the child. Basically, they just have to be there for the woman and for the child. And yes, I'm not at all like that. Well, 55 would be acceptable' (Anna, 26, Paragraph 31). In comparison, Anna supported a woman becoming a mother until the age of 45.

Tom described the biological inequality between both genders as 'unfair':

> ‘Yes, that’s again what is unfair. Well, as a man the bottom line is because you also have the procreative capacity at a more advanced age […]. As for a woman this is something different. […] when she is above 40, it’s gonna be, when she is above 40, sorry, based on this health aspect, it’ll be more difficult.’ (Tom, 34, Paragraph 55)

For Tom, men are fertile for a longer period of time, so it is also more acceptable to him for a man to become a parent at a more advanced age than for a woman. Although Rob argued similarly to the previous participants that men have a longer biological window open for reproduction, he believed that in reality this window is not used to its fullest extent.

> ‘Well, the theory is that they can go longer, of course, men could have children much longer, but if one looks at it in practice, it’s quite rare, that’s what you experience in the media, that a superstar becomes a father over sixty, that’s extremely rare in reality. Well, I think that most men must make the decision in their mid-forties whether they want to have children or not. They need a partner who takes part in it and most of them [men] are in relationships where the age difference is marginal.’ (Rob, 26, Paragraph 39)

When children become victims of ageism

The interview-partners expressed their concerns regarding children who were born or potentially could be born to older parents. These concerns can be divided into two categories. On the one hand, there are biological or medical concerns related to the higher risk during pregnancy for older women as well as the risks related to OC. I discuss these aspects in *section 5.2.1.4.5*. The other type of concern relates to the sociological aspects of children’s wellbeing and their potential emotional difficulties. Anna, Rob and Tanja described the age difference between the parents and the children, stating that a greater age difference is ‘somehow strange’ and ‘really unusual’, while Tanja ‘[doesn’t] find it good’:

> ‘When I think about children who are or will be living 20 years at their parents’ place and the mother is already 70 or 80, that I find somehow strange.’ (Anna, 26, Paragraph 27)

> ‘It’s really unusual and I’m also not sure if it’s really good for the child necessarily.’ (Rob, 26, Paragraph 37)

> ‘[…] But I think one shouldn’t just consider the woman’s wish to have a child, that the woman would like to have a child, but one should also think about how the child with potentially really old parents is doing. Exactly. When the child is finishing high school [original: Abitur] and their parents are in their eighties. I personally don’t find it good.’ (Tanja, 23, Paragraph 19)

In their statements, these participants did not make arguments, but only shared their impressions. Anna’s answer expressed, however, that the children in question are ‘living 20

years at their *parents'* place', yet note's only the mother's advanced age (the 'mother is already 70 or 80'), but not the potential age of the father. On the other hand, Tanja mentioned 'potentially really old parents' and referred to the parents' age again: 'their parents are their eighties'. Tanja also included a personal experience in her observation:

> '[…] I had back then someone in my class over 10 [years old] and the father was seventy, that was already somehow, the father was as old as my grandpa. Somehow, for us children, it's a strange situation. And also for her I believe.' (Tanja, 23, Paragraph 22)

She described a situation where a 10-year-old child had a 70-year-old father. She set a reference norm based on her family in her comment that her grandfather was also 70 years old. Tanja concluded that this is a 'strange situation' for other children, referring to her peers. She assumed that the child in question would also find this strange ('And also for her I believe'), but we do not know that for sure.

Furthermore, Tanja and Catha described, similarly to Van der Ven (2017), that children of elderly parents might face the challenge of responsibilities:

> '[…] it can happen that the father or the mother at 70 becomes a case for nursing care and then a 10-year-old child is there. I think there are things that should be considered, how one can be there for the child and how you could ensure the child the life they deserve, independently from money. But simply, that the parents are there long enough for the children. […]' (Tanja, 23, Paragraph 22)

> 'I don't know whether that is nice for a child when the parents are already at a grandparents' age, and they may not have the guarantee, or the likelihood is low, that the parents will see their children to grow up.' (Catha, 25, Paragraph 29)

These participants raised concerns that children would have to take over caring responsibility for their parents while they were still children, as Tanja described: 'the father or the mother at 70 become a case for nursing care and then a 10-year-old child is there'. Or these children risk losing their parents in their childhood: 'the parents are there long enough for the children' (Tanja) or 'not have the guarantee, or the likelihood is low, that the parents will see their children to grow up' (Catha).

5.5.2.1.2 Value of genetically-related child and alternative parenthood

One participant, Emily, mentioned adoption in one of her answers, and participants who had already decided for cryopreservation also addressed adoption when discussing future childbearing plans and whether they would consider single motherhood or adoption in the future.

Hanna and Ella discussed single motherhood:

> ‘[…] Yes, but let me say with this topic [single motherhood with sperm donor] to become a single mother, as I said, I hope that I won’t have this situation, but maybe I would take it into consideration. (inc.) I cannot assess it yet.’ (SEF_Hanna, 32, Paragraphs 53–54)

> ‘That’s a topic I have already thought about, but I don’t have a final opinion [on] that yet. I wouldn’t rule it out, maybe as I said, I have, I have here a circle of friends with girls who are in a similar situation, and I would make it dependent on that, how my situation really is then, how my surroundings are, because I don’t think that single parenthood is [a] bed of roses. Well, it’s probably difficult, I think, I would wangle it, I have friends here in my life and in principle I think I’m the kind of person who can make it, I earn enough money, that I could definitely provide for the whole family, but yes. But for sure, it’s not my goal.’ (SEF_Ella, 32, Paragraph 37)

Both Hanna and Ella had thought about the possibility and not ruled out the option, but clearly expressed the belief that it is not the preferred way to become a mother: ‘I hope that I won’t come to this situation’ (Hanna); ‘But for sure, it’s not my goal’ (Ella). Ella also shared her consideration of the challenges linked to single motherhood, such as her friends’ support, her financial stability and her role as the only provider. While she also showed her awareness of the difficulties of single parenthood by using the phrase ‘I don’t think that single parenthood is [a] bed of roses’, her conclusion was that she could handle a situation like this.

Maria discussed her thoughts about single motherhood:

> ‘Now, no. Back then I had serious thoughts, now, okay, if I don’t find the right partner who would start a family with me to have children, then I can have a child alone. But of course I discussed this with a good friend of mine because she deals with children, adolescents, but I think if a child from sperm, sperm donation comes, for the child’s future it’s not that good. I think for me sperm donation is not an option. Either I use my oocytes together with my partner later to have a family and then a child or two children, then it’s okay, but if I use the sperm bank along, it’s no question for me anymore.’ (SEF_Maria, 41, Paragraph 59)

Maria clearly expressed her choice not to opt for single motherhood. She considered it, even discussing the idea with a friend who has expertise on children. Maria based her decision not to pursue single motherhood via sperm donation on the idea that it would not be good for the child. As the answer of *not good* was not specific enough, I asked Maria for clarification.

> ‘Yes, when the child asks, who is my dad. I tell, but […] you cannot receive the information, I don’t receive the information, I cannot really explain it to the child, you are only a sperm from someone and so on. These thoughts stay in the child’s head for a lifetime. He asks who his father was. I think that that I cannot imagine. If a child doesn’t have a father or he doesn’t know from where, where he comes from, I think then his life is going to be difficult. No father, [only] mother and family and, well, for his development it is not good.’ (SEF_Maria, 41, Paragraph 61)

The main reason Maria believed single motherhood was not an option for her was because the child would not know their father, which she thought would not be good for the child's development. Her description comprises a nuclear family (father and mother) and its importance for the perceived health of the child; in the end, this view formed the basis of Maria's decision making.

Emily also discussed adoption:

> 'I would advise women against it [SEF]. Maybe to consider instead how they could deal with adoption or whether they are sure they want to have children […] I would right away consider adopting a child because the children are already there […] Because I also don't necessarily have the need to have a biological child.' (Emily, 34, Paragraphs 35, 54)

Emily did not show a positive attitude towards SEF; she would not consider the option of SEF either and she discouraged other women too. On the other hand, she expressed openness towards adoption and highlighted that being biologically related to a child was not her priority. Hanna, Ella and Maria on adoption:

> 'For sure, I'm totally open to that.' (SEF_Hanna, 32, Paragraph 60)

> 'Yes, definitely.' (SEF_Ella. 32, Paragraph 43)

> 'I thought about it, but I think I don't [fulfil] the requirements anymore. Because due to my life situation it won't work anymore. Yes, to adopt.' (SEF_Maria, 41, Paragraph 65)

All three women had a positive reaction to adoption. Maria explained that she believed she would have fulfilled the requirements of adoption, which implies some awareness of adoption criteria.

It can be concluded that all three women preferred to have children in the event they could not conceive naturally with their cryopreserved oocytes with their partners. While two of them, Hanna and Ella, would consider single motherhood, this would not be their preference, and Maria declined the option of single motherhood with a sperm donor. Hanna and Ella showed openness to adoption, but Maria did not see this as an option for her due to external reasons. In short, there is no evidence that their choice of SEF closed these women off to untraditional forms of motherhood. One woman's answer featured internalised social norms about nuclear families and the likelihood of choosing single motherhood with a sperm donor.

5.5.2.1.3 Childlessness

I did not use my interview questions to explicitly test the participants' perceptions of voluntary and involuntary childlessness. Nevertheless, some participants expressed beliefs about and experiences with childlessness, and its stigmatisation appeared in the interviews.

Anna and Emily on childbearing expectations:

> 'I think it's changing a bit. The pressure might be a bit less, but I think that often the classic picture of a woman is still somehow, still having a child, simply. It's also, to ensure the [continuation of] humankind. Therefore, it's also what's still expected. And somehow in this regard of course it's expected from all women that they have children at some point.' (Anna, 26, Paragraph 39)

> 'I assume that many women indeed feel the pressure that they absolutely, absolutely want to have children or should have children […].' (Emily, 34, Paragraph 27)

Anna described how she perceives the times changing in regard to childbearing expectations on women, as the pressure is fading; however, she clearly stated that this pressure is still present. The rationale she provided is that childbearing would be the key to 'ensure the humankind'. Emily shared her similar assumptions about such pressure. She also twice mentioned the world 'absolutely' to emphasise its importance.

Ella on her personal experience:

> '[…] Because my parents, I believe since I was 26 or so, put pressure on me. For sure I feel it, that I simply should bring a child into this world. […]' (SEF_Ella, 32, Paragraph 15)

Ella was aware of the explicit pressure she experienced from her parents in recent years. By using the words 'should bring a child to this world', one can assume that a biologically related child may also be part of the expectation.

Rob about involuntary childlessness with SEF:

> 'It would be sad, of course, if someone trust this, that it works, and then due to other reasons, it still doesn't come off well. Then someone at 40 [years] somehow still cannot be pregnant, although she froze one.' (Rob, 26, Paragraph 31)

Rob described a situation where a woman chose SEF but still could not fulfil her reproductive wishes 'due to other reasons'. Rob also addressed the issue of trust; that is, as women trust the medical procedure of OC, they make a financial, physical and psychological investment, with the expectation of a successful pregnancy and child birth in the future. If, despite all these investments, the women end up staying childless, Rob characterised the result as 'sad'. This description can be understood as an example of involuntary childlessness.

5.5.2.1.4 Empowerment and the control of female bodies

I did not directly address participants' perceptions as to whether SEF empowers women or if it is another means of control over female bodies, but such perceptions feature in discussions and analysis conducted in this research. For instance, I analyse (1) how participants believed that SEF supports women's reproductive independence and freedom in *section 5.2.1.4.2* below, while I address how they view SEF as a free choice for reproductive freedom in *section 5.5.1.1.* Furthermore, I describe how participants believed SEF supports gender equality by empowering women's career and childbearing plans in *section 5.4.1.2.* Additionally, in *section 5.4.1.3* I describe whether participants believed employers were offering their female employees SEF for the women's benefit, or as part of a strategy prioritising their own interests.

5.5.2.1.5 Just the next step

In the interviews, participants made no explicit references to SEF as the next step in reproductive freedom or in planned parenthood. However, two participants mentioned other established medical measures, such as abortion or contraceptive medication, in the context of SEF. Peter described SEF as 'the opposite of abortion' (Peter, 25, Paragraph 20). He viewed abortion as a clear decision to not have a child, or at least to not have a certain child at that moment. SEF has also been described as a decision to not have a child right now, but maybe in the future, as seen in van de Wiel (2014) description of the 'two-in-one' option characteristic of SEF. Based on Peter's description, he still sees SEF as a decision to have a child, even if the wish is notfulfilled in the present.

Lara about hormonal contraception:

> '[…] Or many new questions pop-up for me, better to say, many old questions in a new situation. […] how healthy it is indeed. Especially as a woman, well, me personally, I have been taking since I was 14 or since I was 14, I have been taking hormones for contraception. And I'm asking how healthy that is, indeed, the biological balance of the woman, well, to overload. Whether it's not a strong intervention in nature and which consequences it has then on the female body in the end.' (Lara, 24, Paragraph 11)

Lara started her thoughts with a reflection, as the interview about SEF triggered other questions on existing phenomena like oral hormonal contraception. She shared intimate information about herself, namely that she had been taking this contraceptive medication since she was 14 years of age. Lara was, at the time of interview, 24, which meant that if she had been taking the medication without a break, which she did not explicitly mention, she had been taking the hormones for 10 years. At this point during the interview, she questioned how healthy it was for the human body and how it affected her biological balance. Furthermore, she was wondered whether these hormones could be a 'strong intervention in nature'. Although Lara did not

explicitly describe the hormonal intervention in relation to the intervention of OC in the natural course of reproduction, it can be observed that other reproductive measures, such as hormonal contraception in this case, may be labelled as unnatural and have effects on women's bodies.

5.5.2.1.6 Transgender and non-heterosexual aspects

I did not explicitly test participants' perceptions of the possibilities SEF provides to non-heterosexual and transgender individuals and couples, neither in the preliminary study (Keglovits, 2015) nor in the current study. In the preliminary study, one participant highlighted that OC may enable non-heterosexual women to choose cryopreservation and postpone their motherhood plans until local regulations changed regarding single motherhood with IVF, oocyte donation or surrogacy. In the current study, during the interviews, none of the participants expressed any potential benefit of SEF for transgender or non-heterosexual individuals.

5.5.2.2 Social norms in the society

I asked participants how they believed society perceives SEF and women opting for SEF; thus, I assessed the meta-perception of SEF. Several participants highlighted that they expected a bipolarity in attitudes towards SEF from society, with some people either supporting or opposing SEF. In other words, participants expected society to have a divided attitude towards SEF.

> 'Somewhat ambivalent […].' (Lara, 24, Paragraph 23)

> 'Well, I think, it's very, very controversial. Well, there are some who support this, but also some who see it very, very critically.[…]' (Sarah, 22, Paragraph 27)

> '[…] society's opinion of these women is also very ambivalent […].' (Tanja, 32, Paragraph 17)

> 'I think based on their view it's very different.' (SEF_Elisa, 32, Paragraph 72)

> '[…] I have every now and then, if I meet someone or so, I told [her about cryopreservation] and there were very different reactions to that. On the one hand, of course, very interesting, tell me, who it works for, or I also know someone. Or what do you want to say about that? Well, interpretations are possible, let's say. Well. Also, it depends on the person. […]' (SEF_Ella, 32, Paragraph 72)

Some of these ambivalent perceptions are assumed due to socioeconomic characteristics as to who would welcome or oppose SEF, such as residency (town-country polarity), age (generation polarity), being religious and further factors, such as having respect for something new,

considering SEF as something artificial, perceiving women as selfish or preferring traditional prescriptive roles for women.

5.5.2.2.1 Countryside-city polarity

One of the dimensions of bipolarity involved people living in the countryside versus people living in the city, with the assumption that people living in the countryside show less acceptance compared to people who reside in cities.

> 'I think if you ask around the countryside, then society's opinion is rather sceptical to critical. If you now ask in the city, I can imagine that it's going to be seen differently. I think how people relate to it is really mixed.' (SEF_Elisa, 32, Paragraph 72)

> '[…] it depends on the openness of the people you come across, the people, let me say, are rather open than society as whole, they would rather probably respond with interest. But I would say that's rather, I don't know, the educated elite, I daresay, but I believe, if I were to relate this [SEF] to my friends from a village, or let me say, the conservative part of my family, they would probably first say, oh, but that's something quite unnatural, or they would have a bit of disgust, and for sure they would put a stamp on my forehead, she is quite desperate.' (SEF_Ella, 32, Paragraph 72)

5.5.2.2.2 Generational polarity

The second dimension was generational polarity, as older people were predicted to be less supportive of SEF than younger populations.

> '[…] maybe older people also cannot relate to this [SEF] because they see that it's a gift to have children. And accordingly, this is rather an invasion of nature, thus I think there are many in society who may consider and see this [SEF] as an invasion of the normal flow of things. Nevertheless, especially the younger generation, well, my generation, also because they grow up with this, always simply more this way, they accept seeing the advantages, and yes, will always be more normal.' (Johann, 24, Paragraph 17)

5.5.2.2.3 Religion

Finally, religious background was the third dimension mentioned in the interviews. Participants expected religious people to be conservative and critical about the modern medical intervention in reproduction.

> '[…] And then, of course, the rather rational things are coming to it as religious people, who have a rather conservative attitude, who don't want someone intervening in nature.' (Rob, 26, Paragraph 33)

> '[…] Now excluding some religious fundamentalists maybe, but I think the majority of society doesn't have the interest to judge this [SEF].' (Ben, 24, Paragraph 26)

> '[…] I believe if I were in the Catholic church community somewhere on the countryside, I could imagine that I would find people who would have talked about me with critic[ism].' (SEF_Elisa, 32, Paragraph 74)

> '[…] my grandma, who is going to the church every Sunday, I wouldn't necessarily share with her because I simply don't feel like having the discussion. […]' (SEF_Ella, 32, Paragraph 72)

> 'Well, the religious aspect I can well imagine. But better to say that it could simply be a topic in religious forms of society, it could still be applied at least for part of Germany, that it also plays a role to speak against social egg freezing.' (Lara, 24, Paragraph 34)

5.5.2.2.4 Something new

Participants interpreted society's potential scepticism towards SEF due to its revolutionary and new nature, as people are not yet used to reproduction this way. Some participants assumed that if more women opt for SEF, there will be more studies and less uncertainty around the medical procedure itself and society in general will be more open for SEF.

> '[…] but also some who see this very, very critically, exactly, because it's still quite a new phenomenon, because it hasn't been used for a long time, but I could imagine that it rather develops in a way, that it rather develops in a way, that it's accepted. […]' (Sarah, 22, Paragraph 27)

> '[…] And then I think, many [people] are also not that informed and potentially for some it's also a taboo topic.' (Rob, 26, Paragraph 33)

> '[…] It's also not that well known and it's not used that much. There is a lot of insecurity in it I think and that also a bit in the attitude I have that this may still be seen rather negatively nowadays. […]' (Catha, 25, Paragraph 27)

Two participants mentioned that they see people in Germany as rather conservative or less open to new things, especially for technological inventions, compared, for instance, to people in the USA.

> 'First, it should be said that we as a society, especially here in Germany, have a strange anxiety towards everything new somehow, that we refuse everything that is new. It's totally strange, it's totally, that if you don't know something, something, yah, it must not be bad.' (Tom, 34, Paragraph 19)

> 'I think it differs quite a lot from country to country. I would say in Germany, I assume here Germany is a bit more conservative, because in general in Germany, also it applies to technology, development, always a bit late and not like in the USA.' (Clara, 22, Paragraph 30)

One participant who had already chosen SEF even mentioned that she was actively sharing her experience of the technology amongst people so they will have come across SEF and start to perceive it as 'normal'. She assumed that the more people see SEF as normal, the less they will fear it.

> '[…] in the meantime, I'm rather quite like, rather I see the need to talk about it to many people, thus it will be seen as normal as possible, that people have a connection to it,

> the more, the more perceive it as normal, the fewer will fear it, and fewer judge it […].' (SEF_Ella, 32, Paragraph 72)

5.5.2.2.5 Against nature, artificial

The narrative of 'intervention in the natural process' and the 'artificial' art of reproduction can be observed in several interviews. Participants expected society to see SEF as an 'intervention' in nature or in the natural process of reproduction. It could even be 'against nature'. Participants also labelled SEF as artificial, but with a positive connotation, as they highlighted that it enables women to be more independent from the biological clock.

> '[…] maybe actually be against nature.' (Anna, 26, Paragraph 23)

> '[…] rather conservative attitude, who don't want someone intervening in nature.' (Rob, 26, Paragraph 33)

> '[…] And accordingly, this is rather an invasion of nature, thus I think there are many in society who may consider and see this [SEF] as an invasion of the normal flow of things. […]' (Johann, 24, Paragraph 17)

> 'And the artificial, that all artificial is left out of consideration […] makes a woman more independent from the biological clock.' (Esther, 23, Paragraph 29)

Ella set the acceptance of SEF in parallel with other assisted reproductive technologies. She believed that members of society become more open to assisted reproductive technologies because they experience it, for instance, with homosexual couples who use these technologies for reproduction. Or because, by now, many people have 'among their friends somehow a person or a couple" who struggled to conceive naturally and opted for these assisted reproductive technologies. Ella assumed that 'once people understand that the aim of these technologies is about the fulfil[ment of] a wish, and it still a fairly natural process', then they will become more open to them.

> '[…] In the meantime, in society, especially also, I think also the acceptance of homosexuals […] who are having children with reproduction [artificial reproductive technologies], more has been done in this aspect that it's clear to everyone that not everything is one in the natural way (inc.) basically all social, the majority of the social classes have children relatively (inc.), therefore everyone has in their circle of acquaintances, or has a couple, for whom it doesn't work. And they opt for it. That they undergo artificial insemination, so if someone, let me say, understood it at some point, that it's about the fulfil[ment of] a wish and still a relatively natural process is running, (inc.) all in all, a bit more open.' (SEF_Ella, 32, Paragraph 72)

5.5.2.2.6 Women's prescriptive roles

A common expected negative perception towards women is that they will not fulfil their prescriptive gender role. Several interviewees mentioned that women in their childbearing ages

are expected to focus on motherhood, and that if women shift their attention to their careers, they are prioritising career over motherhood and will probably be perceived negatively.

> '[…] potentially the criticism something like career or so, to set it out negatively towards the women. If they put the focus on the career in their lives.' (Rob, 26, Paragraph 33)

> '[…] to put her career in the foreground, others would be able to identify themselves with it, for example, other women, younger women could see it as an example that they also want to do later […].' (Esther, 23, Paragraph 29)

> '[…] that is not okay, shouldn't have a child that late, because the time with the parents is little, the parents' capacity, also for a 50-year-old woman, it's also already exhausting to raise a child, and it's crying every evening and (inc.) for care and 24-hour assistance. Well, yes, I think that, yes, society sees it rather with criticism, and then there are women's careers, women who do everything to come to the top, well, I can already see the picture in the *Bildzeitung* [German best-selling tabloid newspaper]. I can imagine that women are shown like that then.' (Clara, 22, Paragraph 30)

Some interviewees raised the view that motherhood and successful careers were either-or phenomena for women--and were clear which option was wise for women to choose to fulfil social expectations. Society's perceived fear was also described: '[…] there is always the fear that women do not want to have any children anymore. And only to carve out a career' (Emily, 34, Paragraph 33).

Furthermore, women using SEF would have 'granted too much freedom' (Lara, 24, Pragraph 23), be 'more self-determined' (Luca, 24, Paragraph 154) and 'have [the] right to decide a bit about [her] own plans, a life plan, without being under the pressure first to plan the family and to put your own vision after that.' (Catha, 25, Paragraph 27). One participant expected traditions to apply not only to motherhood and career, but also to marriage, with norms about it taking place before childbearing.

> '[…] simply traditions that the woman, yes, first should be married before she must have children. And if a woman doesn't do that anymore then she will be seen as strange. […]' (Anna, 26, Paragraph 23)

According to Ella, society may be view women as 'not wanting to make any [binding] decisions for their lives'. A participant described this hesitancy as immature. In addition, she adopted a prescriptive tone: '[a]t some point you just have to do it', suggesting that it would not be an option not to do it, such as getting married and become a mother. The idea that '[w]e managed it' indicate that elderly generations achieved it somehow, which suggests less understanding for hesitancy and detailed planning over a preference for taking responsibility right away.

> 'Or I also think it could be a fairly negative perception […] always wanting to keep everything open, not wanting to make any [binding] decision for their lives, and so on.

> We managed it. At some point you just have to do it. Also, it reflects a certain immaturity. […]' (SEF_Ella, 32, Paragraph 72)

Catha explicitly highlighted that cryopreservation for non-medical reasons makes a difference.

> '[…] think much more negatively about it, if someone, if someone hears that a woman is opting for social egg freezing due to non-medical reasons.' (Catha, 25, Paragraph 27)

One participant, Hanna, who had already chosen SEF, described the assumption that society thinks women are opting for SEF because they deliberately postponed motherhood. She suggested they should get to the bottom of the motivation and gives her case as example: 'I do this, yeah, because as of now I don't have a partner with whom I could have a child. And not because I intentionally decided to become a mother later.'

> '[…] because I believe that quite a lot of people think that women do it deliberately to become mothers only late. I believe many people, as I imagine it, many in society think she should have a child now rather than postpone it for later. Whereas it's not the actual reason at all. They should question it more, what, how is my case. As for me, for example, because now I currently don't have a partner with whom I could have a child. And not because I consciously decided that I will become a mother only later.' (SEF_Hanna, 32, Paragraph 68)

Women who do not fulfil their prescriptive gender roles in relation to motherhood may be negatively labelled; indeed, several interviews contained the word 'selfish'. In one case, the term appeared without any elaboration; in other cases, the women were labelled selfish because they either set 'their career in the foreground' or they decided for themselves when exactly they wished to have a child, and it was assumed they were motivated by a career focus.

> '[…] the woman is selfish […].' (Anna, 26, Paragraph 23)

> 'Some think that women are somewhat selfish, they rather think of themselves […] to have their career in the foreground. […]' (Esther, 23, Paragraph 29)

> '[…] On the other hand, I can also imagine that the women are assessed [as] selfish because they would rather decide when indeed they exactly want to have children. It's not just about wanting to have children, but also probably because they want to build a career.' (Emily, 34, Paragraph 33)

5.5.2.2.7 Envy

Several interviewees mentioned that people in society may become envious of women opting for SEF: because they can financially afford such an expensive medical procedure, they have the freedom to make SEF a 'priority' in their life.

> 'I believe primarily envy. Envy of the women who can afford it.' (Luca, 24, Paragraph 148)

> '[…] it's really expensive. There might be envy linked to it.' (Rob, 26, Paragraph 33)

> ‘To that would probably also come, ah, she certainly has too much money if she can spend the money on it.’ (SEF_Ella, 32, Paragraph 72)

> ‘And, of course, many who don’t even have the opportunity to do this. Well, they might feel disadvantaged compared to the ones who can make it their priority.’ (Tom, 34, Paragraph 19)

5.5.2.2.8 Chance

Although most interview-partners mentioned that they expect society to reflect negative opinions about SEF, they noted significantly more reasons why society perceives SEF negatively and fewer arguments as to why it would identify SEF as something positive. One participant said ‘society perceives it as a chance’ (Lara 24, Paragraph 23). Positive descriptions included ‘admiration’ of women who not just realise ‘self-fulfilment’, in terms of career at the labour market or other forms of success, but they also become mothers.

> ‘[…] on the one hand, the admiration, both to achieve self-fulfilment and they also have a child at some point, but also a bit of a putdown if someone even says career women or something like that.’ (Tanja, 32, Paragraph 17)

An interview-partner, Maria, who opted for SEF herself, presented the view that she perceived an increasing number of individuals in the society, who show sympathy towards SEF in the last decades, and assumes the number of women, who would consider to take the chance with SEF, increases too.

> ‘I believe 20 years ago it would be, people would be, oh this is totally weird, oh it boggles the mind, but I think nowadays more and more people can better and better understand this behaviour [opting for SEF], and even more women will be or are ready to do that.’ (SEF_Maria, 41, Paragraph 85)

5.5.3 Conclusion: Participants’ perceived social norms

In this section I assessed RQ 2(a), which addresses participants’ perceived social norms for opting or not opting for SEF. My results are rooted in the interviews I conducted with 20 SEF and non-SEF participants. Based on a literature review, I tested the social norms linked to neoliberal feminism and other social norms associated with reproduction, covering both internalised social norms and the meta-perception (i.e., how participants believed society perceives SEF and women opting for SEF). In total, I allocated 119 statements to social norms, 38 of them to norms linked to neoliberal feminism, 45 to internalised norms and a further 36 norms to meta-perception. As demonstrated in *Figure 48*, the most frequently mentioned norms were the categories *right age for parenthood and ageism* (28 statements), *women’s descriptive roles* (14 statements), *privileged women* (13 statements) and *genetically related children and alternative parenthood* (12 statements). The diverging statement numbers were influenced by the interview design, as I asked participants about their preferred age limit with regard to the

application of SEF, thereby explicitly addressing this topic. Furthermore, *Figure 49* presents the distribution of these statements amongst the target groups. Non-SEF women mentioned 67 statements, non-SEF men 30 statements and SEF women 22 statements. As the sizes of these target groups differ, I calculated their averages: non-SEF women had 6.7 statements on average, non-SEF men had 5 and SEF women had 5.5 statements; thus, all three groups contributed almost equally.

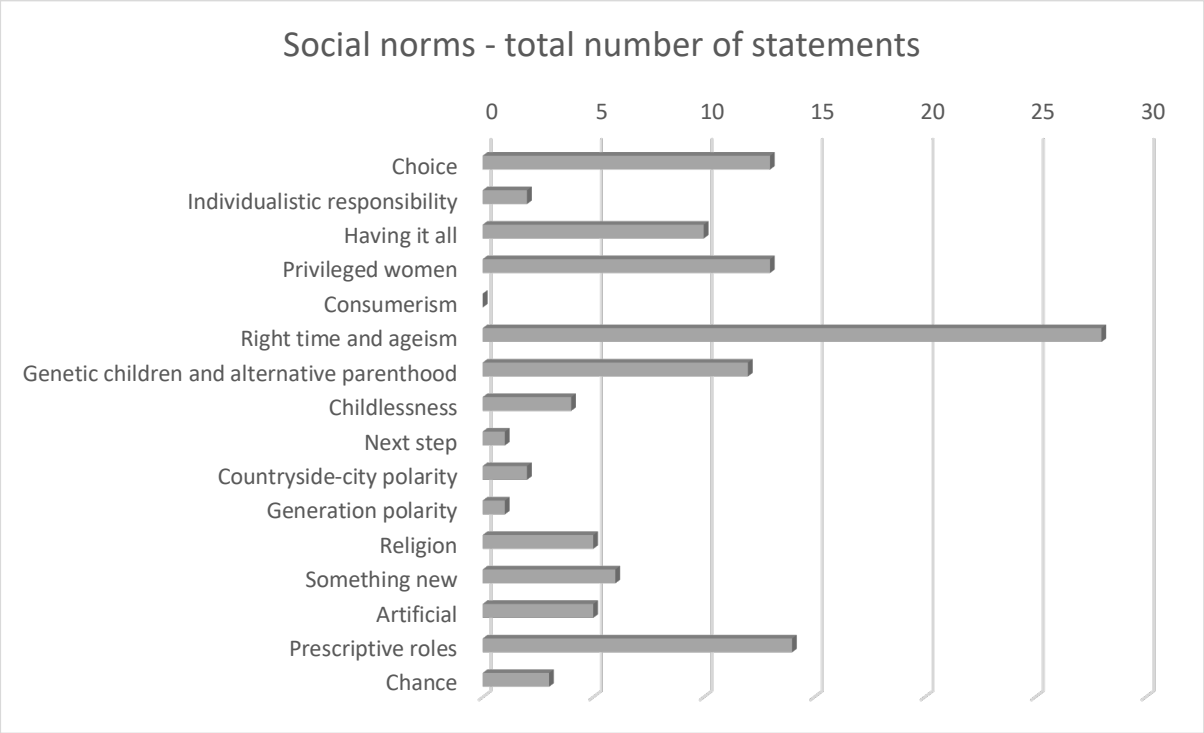


Figure 48 Social norms – total number of statements

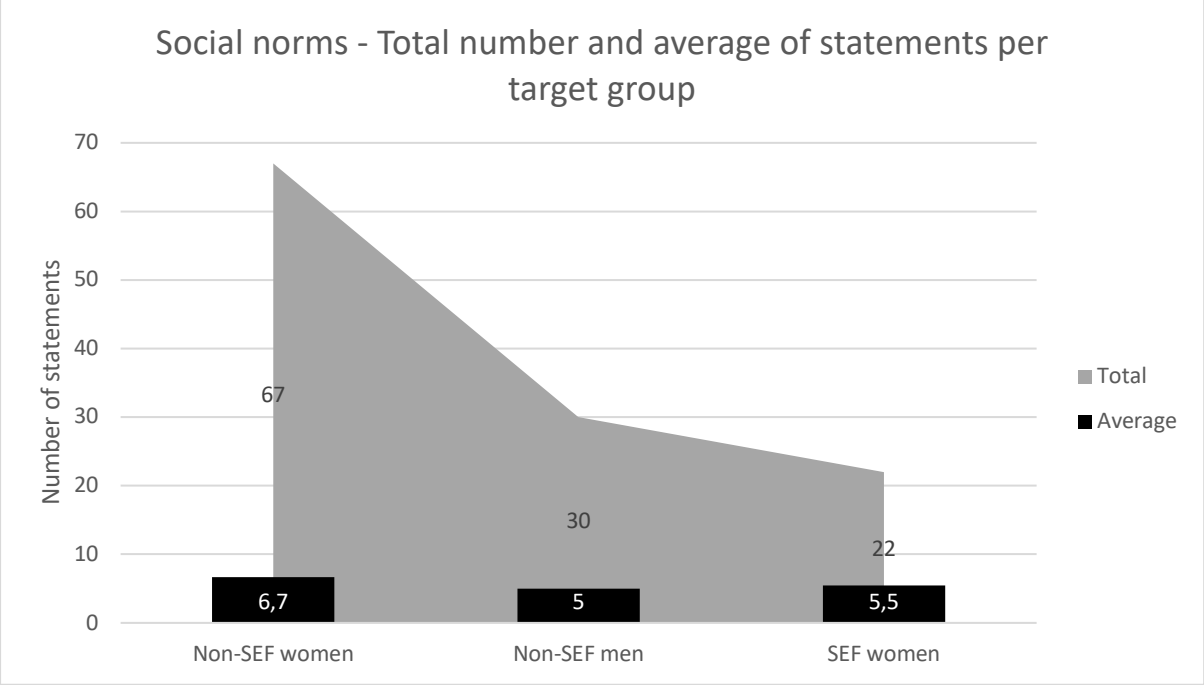


Figure 49 Social norms – total number and average of statements per target group

I analysed the narratives of neoliberal feminism and whether these aspects are linked to social norms and may create social pressure to opt or not opt for SEF. In total, I allocated 38 statements from the interviews to one of the narratives: 13 to *choice*, 2 to *individualistic responsibility*, 10 to *having it all* and 13 to *privileged women*. These statements, interpreted as perceptions that enable, urge or even create pressure to opt for SEF, are presented in *Table 9*, whereas the statements that discourage individuals from opting for SEF are summarised in *Table 10*. Of the five narratives, two (*choice* and *having it all*), appeared to be the narratives that support an individual's decision to opt for SEF. The participants perceived the possibility to make a free *choice* about SEF more positively, describing it as 'individual choice', 'opportunity to decide', 'women can make the decision', 'to make the decision by themselves' and 'everybody must make their own decision'. They also expressed the *having it all* narrative as the challenge of fulfilling different personal aspirations (e.g., extended studies in the late twenties, career opportunities, moving to another country, etc. and at the same time fulfilling the wish to have a child), which could be a reason to opt for SEF. At the same time, one participant did not see the *having it all* narrative as a reason to choose SEF, as she described 'having children is somehow always a deprivation and a bit one has to be hold back'. Furthermore, *individual responsibility* was described as pressure not to opt for SEF, as the 'technical possibility' will not solve 'society's problem' and 'social structures don't change by making available a technical possibility'. Another participant described the individual's 'responsibility for the child' and for the potential negative outcome of a pregnancy with the SEF method. Furthermore, SEF's costs, and therefore the narrative of *privileged women* (described as 'top managers', 'top elite women […] to be envied' and who can afford it), was perceived as an aspect of not choosing SEF.

Neoliberal feminism – Narratives to opt for SEF – Examples for *more positive* or *positive* statements

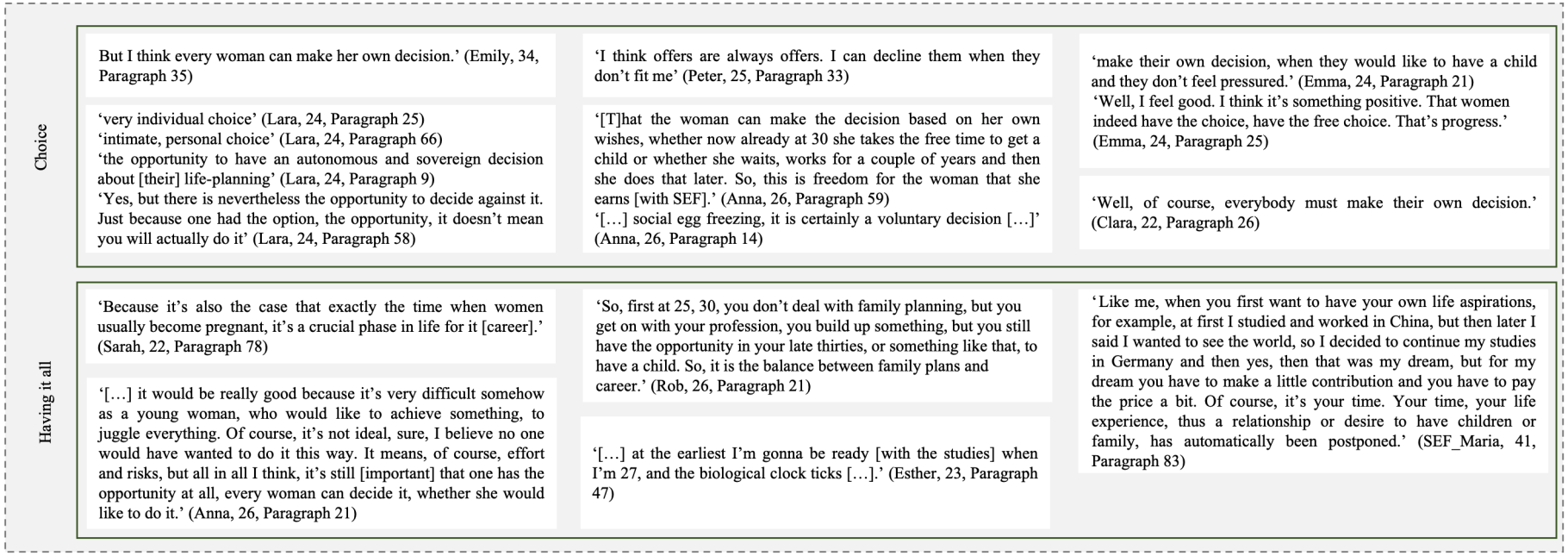


Table 9 Participants' perceived social norms to opt for SEF (Neoliberal feminism)

Neoliberal feminism – Narratives to opt for SEF – Examples for *more negative* or *negative* statements

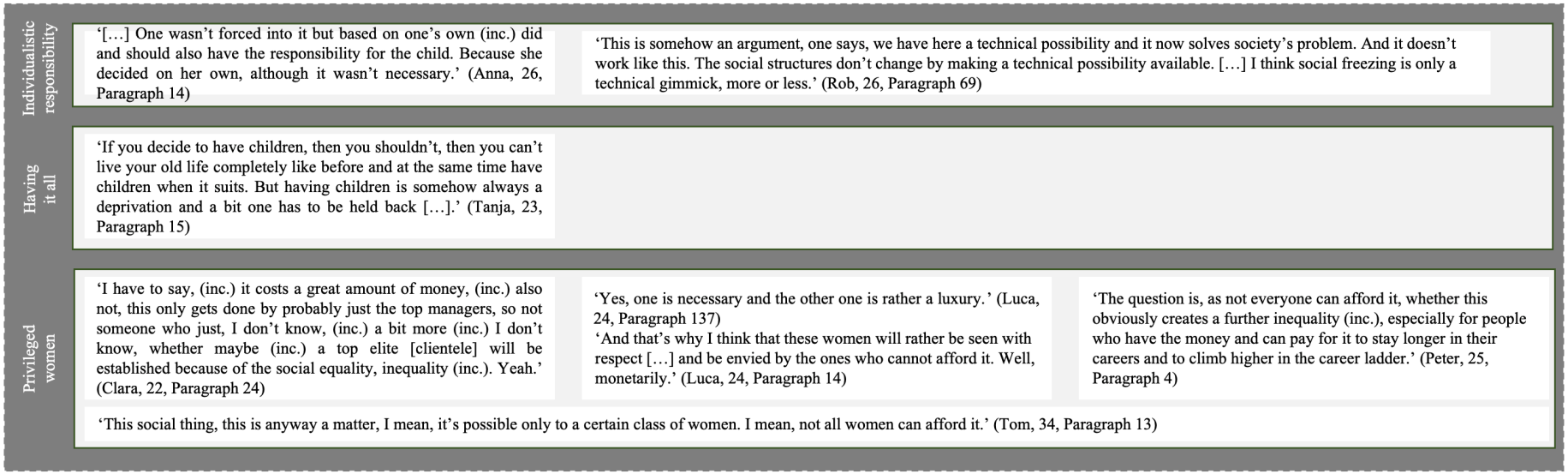


Table 10 Participants' perceived social norms not to opt for SEF (Neoliberal feminism)

From the interviews, I identified a total of 81 statements that related to one of the 11 perceived social norms participants mentioned. I present examples of these identified statements and their tendencies (i.e., whether they urge women to choose or not choose SEF) below (*Tables 11-14*). In identifying these norms, I did not analyse the differences between the target groups—non-SEF women or men and SEF women—as certain norms were mentioned only two to three times, giving little indication of the target group as whole. The following norms provide only tendencies; I did not intend to confirm these through the interviews, nor meant to test them as a hypothesis. The norms gathered in the interviews may provide a basis for further research. Please note that participants shared certain perceived norms as their internalised norms, whereas they mentioned other norms from society's perspective.

The latest acceptable age to become a mother or a father may be a norm to influence one's attitude towards SEF, because someone unsupportive of individuals becoming a parent at a more advanced age may not be welcoming to the idea of SEF. Social expectations towards women to become parents at a younger age were stricter than towards men. Participants mentioned situations where children were stigmatised due to their elderly parents, thus making the children victims of the ageism originally targeted at their fathers or mothers. Furthermore, participants mentioned that nuclear families are a core value in our society; for example, one participant argued that it is essential for children to know their fathers, whereas another participant believed that society tends to show more openness towards alternative types of parenthood such as single motherhood by sperm donor or adoption. Participants also mentioned that women are still expected to fulfil their prescriptive gender role and become a mother, leaving voluntary childlessness widely unaccepted. This could be the reason someone opts for SEF, thus postponing the decision to become a mother into the future. Also, interviewees stressed that SEF may just be the next step towards reproductive freedom, that it will thus gain acceptance in society but only over time, as was the case for other means of reproductive freedom, such as contraceptive hormones.

Perceived social norms to opt or not to opt for SEF

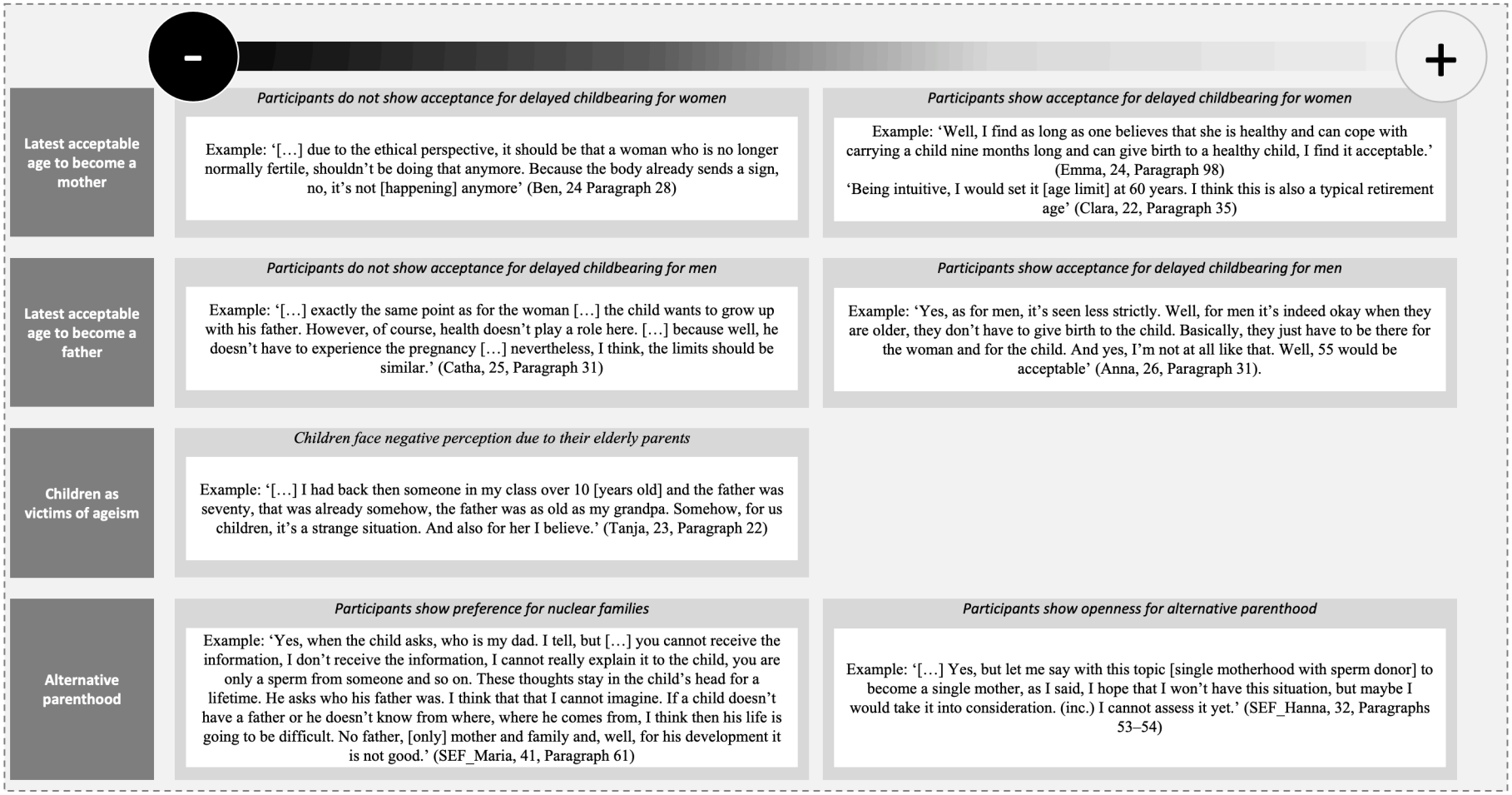


Table 11 Perceived social norms to opt or not to opt for SEF – 1

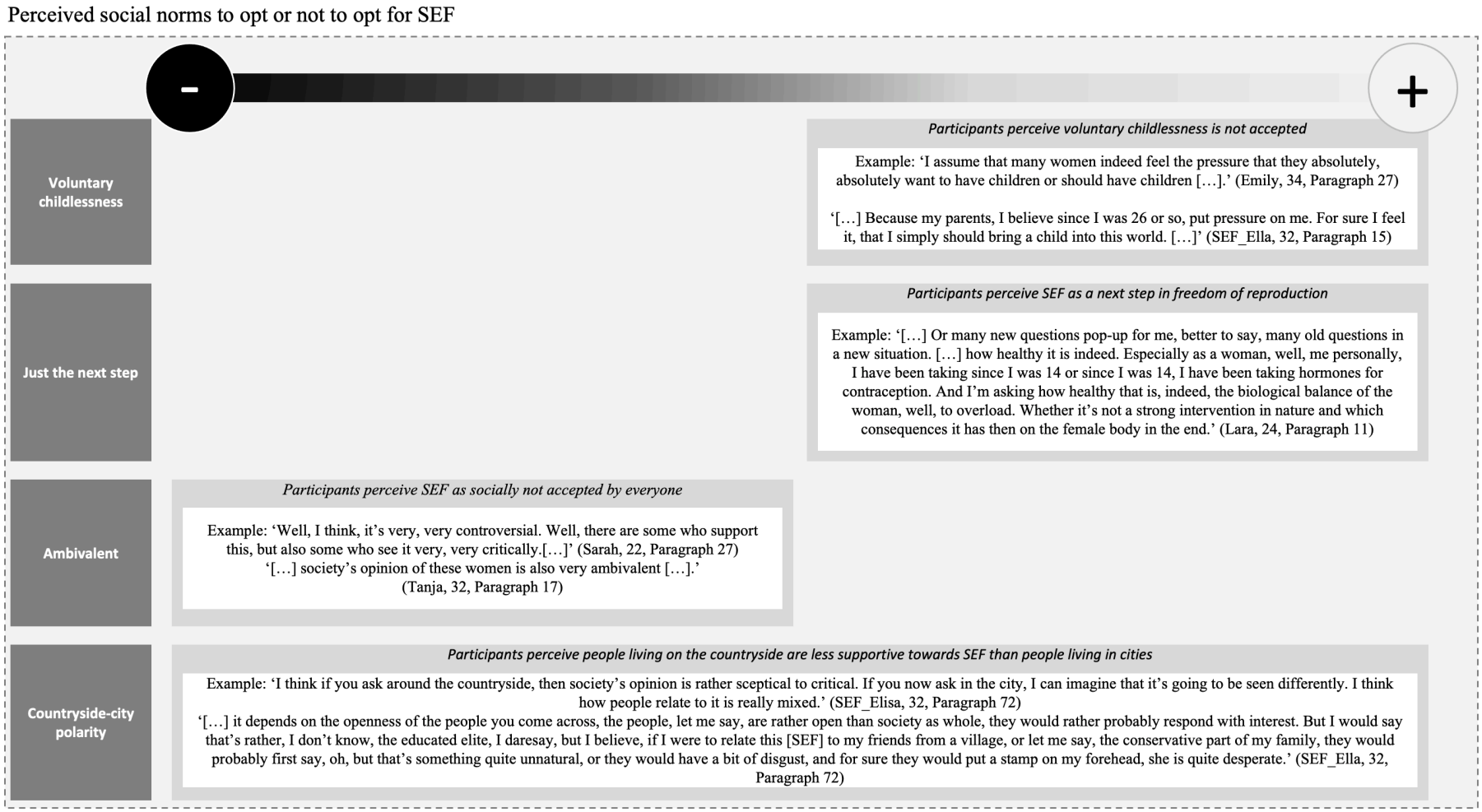


Table 12 Perceived social norms to opt or not to opt for SEF – 2

Perceived social norms to opt or not to opt for SEF

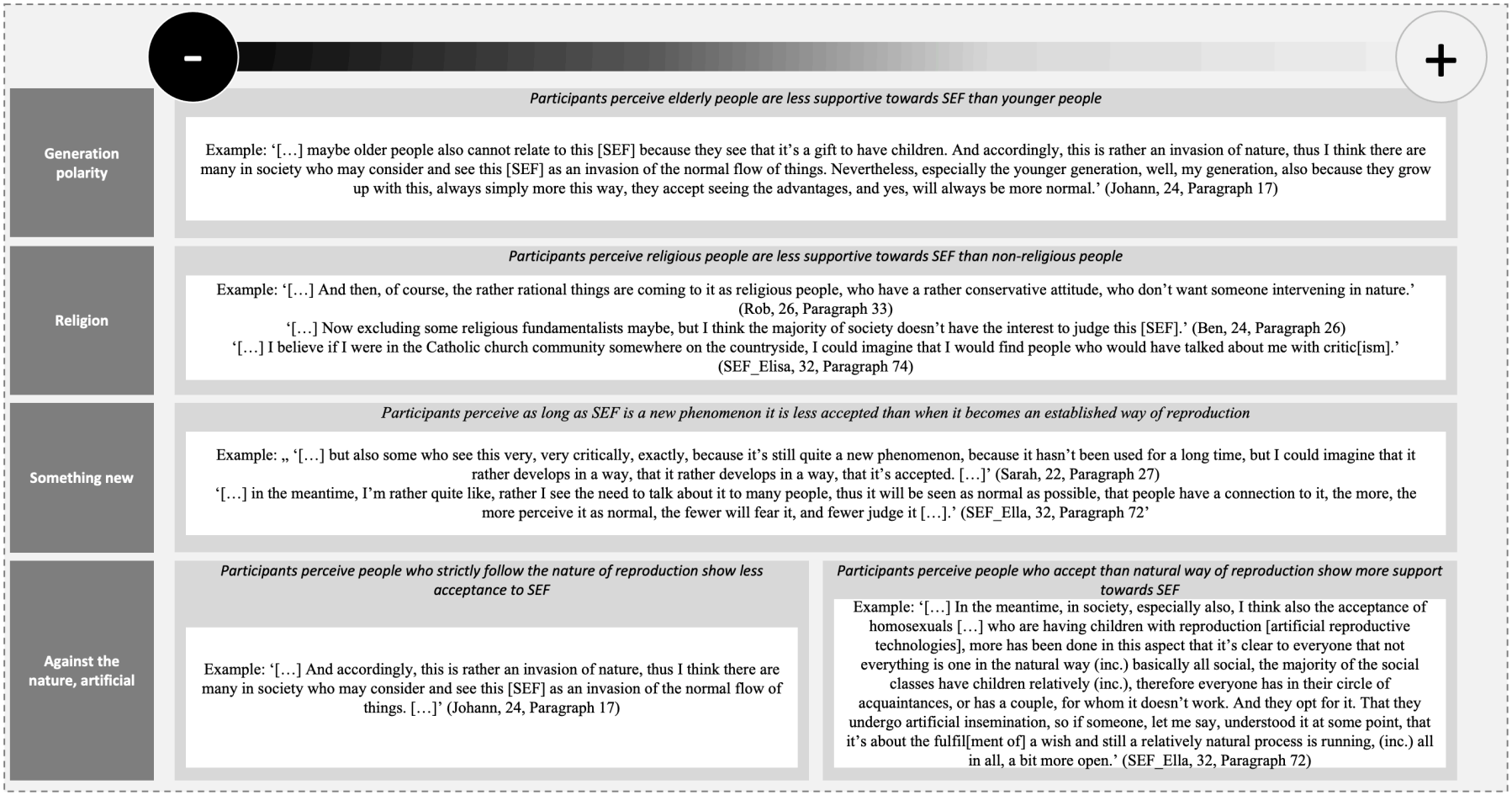


Table 13 Perceived social norms to opt or not to opt for SEF – 3

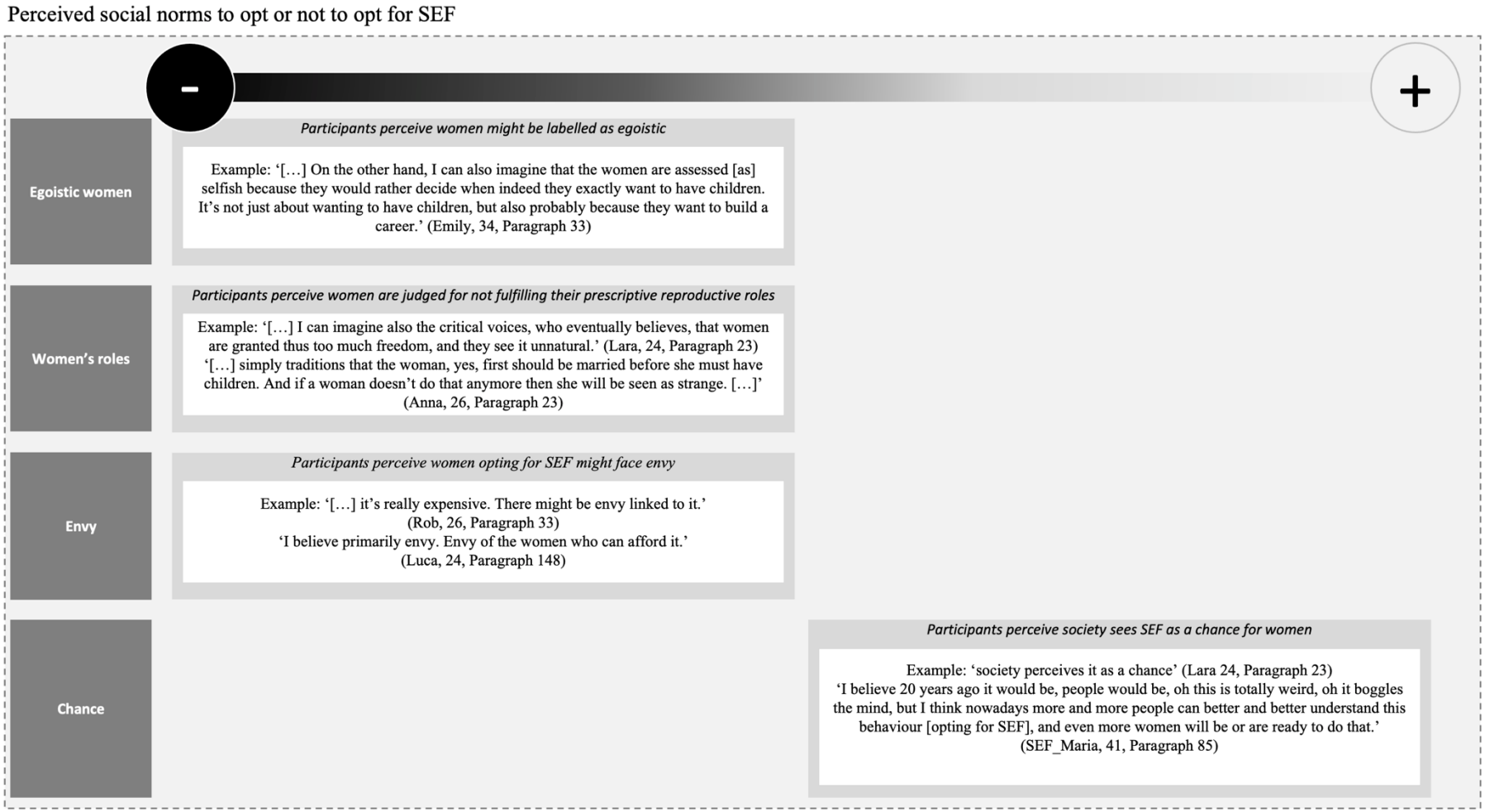


Table 14 Perceived social norms to opt or not to opt for SEF – 4

5.6 Perceived behavioural control factors to opt or not to opt for social egg freezing

Even though formal legislation tends to ensure individuals' reproductive freedom, in this dissertation I reflect upon the phenomenon of *reproductive governance* and how legal prescriptions turn into moral restrictions, framing women's reproductive rights and responsibilities (Browner, 2016, p. 814). In this section, I analyse the results related to the perceived behavioural control factors to opt or not to opt for SEF amongst the target group of non-SEF women and men. I defined the following behavioural control factors, based on existing theory and studies:

(1) *Wish for a child* referred to whether participants wished to have a child and if yes, the ideal age at which they would have the first child
(2) How participants defined the *right age to freeze* oocytes and thus whether they were still at the age when they perceived this as feasible
(3) In cases where participants were interested in SEF, would the relevant *information source* available to them affect their perception
(4) Whether participants would be able to *afford the costs* of an oocyte retrieval
(5) How participants perceived their *support network* in decision making

I posed the following interview questions to assess these behavioural control factors:

- *Do you wish to have a child? If yes, which age would be ideal to have your first child at?*
- *What do you think, which age would be ideal for retrieving the oocytes?*
- *If you were interested in social egg freezing, where would you get information on it?*
- *As it was mentioned in the FAZ article, the oocytes' retrieval costs around €3,000 in Germany. Could you afford it?*
- *Who would you tell if you (female)/your partner (male) were to choose social egg freezing? Which of your friends, family and colleagues would support your decision? Why? Who wouldn't support your decision?*

5.6.1 Wish for a child

One of the perceived behavioural control factors was participants' *wish for a child*. Participants who did not wish to have a child in the future would probably not choose SEF, as there would be little to no benefit to going through the costly medical procedure. On the other hand, participants who expressed a wish for a child, or those who had not made a final decision on their family planning, would be a potential target group for SEF. In the demographic survey, I

gathered data with regard to wishing for a child, and present this in *section 5.1.1.7.* Based on the answers in the demographic survey, and considering only the non-SEF women, eight wished to have a child and two had not yet made up their minds. As for the non-SEF men, five expressed a wish to have a child and one was unsure. None of the participants shared that they did not want to have a child in the future. I asked participants what age they personally considered ideal for having their first child.

Female participants who wished to have children in the future shared their reproductive plans within the timeframe of female fertility. Sarah mentioned the age 36, which is considered to be the end of female fertility. Tanja provided reasoning such as her education and her career start as one of the major considerations in timing her wish for a child.

> 'Yes. Exactly. […] I think, good question. This is still a bit ahead. Yes, at the beginning of 30, maybe.' (Sarah, 22, Paragraphs 65-70)

> 'I think realistically it would be the beginning of 30, I would have said, I still have to study for a couple of years with the final exam, then I have two years of traineeship [for teachers], then I have to a bit, then I would like to stay in the school for one to two years, then I'm at the end of my twenties. And I think then it would be realistic to say. Then would be the time where it would be doable.' (Tanja, 32, Paragraph 42)

> 'Yes. I can already imagine it. I've have considered it. Of course, I'm already thinking about it. […] I think probably in two years, age 36 or rather even later.' (Emily, 34, Paragraph 72)

As for the male participants, Luca tentatively mentioned the age of 30, then 35 and then clarified his answer by choosing the later option. Ben set this timeframe earlier and answered his "late twenties, beginning of thirties' as his ideal time to have his first child.

> 'Definitely yes. […] Okay. I don't know, 30, 35. Let's say 35.' (Luca, 24, Paragraph 120)

> 'I think indeed. Yes. […] I would say, late twenties, beginning of thirties, well between 28 and 31. If someone [is] 33 then it's a bit easier. But yes. Something like this.' (Ben, 24, Paragraph 61)

Interview-partners who had not yet decided whether they wished to have a child in the future named no particular reason for their ambivalence or indecisiveness. Anna mentioned that her career might influence her decision, and Tom pointed to relationships as one of the factors to be taken into consideration.

> 'Yes, not sure. Somehow yes, but I also couldn't say for sure. It also depends on the situation a bit. If you want to first build a career after your studies and look how it's going. It's a yes and a no at the same time.' (Anna, 26, Paragraph 49)

> ‘No, I was very goal-oriented, but yes, currently no, but I don’t know whether it can change. That I don’t know now. 50-50 depends on the circumstances. As I said, I’m currently not in a relationship, thus it’s not a question now, but it’s not that, that I see it oddly, let’s say.’ (Tom, 34, Paragraph 53)

Furthermore, one interview-partner, Lara, was likely unable to have a biological child due to medical reasons, as described in *section 5.2.3.1*.

5.6.2 Right age to freeze

Interview-partners expressed what they considered the right age to opt for OC. Out of the 16 non-SEF participants, 12 mentioned age, which I was able to analyse and present in *Figure 50* below. I did not include those participants who mentioned ‘as early as possible’ in the analysis, although I considered recording them as saying 18, as this is the current legal limit to conduct OC for social reasons. But as the reference could refer to several factors, including being able to afford the costs, which is challenging to quantify, I ultimately disregarded these answers. One participant argued that the cryopreservation’s timing should be linked to individual health conditions rather than age; I do not include his answer in the summary either. When participants mentioned a timeframe, such as an age between 28 and 30, I applied the average value. I quantified non-concrete values: *late twenties* became 28, and *early thirties* became 32 for the visual presentation.

Based on the above description and the answers of 11 non-SEF participants, the right age to freeze is between 21.5 to 35 years. The average age is 27.5 and the median is 27. Of the 11 participants who provided a quantifiable answer, four were men, and their right age to freeze was lower, on average 24.6 (median = 25), than for the seven non-SEF women, on average 29.2 (median = 29). Ten women out of the eleven named an older age as the right age to freeze rather than their actual current age, meaning they did not consider themselves as yet being at the right age, or believed that they had not yet reached the upper limit of this correct age. One exception was Emily, who was 34 at the time of the interview and defined 30 as the right age to freeze.

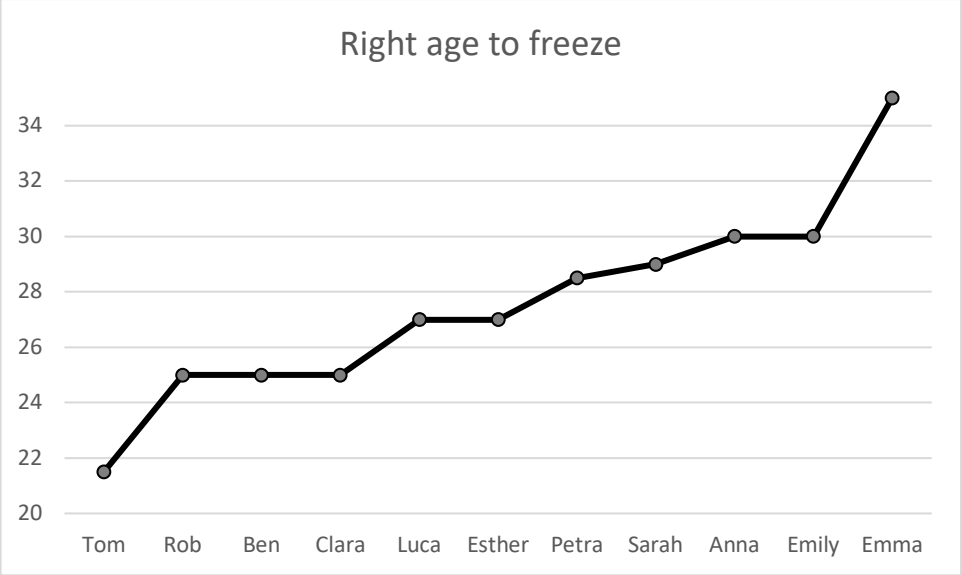


Figure 50 Perceived behavioural control factors – right age to freeze

I categorised the participants' statements with regard to the right age to freeze based on the suggested timeframe to cryopreserve. Some interview-partners argued for freezing as early as possible, preferably until the mid twenties, as this age gives a better biological chance for successful cryopreservation. At the same time, some of them mentioned that women do not prioritise family planning or freezing at this age.

> 'I think this egg freezing at 20 or in the early twenties would probably be too early […] But now in my situation, now from my perspective, I think, the best age would be 26 to 28. Although I would get a consultation for which age is actually the best.' (Esther, 23, Paragraph 59)

> 'Well, yes, without really being familiar with it, I would say between 18 and 25. That is when the cells are still the freshest.' (Tom, 34, Paragraph 51)

> 'Yes, I think the smartest age would be in the mid twenties for the oocytes to be retrieved, because they then have a high quality, but in reality it indeed happens later. […] It also might be difficult for many women in their early twenties to make a decision like this, no. Because they are at a totally different place in their lives, apprenticeship, etcetera.' (Rob, 26, Paragraph 62)

Interview-partners who suggested freezing in the late twenties and early thirties sometimes argued that the ideal biological age may be earlier than their suggested ideal age, as other factors, such as financial opportunity to afford the costs of cryopreservation or identifying the need for such a medical possibility, comes later in age. Therefore, their answers do not solely focus on biological factors, but also on a more holistic approach to defining the right age.

> ‘Yes, probably younger is still better, but yes, I mean, most women won’t be able to afford it in their early twenties, I think, so around 30 it’s perfect.’ (Anna, 26, Paragraph 47)

> ‘Well, so between the mid to late twenties, early thirties? Because I think at this time, in most cases, one is already established a bit professionally and there the topic is simply important, but one still can make a jump and because one has the financial means. Well, at 21, one thinks, or in the early twenties, one probably doesn’t think that far ahead because the topic is still a bit far away for most.’ (Petra, 29, Paragraph 67)

> ‘I think it was stated in the article, I’m not sure, before 35 or so it was stated I believe. […] Exactly, I think something around that, because at some point the oocytes are not that good anymore, I’m not sure what the right expression for that is, but with higher age the risk is rising that healthy children simply won’t come into the world.’ (Emma, 24, Paragraph 87)

Furthermore, interview-partners also argued for linking the time of freezing to individual situations rather than to a certain age; for instance, Esther mentioned the potential differences in life planning between women with or without higher education. Luca made reference to finding the partner to have children with as needing to be taken into consideration. Although Peter argued that there are general characteristics of fertility that can be linked to a certain age, he highlighted individual differences as well.

> ‘Well, it’s difficult to say, I think. Very individual. It depends on which phase you are at in your life and at which age. There are (inc.) those who have [university] certificates at my age, and for others it’s different from me, who are studying longer, or for others who probably plan much longer with their traineeship or studies. […]’ (Esther, 23, Paragraph 59)

> ‘Yes, it’s again not the absolute age, but the situation in life. […] It rather depends on the woman realising at some point, at 28 or 30, oh, I haven’t yet found my life partner, or I have other things in life, or in the next five, six, seven, eight years or after that I would like to have children. […]’ (Luca, 24, Paragraph 113)

> ‘I think, to over-simplify, I think you cannot over-simplify this. The right age for each woman is very individual. Well, of course, I’ve read that fertility declines after the age of 35 and from 50 it’s very unlikely to still have children, well, (inc.)the youngest age is the best. Well, at 20 you still don’t have to think much about it, but I believe every woman matures differently and for each woman its importance varies and based on the criteria, how important it is for the woman and what he best possibility is to have children. All women decide for themselves what the right age is.’ (Peter, 25, Paragraph 15)

5.6.3 Information source

I asked participants, were they interested in SEF, where would they get their information. In total, 16 participants (10 non-SEF women and six non-SEF men) mentioned 26 statements, presented in *Figure 51*, which I identified to answer this question and can be linked to one of

the following categories: internet, medical experts, friends, SEF women (women who have undergone cryopreservation) or other. Most interview-partners mentioned several sources: generally, the first point of information was the internet, although it was not the most frequently mentioned source. Eight participants (seven non-SEF women and one non-SEF man) mentioned the internet as a potential source.

> ‘I think first on the internet. I would read and try to find different sources.’ (Anna, 26, Paragraph 45)

> ‘I would at first open Google, well, to see first what I can find about it.’ (Lara, 24, Paragraph 64)

Almost all participants (14 of 16) named some kind of medical expert, such as a gynaecologist, reproductive clinic or doctor in general. All 10 non-SEF women said they would consult with a medical expert to gain deeper insight into the methodology and four non-SEF men mentioned medical experts as potential information sources. One participant, Tanja, highlighted the risks of gathering information on the internet and stated her clear preference to seek advice from a doctor.

> ‘Well, I would probably see where there is a centre in my area and if there would be an event, and then to go to the event or otherwise to call them and ask whether I could get a consultation.’ (Sarah, 22, Paragraph 62)

> ‘I believe I would first go the gynaecologist. And I would get some information, whether they could tell me something or eventually the doctors could refer me. Because I think, on the internet, I wouldn’t inform myself. You can find so many controversial medical opinions on the internet. Or a lot of false information, well, I think I would take the path via the gynaecologist and the referral to the medical specialist, accordingly.’ (Tanja, 32, Paragraph 36)

> ‘Fertility clinic, well, yes. There I would ask and get a consultation.’ (Clara, 22, Paragraph 71)

Three female participants mentioned that they would involve their friends at some level in the information gathering. One participant, Anna, suggested she would try to contact someone who had already undergone SEF.

> ‘Or try somehow, yes, find women who have already had the experience and have an exchange with them. I would do that somehow.’ (Anna, 26, Paragraph 45)

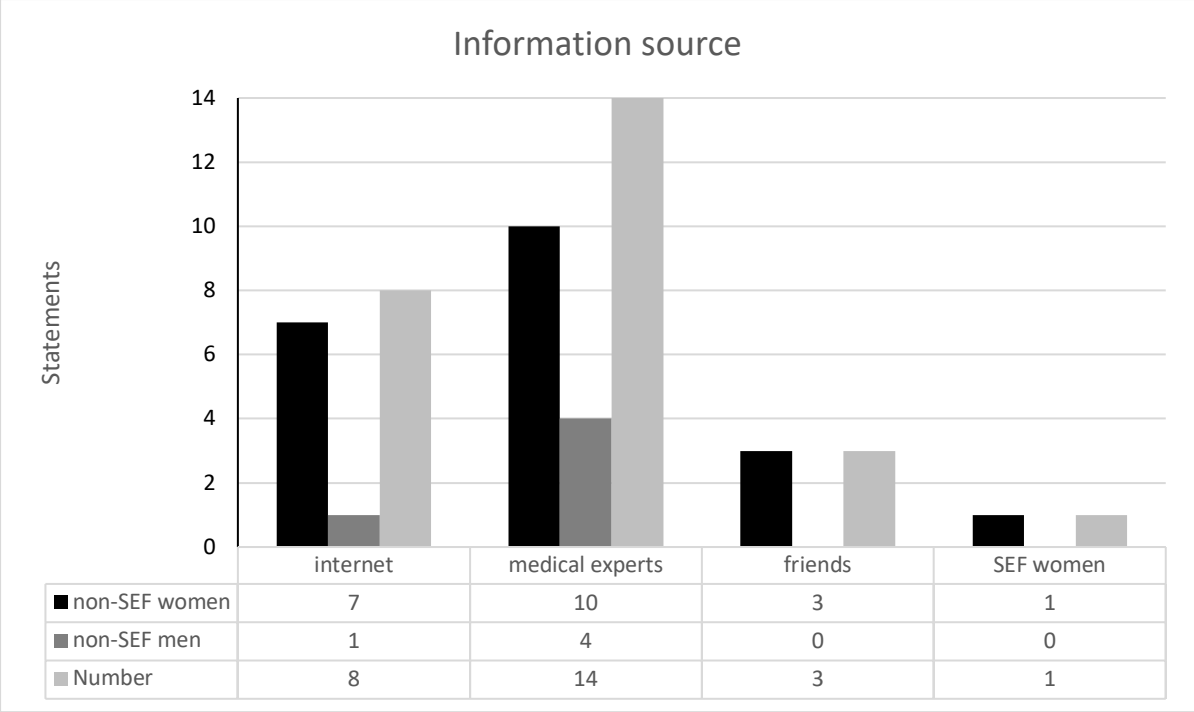


Figure 51 Perceived behavioural control factors – information source

5.6.4 Affording the costs

Most interview-partners argued that they could afford the costs (approximately €3,000 for one round of OC) either by themselves or with the support of their families. As most of the participants were students, some would not be able to afford OC at that very moment, but assumed that they would be able to do so once they had finished their studies and were employed. For example, Ben argued that his girlfriend would be able to afford it now, and Clara also viewed her financial situation positively in this regard, but questioned whether she really intended to do the procedure. Additionally, Petra confirmed that she would be able to bear the costs if it took one or two rounds, but not much more.

> 'I think so, that she [girlfriend] could afford it. Yes.' (Ben, 24, Paragraph 51)

> 'Yes, whether I could afford it, yes, sure. But, yes, the question is whether I want to.' (Clara, 22, Paragraph 64)

> 'Yes, I could, yes. Depending on how long it takes and when it functions. Of course, if you have to do fifteen rounds, then it won't work at a certain point anymore, but with one or two attempts it could be, if it's important, then one would save on other things. If I would do that, I would save on other things, and I would live without quite as many other things.' (Petra, 29, Paragraph 60)

Other participants—Lara and Peter—mentioned that they would not be able to afford the costs now, but that they believed their families would be able to provide them with financial support if needed.

> ‘Yes, theoretically, it would be possible because I would get some support from my family if it was really important to me.’ (Lara, 24, Paragraph 47)

> ‘Financially? I read that it costs €3,000 in Germany. I think not at once unless my family would support me there. Um. Yes, I think the availability would be difficult financially at first. For the first time.’ (Peter, 25, Paragraph 58)

There are additional examples from the interviews where participants argued that they are not yet able to afford the procedure, but once employed after their studies, they assumed or hoped that they would be able to bear the costs.

> ‘Yes, not currently, of course. But I think as soon as one is working and earning money, then it’s not a problem, because €3,000 is clearly not a little sum of money, but it’s also not unbelievably much. And I think it would also be worth it. If it’s about having your own children, I think, then, it’s not a problem at all.’ (Anna, 26, Paragraph 43)

> ‘Well, now as a student, of course not. Later, I hope that I can afford it and well, when I want it to have a child, then hopefully it wouldn’t fail due to this €3,000. I hope.” (Luca, 24, Paragraph 52)

> ‘Well, not currently, because I’m still studying. But maybe in 10 years when I’m a doctor and when I’m earning money, then I think I will be able to afford it. As of now, for sure I cannot afford it.’ (Emma, 24, Paragraph 82)

As visualised in *Figure 52* in the last column, of the 16 participants (non-SEF women (n = 10) and non-SEF men (n = 6)), eight (50%) said that they would be able afford OC now and a further two participants (12%) assumed that they could do so by counting on financial support from their families. Six participants (38%) would not be able to afford the costs right now, but believed that they would be able to once they entered the labour market and had a stable income. None of the participants said that they believed they could not ever afford one cycle of cryopreservation. The first two columns of the figure below represent the distribution between the two groups (non-SEF women and non-SEF men), which look quite similar. In both cases, 50% of the group believed they could afford the costs right now and one participant believed their family would provide financial support, which makes 10% of non-SEF women and 17% of non-SEF men. Additionally, four women (40%) and two men (33%) stated their confidence in their ability to afford SEF after entering the labour market. Thus, I observed no major differences between the two target groups.

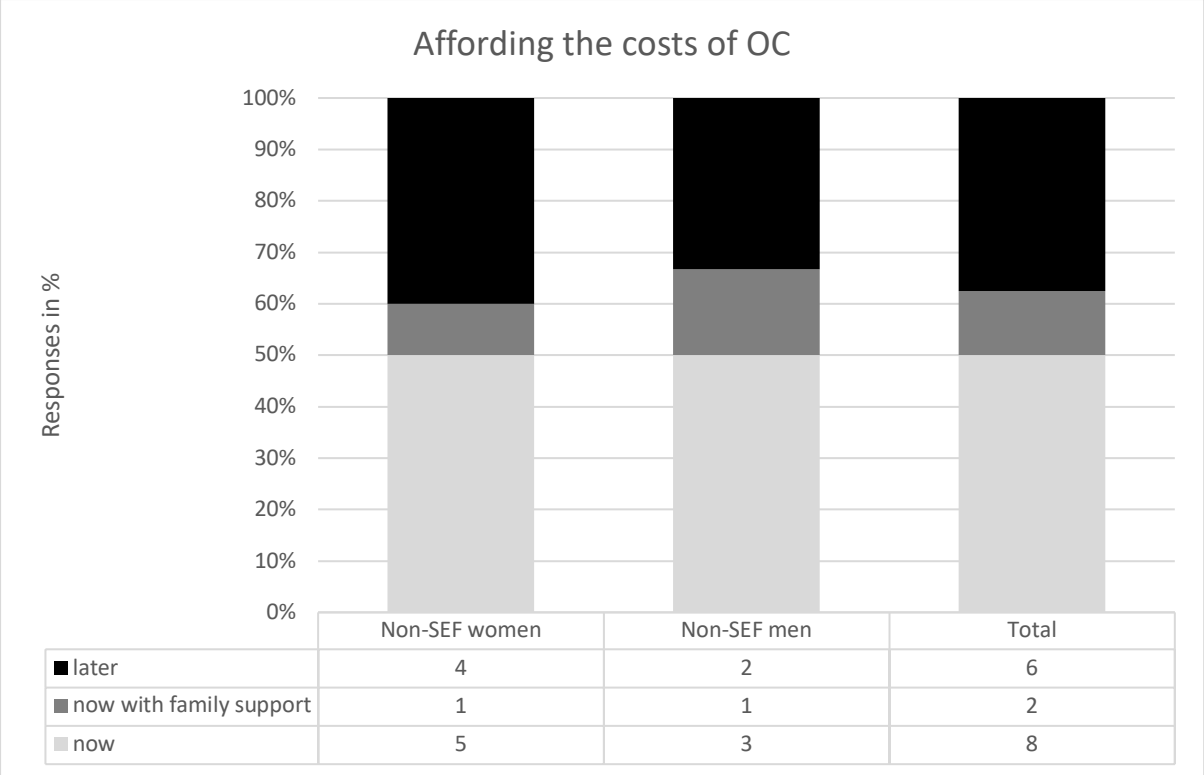


Figure 52 Perceived behavioural control factors – affording the costs

Additionally, I should mention that some participants directly or indirectly expressed an expectation of financial support from health insurance companies.

> '[…] On the one hand, demands, well, society wants people to have children in order to secure themselves in their retirement age, well, to be able to have a better and more stable financial security, but at the same time no health insurance or similar type of insurance provides financial support or help [for social egg freezing]. That I find a bit ambivalent.' (Lara, 24, Paragraph 54)

> 'Exactly. It's about a good €3,000. If you are relatively young, it's quite some money. I think if both are allowed [medical and social egg freezing], then one should be able to talk to the health insurance companies.' (Emma, 24, Paragraph 35)

5.6.5 Support network

Most participants believed they would share their SEF plans with their closest friends and family. Whereas some participants would be open about it to anyone if the topic was discussed, some explicitly highlighted that they found the topic appropriate to share with their closest friends, but not with any third party or 'outsider'.

> 'Well, I think I don't have to be ashamed of it, totally the opposite. Well, I wouldn't talk about it to strangers, but to my circle of friends. […] it wouldn't be a secret for me.' (Luca, 24, Paragraph 44)

> 'I wouldn't have a problem with that. I believe I would tell my close relatives as well as my close friends, when it's addressed. If the topic somehow pops up.' (Johann, 24, Paragraph 26)

> ‘Well, I think I would first talk about it with my female friend, maybe female friends, who are in a similar situation, who are also university graduates, and also started their professional life later. Better to say to whom career and their own life are still important.’ (Anna, 26, Paragraph 35)

Additionally, partners or boyfriends were mentioned as persons who are potentially involved in the decision or would support the women who were considering cryopreservation.

> ‘I think indeed, only my partner.’ (Emma, 24, Paragraphs 71–75)

> ‘I would immediately tell my partner and discuss it with him. I believe he would eventually also support it. Also, if he probably had second thoughts about it.’ (Emily, 34, Paragraph 56)

> ‘My boyfriend would support me for sure.’ (Catha, 25, Paragraph 50)

Two participants mentioned that they might share the plan of potential cryopreservation with their mothers, but did not highlight anyone else from the family; one can thus assume that fathers would not be involved in the discussion.

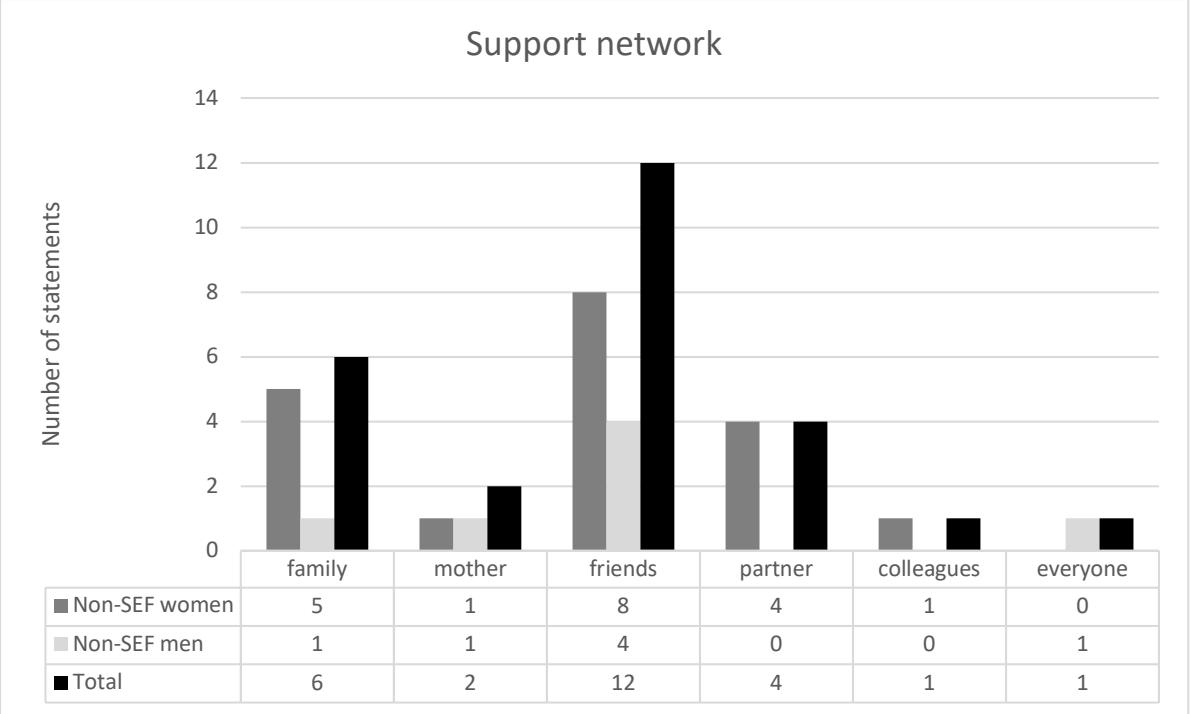
> ‘I don’t know whether I would actively tell anyone. I wouldn’t make it a secret or something out of it in a theoretical situation. To whom would she tell? Yes, for sure, her female friends, her mother, I can imagine that she would tell them. Because they are that open.’ (Rob, 26, Paragraph 44)

> ‘I believe I would tell my mum, I would talk about it with her.’ (Clara, 22, Paragraph 56)

One participant mentioned that she would only tell her family once she had made her own decision. Therefore, it can be assumed that she would be informing them about the decision, but that they would not be involved in the decision itself.

> ‘[…] then of course with my family. Although when I think about it, that somehow a negative attitude would predominate, therefore I would first inform myself and decide, then I would share it with my family.’ (Anna, 26, Paragraph 35)

From the interviews, I identified a total of 26 statements related to the interview-partners’ potential support networks (non-SEF women (n = 10) and non-SEF men (n = 6)), resulting in an average of 1.6 statements per participant. I allocated these statements to the following codes: family, mother, friends, partner, colleagues or everyone. *Figure 53* demonstrates that the most-mentioned support network was the interview-partners’ friends (n = 12), then their families (n = 6), partners or boyfriends (n = 4), mothers (n =2) and colleagues and everyone (n=1).



	family	mother	friends	partner	colleagues	everyone
Non-SEF women	5	1	8	4	1	0
Non-SEF men	1	1	4	0	0	1
Total	6	2	12	4	1	1

Figure 53 Perceived behavioural control factors – support network

The distribution between the two target groups, non-SEF women and non-SEF men, differs in the following ways: statements by female participants rather include references to their families, then statements by male participants, as out of the six statements five were made by women (50% of the female participants) and only one by a man (16% of the male participants). Four women also mentioned that they would involve their partner or boyfriend in the decision, however, men did not mention these supports, as they would not be able to make such a decision about OC without involving their partner or girlfriend. Women also made reference to their friends as a support network, mentioning them eight times (80% of participants), whereas men only did so four times (66% of participants).

I also asked participants who potentially would not support their decision to choose SEF. Participants believed some people would not support them or show understanding if they were undergoing SEF. Some participants spoke of their parents or grandparents, as they represent another generation, some with religious backgrounds.

> ‘I think it’s something intimate. I wouldn’t tell my family, but rather my friends […] for me it’s like I can tell something more intimate to my female friends rather than to my family now.’ (Esther, 23, Paragraph 41)

> ‘Well, I think the older generation, well, if I think about my grandparents, I believe they wouldn’t understand something like that.’ (Tanja, 32, Paragraph 32)

> ‘I believe that my entire environment would support my decision, with [the] exception maybe [of] my conservative grandparents.’ (Peter, 25, Paragraph 42)

> ‘I believe my parents wouldn’t support it. […] I believe my church community, for instance, because they have a different standard attitude, would not [tell them].’ (Emily, 34, Paragraph 58)

In total, I identified seven statements that referred to a non-supporting network; I present these in *Figure 54*. Three statements mentioned the participants’ families, twice by women and once by a man. Furthermore, participants named grandparents as people they would not talk to about their OC, or they felt grandparents would not support them. Three participants mentioned their grandparents, two of them women and the other a man. Additionally, one female participant mentioned that her church community would disapprove of the decision.

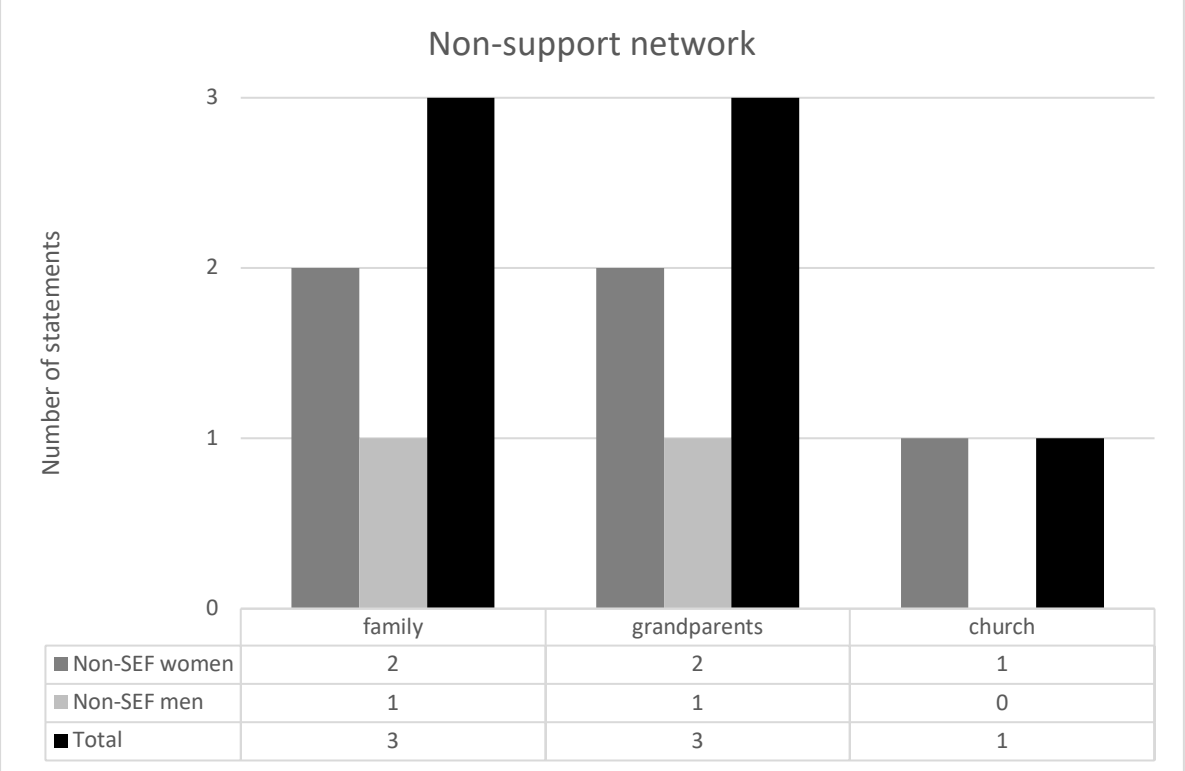


Figure 54 Perceived behavioural control factors – non-support network

Further comments made reference to general non-support, anticipated critical comments or the expectation that their decision would only be supported in cases for which they provided a valuable explanation or rationale. As these statements do not mention ultimate disapproval or name a certain person, I did not include them in the above analysis.

> ‘No, I don’t think that someone would find it totally bad. For sure there are one or more critical voices, but I don’t believe that someone would judge me or us, and would say, how could you.’ (Ben, 24, Paragraph 43)

> ‘I’m lucky that my family is fairly young and therefore they would understand it, I think. And support it. Leave the decision up to us. Nevertheless, I can imagine that the questions would come. And that they would be surprised, first of all, regarding the fact that it works at all and how it works. But I still believe that we would get support from all.’ (Johann, 24, Paragraph 28)

> ‘[…] And I think my parents would support it, but only if I had very, very good reasons. They wouldn’t find it good if it was only for my career and to keep the option open to have children at some point. And for my friends it’s similar.’ (Tanja, 32, Paragraph 30)

One participant highlighted that he thinks this process does not cause any stigmatisation. The participants who would tell no one of their decision about OC (e.g., their parents and grandparents) did not mention the word stigmatisation, however, they did mention the lack of support, doubt, uncomfortable discussions, etc.

> ‘I don’t know. I believe I wouldn’t have a problem, in general, telling [deciding for SEF] everyone. Well, I don’t think that stigmatisation is linked to it, that one couldn’t talk about it.’ (Ben, 24, Paragraph 41)

5.6.6 Conclusion: Participants’ perceived behavioural control factors

Based on the defined perceived behavioural control factors (*wish for a child, right age to freeze, information source, affording the costs* and *support network*), I can reach the following conclusions. Most participants wish to have a child in the future, namely eight non-SEF women out of ten and five non-SEF men out of six; the other (two women and one man) were indecisive at the time of interviews. Thus, the wish for children is not concluded negatively in their life plan and could be enabled by SEF. Some participants named their personal ideal age to have their first child, all falling into the twenties to mid thirties. This preference does not imply that they would aim to reproduce through cryopreserved oocytes. Regarding the *right age to freeze*, no participant suggested an age for OC that would not be currently preferred by reproductive clinics, and none of them defined a timeframe for freezing which their female peers would have passed. Therefore, participants perceived themselves, or their girlfriends in some cases, as within the scope of OC. Participants perceived that they would be able to receive information about the medical procedure of OC mostly via the internet and medical experts. None shared concerns about the lacking or unavailable information in this regard.

All non-SEF participants believed that in general they would be able to afford the costs of one round of OC (€3,000), either now by themselves or with the help of their families. As most of the interview-partners were students at the time of the interviews, some believed they could only bear the costs once they started to work and had a regular income. However, they did not expect this to take longer than the age medical clinics suggest for OC (i.e., their mid thirties).

As some participants shared that they would expect health insurance to cover the costs of OC, combined with the fact that some would not be able to afford it right now, third-party financing might increase the readiness to choose cryopreservation.

Lastly, all participants mentioned that they would have a support network if they wished to pursue SEF, either their families, friends, partners or colleagues. On the other hand, some participants believed some family members, especially their grandparents, would not show support for SEF. Nevertheless, none of the non-SEF participants mentioned that they would consider not choosing SEF due to the lack of acceptance or support in their networks. However, if the two control factors, *affording the costs* and *support network*, are combined, it can be observed that I have quoted several non-SEF participants who could not currently afford the costs of OC, but that believed their families would support them financially if they wished to opt for cryopreservation. In this case, the family as support network would be essential to the decision for this medical possibility. It can be concluded that none of the above-tested perceived behavioural control factors would ultimately hinder the participants from opting for SEF.

5.7 Actual controls to opt for social egg freezing

Whereas I assessed the perceived behavioural control factors to choose or not choose SEF amongst non-SEF participants, I addressed the actual control factors with women who had already pursued SEF. Similarly to the previous group, I researched the aspects of *wish for a child, right age to freeze, information source, affording the costs* and *support network*. In this section, I aim to provide a comparison to the non-SEF participants' perceived behavioural controls.

5.7.1 Wish for a child

I assessed the wish for a child among women who opted for SEF. Based on the demographic survey they filled in during the interview process, I can conclude that two SEF women expressed a wish to have a child in the future, and two women had not yet made a decision. It should be noted that one of the indecisive women already had two children, and she interpreted the question as referring to any further children.

Hanna and Maria also addressed their wishes in the interviews. Whereas Hanna's wish for a child is currently unfulfilled due to the lack of a partner, Maria has a partner but he does not wish to have a child—thus their childbearing plans are not aligned.

> 'It's my strong wish to have children.' (SEF_Hanna, 32, Paragraph 27)

> 'Well, were it to be as I want, I would already like to have children in the next one or two years, but due to the reason of the missing partner, it's difficult. But hopefully in the next years.' (SEF_Hanna, 32, Paragraph 46)

> 'I have the wish, but I cannot decide it alone. Decide. And then I must discuss it with my partner, but until now, for the issue, we are not yet in agreement. I have a strong wish for a child, but he doesn't.' (SEF_Maria, 41, Paragraph 51)

Additionally, two SEF participants, Elisa and Ella, were uncertain whether they wished to have (more) children in the future. As previously mentioned, Elisa already had two children, but similarly to Maria, she 'tends more to yes' if asked about having more children, but her husband does not wish to have any more—thus, their wishes, too, are not currently aligned in their relationships.

> 'That I still don't know. I already have two children now who are not from my frozen oocytes, so whether I want to have more children, I don't know yet. I tend towards yes, but my husband more to no, thus we still have [to] agree.' (SEF_Elisa, 32, Paragraph 42)

Ella considered the following when answering the question:

> 'I wish that for me, but no idea, maybe I'll see it differently in five years. But at the moment, I would say, if, if it doesn't work out due to a relationship, then it's like this.

> Maybe if it's still like this in five years, I have a couple of girls who are all in the same situation and we'll see whether we could work it out another way and I'm prepared for that, but generally, yes, I wish but I don't want to force it, only to bring children into this world, whom I then cannot emotionally satisfy, because it was just an egotistical wish of mine, well. I don't know, that's the point a bit, I'll let it develop and I won't put any deadlines or something like that. But I'll see how it develops.' (SEF_Ella, 32, Paragraph 31)

She openly showed her thinking about the topic, starting her answer with 'I wish that for me', then adding later that 'generally yes, I wish, but I don't want to force it' and closing with 'see how it develops'. She mentioned two conditional factors: relationship (whether it 'work[s] out') and emotional readiness. Furthermore, Ella mentioned that she has female friends facing the same challenges and together they 'could work it out another way', but she did not detail what she meant as to what could be her other potential solution to have a child.

5.7.2 Right age to freeze

I asked the interview-partners at what age they opted for OC and received the answers below.

> 'Well, I got my oocytes frozen in 2015.' (SEF_Elisa, 32, Paragraph 10)

Therefore, the estimated age for Elisa is 27 at the time of cryopreservation, as she was 32 in 2020 when I conducted the interviews.

> 'No, it must be 2019. Yes. Exactly.' (SEF_Ella, 32, Paragraph 13)

This means that Ella was 31 at the time of cryopreservation, because in 2020 at the time of the interview she was 32.

> 'Back then it was a bit too late for me. I was already 39 years old. I did social egg freezing. Actually, it's said that I would be better before 35, but nevertheless I said I'd do it. […] and in 2018 I made my decision." (SEF_Maria, 41, Paragraphs 21–23)

> 'Ideal age, of course, is beginning of the thirties. I already missed that, but for me as quickly as possible.' (SEF_Maria, 41, Paragraph 53)

Thus, Maria was 39 at the time of cryopreservation and she opted for it although she was aware that she had passed the medically defined ideal age.

> 'No, we agreed with the doctor […] I will call him next week and then I have to make an appointment with him where he explains everything to me, then we can actually start with the next cycle, which means my plan would be that I do that now in the course of September, October.' (SEF_Hanna, 32, Paragraph 23)

In addition to the plans Hanna shared during the interview of starting cryopreservation still in the same year, she confirmed in a follow-up communication that she indeed opted for cryopreservation. Consequently, I assume that Hanna was the same age as during the interviews (32).

In conclusion, the women who chose SEF were 27, 31, 32 and 39, which on average is 32.3 years of age.

5.7.3 Information source

Similarly to the non-SEF participants, I asked the SEF participants how they gathered information on SEF once their initial interest had been sparked. Two participants explicitly mentioned the internet as their first port of call. Elisa said 'just googled it then'. Maria 'researched the information on the internet'. Both followed up with their gynaecologist and/or other doctors from a reproductive clinic to get a professional introduction and consultation before they made their decisions.

> 'Via the internet. Well, I just googled it then, what it is, where one could do it, etcetera. And I asked my gynaecologist whether he knows where one could do this here in [name of area]. And he then suggested [name of the clinic], and there I then opted for it. I was then there for a consultation, I informed myself about it, yes, and in the end then I decided to do the whole thing.' (SEF_Elisa, 32, Paragraph 14)

> 'I'd heard about it a long time ago, but I never really thought about it. To be honest, I had my first thoughts about it starting in 2016, because I already, I was back then already 37 years old and yes, then first I researched the information on the internet, and then I informed myself in [name of area] at [name of the clinic]. I went there and I informed myself and had several discussions and then I made my decision to do social egg freezing.' (SEF_Maria, 41, Paragraph 15)

Hanna did not explicitly mention conducting detailed internet research. One of her friends reminded her about SEF and she got appointments at clinics. See *section 5.8.2* for her description of her consultations with different clinics.

> 'Exactly. Well, I had said among my friends for a year and a half, here, I actually find this interesting, maybe I'll do it some day. And then I was asked about a half a year ago from a female friend, here Hanna [name changed], you once said you're interested in this, have you followed up on it? And then I started to organise appointments for consultations a couple of months ago.' (SEF_Hanna, 32, Paragraph 17)

Ella described her introduction to SEF as reading an article in her gynaecologist's office about a woman who chose SEF. She right away addressed the possibility with her gynaecologist, who gave her the contact details for an expert consultation. Thus, from the beginning, Ella had professional information at hand to make her decision.

> 'I discovered it myself when I was 30 or 31. I was 31 and I was sitting at my gynaecologist's and there was a magazine, I read about a 36-year-old woman in an article who didn't manage to succeed with finding a partner, etcetera and she decided for it, well, because she wanted to have children, she would have frozen her oocytes. I have never (inc.) article, this topic could be interesting to me, […] And then when I actually had my appointment, I first asked my doctor what she thinks about it. And in the practice they are super open and cool and give quite a lot of time for everyone, she

said, yes, do it please, in the best case at 18 (*laughing*). She directly gave me a clinic's card in my hand, which was right away on the same street and she meant I should go there directly, see how I can get a free first appointment and then I can still make my decision. Yes. And then I went there.' (SEF_Ella, 32, Paragraph 7)

5.7.4 Affording the costs

As affordability is one of the major discussion points about SEF, and it was defined as one of the behavioural control factors to opt or not to opt for SEF, I have examined in this study how women who chose SEF financed the costly medical procedure and what costs they actually faced. As referenced in the interview question, I addressed the €3,000 for a retrieval mentioned in the FAZ article.

Elisa admitted that she can no longer remember the exact costs (she opted for cryopreservation five years prior to the interview discussion). But as far as she could recall, they were around €2,000–3,000. She financed the procedure through her savings.

> "Yes. I don't know it anymore exactly, but it cost around €2,000–3,000. […] Through savings.' (SEF_Elisa, 32, Paragraphs 33–39)

Maria also recalled that the medical procedure cost around €3,000 and she mentioned an additional approximately €300 per year for storage costs. Maria also covered the costs from her own money and she sees it as 'an investment for [herself]'.

> 'Yes, that was, yes, about three, exactly €3,000, and then every six months about €160 for storage, storage costs. For a year approximately €300.' (SEF_Maria, 41, Paragraph 43)

> 'Myself. By myself. I'm also working and then I simply invested my money. An investment for myself.' (SEF_Maria, 41, Paragraph 45)

Ella stated her costs were around €3,500 for the medical procedure and a further €1,000 for five years of storage. She also explained that she was given the option to save money on the medication: 'he [doctor] told me you could buy the expensive German branded product in the pharmacy, or you could order it online, you need to do it a bit in advance, then you can also get it from France, and that's simply a non-branded product, a bit cheaper […]' (SEF_Ella, 32, Paragraph 27). In total, she financed the €4,500 for OC, including the cheaper medication from France and for storage costs, from her savings.

> ' […] I have paid, all in all, for the treatment itself €3,500 and for the storage for a further five years, then I paid another €1,000, thus it cost €4,500.' (SEF_Ella, 32, Paragraph 27)

> 'Yes, I have indeed. It was in 2019 and in 2018 I paid off all my loan and so on, and I have simply saved from my salary.' (SEF_Ella, 32, Paragraph 29)

Whereas Hanna had not had the medical procedure at the time of our interview, she confirmed that both clinics where she had her consultations estimated the costs to be around €3,000 per cycle. She also planned to pay the costs from her savings.

> 'Exactly. Yes. The estimated costs, so to say for one treatment and retrieval are €3,000, yes. Yes, that is correct. Both clinics confirmed it with me. If one were to do it twice, for instance, then it's around €6,000. Yes. […] Yes, I will [pay for it] from my own savings.' (SEF_Hanna, 32, Paragraphs 42–44)

5.7.5 Support network

I assessed the interviews with SEF women based on their support network, i.e., with whom these women shared their plans to cryopreserve their oocytes and with whom they intentionally did not share due to an expected lack of support. Most first shared their plans with their closest friends. Maria shared them with her best female friend and this friend's husband, considering them both key supports in her decision process. Maria highlighted that her female friend is a teacher. On the other hand, she decided not to share her cryopreservation plans with her mother, as her mother is 'very traditional'. She did mention them to her sister, but only communicated her plans rather than involve her in the decision process.

> 'With my best [friend] in Germany and also with her husband. They are in Germany, almost, I say they are almost like my family. Yes. They are German and then I had thoughts and she is also a teacher and I shared my thoughts with her, and then she also gave me ideas and made me think, how I should think later, and so on. They [with them] talked about it for a long time, then I made my decision.' (SEF_Maria, 41, Paragraph 25)

> 'I don't think so. (*laughing*) Not with my mother. Yes. I think such a topic for my mother, yes, because my father has already passed away. Because my mother is probably a bit, she is very traditional, that's why I didn't talk to my mother. But I let my sister know. But beforehand I didn't discuss it with her in length either. I just had my thoughts, I did it, but I discussed it only with my female friend and her husband.' (SEF_Maria, 41, Paragraph 27)

Hanna also involved her closest female friends in the decision and they discussed the topic in depth. These friends gave her support 'from the first minute that she [I] mentioned it'. Hanna shared her plans about SEF once she was convinced she would be doing it. Her parents were 'a bit sceptical' of how the medical procedure could work and whether it would mean any danger for their daughter. However, after Hanna provided them with an explanation of the medical procedure, they showed support. Hanna reflected on her parents' initial scepticism, noting that they are part of an 'elderly generation' that has not experienced this opportunity.

> 'With my closest circle of friends, with my group of best female friends, with a group of four, five girls, I discussed it with them in detail, and they were for it from the

> beginning. Well, they supported it totally. From the first minute that I mentioned it. They supported it. I only told my family after I had made my decision that I want to do it.' (SEF_Hanna, 32, Paragraph 29)

> 'Yes. Also, my parents were first a bit sceptical, well, about how it functions at all, is it dangerous, basically, a bit sceptical about what it is. Clearly the elderly generation may not know it like that, as we know it now. Well, rather short scepticism, well, it's all right, then I explained it, how it works in principle and then only support.' (SEF_Hanna, 32, Paragraph 31)

Elisa was already married at the time she opted for SEF, so she discussed and shared the plans with her husband and also with some of her friends. She described her friends' reaction as 'neutral to positive'. Some of them reacted only by saying 'aha', but she heard no negative comments in her presence. Based on the interview, I understand that she also involved her family once cryopreservation took place. Her mother found her decision rather 'strange'. As Elisa summarised it, however, her mother did not express disagreement or call it a silly idea. As Elisa reflected on her mother's reaction, she concluded that 'she is another generation, back then there wasn't anything like that, you either had a child or you just didn't. And I believe, from this aspect, she found it disconcerting.'

> 'Well, my husband joined in of course. I discussed it with him and also with a couple of friends.' (SEF_Elisa, 32, Paragraph 16)

> 'Also [friends] were neutral to positive, let's say. Well, that bad, that someone would have said anything in my presence, that I didn't have. Some only said "aha", but all in all neutral to positive feedback.' (SEF_Elisa, 32, Paragraphs 57–60)

> 'Also to my family circle and closest friends.' (SEF_Elisa, 32, Paragraphs 53–54)

> 'Yes, not supporting, I cannot say it, also my mother, for example, yes, she found it strange, let me put it this way. Not that she would have said that she finds it stupid, or she would be against it, but I think she is another generation, back then there wasn't anything like that, you either had a child or you just didn't. And I believe, from this aspect, she found it disconcerting.' (SEF_Elisa, 32, Paragraph 56)

In Ella's case, she did not really share her plans with anyone, just her doctor. She reasoned that she did not know anyone who had undergone SEF before. After she made her decision, she shared it with all of her friends and family. However, she found sharing it with the latter a bit difficult and needed to stir up some courage for the discussion. The reason, as Ella described it, is that her parent had put pressure on her since was about 26 to definitely have children. Therefore, this was a topic she tried to avoid for a long time. As per her description, this discussion cost her quite an effort.

> ‘Well, talking about it before, indeed, whether I should be doing it [SEF] or not, I did it with almost no one, I decided by myself. Only with the doctor. Simply because I, I don’t know, as of now I don’t know anyone who would have done it. Later, or as I had decided for it, all of my friends know it, my family, which felt a bit difficult for me, but my parents know it for sure, my sister obviously as well, but the conservative part of my family, I’m simply not up for a discussion with them. I didn’t tell them, and for my parents, it was also that I think I needed the courage to tell them. Because my parents, I believe since I was 26 or so, put pressure on me. For sure I feel it, that I simply should bring a child into this world, and that was a topic, no, an idea, that I tried to avoid as long as possible. And to tell them […] for sure it costed me quite a lot of effort. […]’ (SEF_Ella, 32, Paragraph 15)

Ella also opened up about SEF at work. She had three managers and she told them all, as the medical procedure, especially the hormonal treatment, might influence her health. She wanted to prepare her environment because she was not sure what was going to happen. Furthermore, she explained that her workplace is ‘quite a male-dominated company’ and she ‘also wanted to provoke a bit that they deal with it’. All three managers reacted very differently.

> ‘[…] Other than that, at work I have three bosses and I told all three of them because I also didn’t want it, because the treatment is both two weeks before the retrieval, and also maybe potentially two weeks after, I could be extremely impacted with hormones and sensitivity and I had no idea what would happen, and I only wanted to prepare them, about what could happen, and at the same time, I’m the only woman at our place, who is working in our company, and it’s quite a male-dominated company. And therefore I also wanted to provoke a bit that they deal with it. All three reacted completely differently, yes, that was also the funniest part.’ (SEF_Ella, 32, Paragraph 15)

With the first manager, she did not usually talk about private matters; therefore, he was rather surprised and questioned why one would have done that at the first place. After Ella’s explanation he was open to a discussion. Approximately two months after the first discussion, this first manager asked Ella whether she was moody because of her hormonal treatment. Her interview gives the impression that Ella was disappointed in hearing these cliches, although she just wanted to be open about this topic.

> ‘The first one was we don’t talk too much about private [things], but he really stared at me. Okay, why would someone do that? I said, yes, if someone doesn’t know, if someone wants to secure herself a bit, […]. And then he said okay, let’s talk about it. And then I had something like two months later or so I was a bit sick or I had a bad mood at work and then he mentioned, hey, is this about your therapy or what? You said you could because of your hormones and so on. No. So really like this, I wanted to be open actually, and I will deal with it, and then he is coming out with the cliches.’ (SEF_Ella, 32, Paragraph 17)

The second manager just commented ‘okay’ and wished her good luck. Ella felt he was rather embarrassed.

> ‘The second one said, he meant, okay, it is great. Good luck or something like that. Also touched me awkwardly.’ (SEF_Ella, 32, Paragraph 17)

The third manager showed interest and honesty. Ella clarified that she had the best relationship with him out of the three. This third manager was curious as to why she had opted for SEF and how the medical procedure worked.

> ‘And the third one meant, with whom we understand each other the most, he is the social one, who simply said, oh, cool, and why do you do that and how does that work and so on. He simply showed interest and was honest.’ (SEF_Ella, 32, Paragraph 17)

Furthermore, Ella told her story to another colleague who is mostly responsible for HR-related matters within the company. He was happy for Ella and also shared his private situation with her. He and his wife conceived their child with this method, and he described the difficulties the hormone treatment caused.

> ‘And exactly, I also had another colleague, because he is the HR person, he was really happy about it and told me right away that he and his wife had their child this way [SEF or ART, unclear] and he said it was the phase in which it could have killed his wife, apparently she suffered so much from the hormones and for sure that was the worst time. That’s why I was also a bit like, okay, how will this whole procedure then effect me.’ (SEF_Ella, 32, Paragraph 17)

Additionally, Ella also told her mates on the basketball team, as she would not be playing for a certain time. At first, ‘it was a bit strange, but then you realise that people are actually interested in it’. Ella also highlighted that she would not tell her grandmother that she had chosen SEF. She described her grandmother as a religious person who attends church every Sunday. Although Ella did not explicitly point to the religious views as the reason she would be unsupportive about SEF, her statement can be interpreted as such. Also, Ella closed her thoughts as she is ‘not up for a discussion’, giving a hint that she might have to provide an explanation to her grandma on her decision or she would have to protect that decision.

> ‘[…] my grandma, who is going to church every Sunday, to her I wouldn’t tell her [German slang], because I’m simply not up for a discussion.’ (SEF_Ella, 32, Paragraph 72)

5.7.6 Conclusion: Participants’ actual control factors

I tested the aspects of *wish for a child, right age to freeze, information source, affording the costs* and *support network* as actual control factors amongst the SEF participants. Two participants expressed a clear *wish to have a child* and one participant has two children already and was unsure about her plans regarding a further child. Another participant was also indecisive about her further reproductive plans. Regarding their *right age to freeze*, participants’ average age of cryopreservation was 32.3. Whereas three of them were in the

medically ideal perceived age (i.e., 27, 31 and 32), one participant was already 39 at the time of the retrieval: she admitted that her age was not ideal, but nevertheless perceived the procedure as her last chance to have biological children in the future. As for the *information source* on SEF, after participants' became aware of the medical possibility, they mostly used the internet to gather further information, consulted with their gynaecologists, doctors and of course with the medical experts at the reproductive clinics. I used the FAZ article's information as a baseline to research how participants afforded SEF costs. In 2014, the FAZ published the following: 'In Germany, where 'social freezing' is gaining popularity little by little, the costs turned out to be by less than €3,000.[27] All SEF participants confirmed the costs of a retrieval (€3,000), spending €3,000-3,500 on one round of retrieval. Whereas the FAZ article was published in 2014, the participants' experiences were in 2015 (Elisa), 2018 (Maria), 2019 (Ella) and 2020 (Hanna). The prices stayed comparable with the published expected costs. Nevertheless, the article failed to address additional costs, such as storage, which some of the participants brought up. Furthermore, participants highlighted that the mentioned cost of approximately €3,000 includes only one round of retrieval: if additional rounds are needed, the cost can double or triple. All participants paid or planned to bear the costs from their own savings, thus needing no family support or credit. Lastly, participants received the most support from their friends, primarily from female ones. One participant, married at the time of cryopreservation, involved her husband in the decision as well. Parents were not involved in the decision process; instead, participants shared information with them once they had made their decisions or undertaken their medical procedures. One participant did not even share her choice with her mother. Two women highlighted that their parents had been socialised in another generation, and thus showed less interest or understanding for such reproductive opportunities. One grandmother was explicitly excluded from the decision process as well as not informed afterwards, due to her expected non-understanding, probably as a result of her religious background. One participant described in detail how she shared her decision with her colleague and managers, however, her motivation was not to involve them in the process, but to inform them about the expected health conditions the hormonal treatment might cause.

5.7.7 Perceived behavioural control factors and actual control factors

In this section, I compare the perceived behavioural control factors assessed amongst non-SEF participants (n=10) and the actual control factors assessed amongst SEF participants (n=4), in

[27] „In Deutschland, wo "Social Freezing" allmählich auch an Popularität gewinnt, fallen die Kosten niedriger aus und liegen bei weniger als 3000 Euro." (FAZ Das Einfrieren von Eizellen zahlt die Firma, 2014)

relation to five behaviours: *wish for a child, right age to freeze, information source, affording the costs* and *support network.*

The *wish for a child* can be generally observed both amongst the female and male non-SEF participants and the SEF participants. Thirteen out of the sixteen non-SEF participants (81%) expressed the wish to have a child in the future; of the SEF participants, one already had a child and a further two expressed their clear wish to have a child in the future, for a total of 75%. Three out of the 16 non-SEF participants (19%) were indecisive about their future childbearing plans and one of the four SEF women (25%) was uncertain as well. Thus, it can be concluded that most of the non-SEF and SEF participants expressed a wish to have child, namely 75–81%. Furthermore, uncertainty about future childbearing plans did not stop the one SEF participant from opting for SEF. Therefore, the group of non-SEF female participants who wished to have a child in the future or were indecisive about their family plan may still pursue SEF, similarly to the non-SEF male who might support their female partners to opt for SEF.

Non-SEF participants perceived the *right age to freeze* oocytes as between 21.5 and 35, with an average age of 27.5. The female non-SEF participants named a higher age as ideal to choose SEF, namely 29.2 on average, which is closer to the average age of 32.3 when the SEF participants opted for OC. The non-SEF female participants have not yet passed the age that is defined as ideal by medical experts, and almost all of the non-SEF female participants have not yet turned 29.2, which is considered to be their ideal age to freeze by themselves (non-SEF women) or 32.3, which is the average age of the women who already chose SEF in this study. The right age to freeze is a critical factor for the decision and the success of the medical procedure, and in the current sample, none of the non-SEF participants believed that cryopreserving their oocytes would be ideal towards in a woman's late thirties, forties or beyond.

As for how the participants identified their *information source* on SEF, both non-SEF and SEF participants named the internet as their potential and actual initial source of information. Gynaecologists and medical experts were their other primary means of information gathering and in some cases were highlighted as their most reliable information source. Thus, the information source via the internet, gynaecologists or medical experts was perceived to be available by non-SEF participants and confirmed to be available by SEF-participants; however, the quality of these information sources was not the subject of this assessment. Some further insights are available under the medical consultation experiences of SEF women in *section 5.8.2.*

Affording the costs of SEF is one of its major criticisms, and the shared FAZ article estimated the costs of SEF at €3,000. Women who underwent SEF confirmed these costs by reporting spending of around €3,000–3,500 on the retrieval itself. This value does not include several rounds of cryopreservation and the storage costs of the cryopreserved oocytes. All SEF participants financed the costs from their own savings, thus without financial support of their families or without applying for credit. All non-SEF participants believed that in general they would be able to afford the costs of one round of OC (€3,000) either now by themselves or with the help of their families, or later when they entered the labour market. Thus, the costs with the reference value of €3,000 did not seem to be either a perceived behavioural control factor amongst non-SEF participants, nor an actual control factor amongst SEF participants.

All non-SEF participants believed they would have a *support network* at some level if they decided to pursue OC, either their families, friends, partners or colleagues. Similarly, the SEF women described receiving support from their friends, mostly female ones, or from a husband. Based on SEF women's interviews, families or parents were usually included in the circle of trust only after the decision had already made or cryopreservation had already been conducted. One SEF woman did not share her decision with her mother due to the expected lack of support. Furthermore, one SEF woman highlighted that she did not share her cryopreservation with her grandmother, and some non-SEF participants mentioned that they would not expect their grandparents to show support towards cryopreservation. In sum, non-SEF participants believed they would have a support network and those who were not expected to show support would be excluded from decision making or the information would not be shared with them, but this perceived lack of support would not explicitly hinder their decision. Therefore, participants did perceive the support network, both as a perceived behavioural control factor amongst non-SEF participants and an actual control factor amongst SEF participants, as an obstacle to making the decision.

In conclusion, non-SEF participants show perceptions of the behavioural control factors towards opting or not opting for SEF that closely align with the actual control factors reported by SEF participants. The non-SEF participants either wished to have a child or had not yet made up their minds; they assessed the right age to freeze within the medically advised timeframe; they believed they would have access to the right information; and they believed they would be able to finance the costs by themselves now or in the near future, or they would be able to count on their families' financial support. Non-SEF participants perceived themselves to have close friends and family who could act as a support network in case they were interested in SEF.

5.8 Freezing experience

In this section, I focus on analysing my interviews with the four women who chose OC due to social reasons (SEF women). I answer Research Question 3(b), *what experiences did women who underwent SEF have*, by studying their motivation to decide on and undertake SEF, their experiences during the medical consultation and during the medical procedure itself, including their feelings, the retrieval and its success (i.e., the number of oocytes that could be cryopreserved). Furthermore, I asked the women about their future plans with regard to their oocytes, that is, whether they plan to use them and if they end up not using them for any reason, what they plan to do with them. I also address the women's personal suggestions as to who should be choosing OC for social reasons.

5.8.1 Motivation to freeze

It is important to understand why SEF women decided to opt for OC, how they framed their decisions and described their need for this medical procedure.

At the time of cryopreservation, **Elisa** was working on her doctoral dissertation, with lab-based research. She could not have continued working in this laboratory while pregnant due to health security reasons. She was motivated to finish her dissertation and she planned to have children afterward. In order to postpone childbearing, she opted for OC. She was also already married when she made this choice, and she underwent cryopreservation with her husband's support. Therefore, I can conclude that her motivation was based on her studies, academic career and present wish for motherhood.

> '[…] and because I wanted [to] first write my doctoral dissertation after my studies and I wasn't that young anymore, I thought then that it's quite a good idea to freeze my oocytes and to have children after my doctoral dissertation. [….] Well, I was working in a laboratory and it wasn't possible to continue working during a pregnancy, that's why I was very motivated, whether it could be something for me, simply, um, to first finish my doctoral dissertation in the laboratory and then to have children.' (SEF_Elisa, 32, Paragraphs 6–8)

Hanna was single at the time of the interview and she was motivated to gain some relief with cryopreservation. As she was in her early thirties, she felt pressured that this was the age to have children, but she did not want to be stressed to find the right partner in a fairly short period of time. Therefore, she wished to have some kind of security that she could have children in the future. She clearly expressed that she would like to have children at some point in her life.

> 'I'm currently single. I don't know when I will have children, but it would be nice to have the security.' (SEF_Hanna, 32, Paragraph 17)

> ‘Well, let me put it this way. It’s my strong wish to have children and in this situation, I won’t get any younger and I would like to take the pressure out, of absolutely having to find now someone, because I have, let’s say, only the time now to have children. And later the probability to have children, the natural way, may be rather low. Thus, these are the motivational factors. I would like to have children, but I don’t want to be stressed to find someone quickly right now with whom I can have children.’ (SEF_Hanna, 32, Paragraph 27)

Ella was also single at the time of cryopreservation and approximately 31 years old. Her motivation had several aspects. First, she did not want to feel stressed to find the (1) right partner and she did not want to think about the ticking clock when she meets a potential partner at the beginning of the relationship. She also described that it is challenging to find ‘normal men’ above the age of 30 because there are ‘way too many broken people’ out there. She highlighted that she did not opt for SEF due to her job, as she was convinced she would be able to pursue it while being a mother. Furthermore, she has in her family, both on her maternal and paternal sides, relatives (2) born with disabilities. And the older the oocytes get, the higher the chances that the child is not going to be healthy. Additionally, she potentially wished to have (3) several children (two or three). And even if the first child would be conceived naturally, maybe the wish for the second or the third child would come later, when she is towards the end of her thirties, in which case the cryopreserved oocytes could be a good investment. I must note that at some point in the interview Ella also expressed that she is unsure about her childbearing plans, whether she wants to have children at all.

> ‘[…] I wanted to be able to start a relationship without thinking about it, okay, my clock is ticking, and it must be, otherwise it will be, better to say, the relationship isn’t worth it then, or I just wanted to have it deleted from my head. I wanted, other than that, I have in my family, on both sides, people who were born with serious disabilities and the older the oocytes are, the higher the probability that you don’t get healthy children, so this is also a point. And what I’ve also considered was that I may not just want to have only one child, for example, but one child would come, but I still have the option maybe for child number two or three to use my oocytes at the end of my thirties. Well, it first comes to my mind, because I want to handle this topic in a more relaxed way […]. And this thought that I did everything that I could do, that I kept the option open further. […] And yes, these are actually the three main reasons, well […] to have the freedom for myself, health factors and the third was the siblings.’
> (SEF_Ella, 32, Paragraphs 9–11)

> ‘[…] Well, as I said, somehow it has nothing to do with that, that I want to achieve somehow more in my career, I’m truly convinced that I could also achieve that [while being a mother], […] but I may be also very spoiled in this. Also, my female start-up bubble, in which I connect with a lot of similar women, who are all up for it, who all have goals, […] I’ve talked about it with a lot of girls who all move into this direction [SEF], do it at least because of the job, but (inc.)because, in quotation marks, we

> discussed a lot that there are no normal men to get, above 30. At 30 it's really annoying. You find way too many broken people.' (SEF_Ella, 32, Paragraph 76)

Maria was 39 years old, did not have a (1) partner at the time of the cryopreservation and wished to have children in the future. She therefore saw the possibility of OC as a security to fulfil her wish. She feared that she might be too old to conceive naturally by the time she would find the right partner. She described herself as fairly old for cryopreservation, as it is advised women 35 or younger. Maria explained in the interview that she did not think much about starting a family or having children when she was younger, until her father got sick and passed away. She saw how her father was suffering from his sickness and this experience triggered the feeling that she also wanted to have a 'connection for a lifetime'. In 2016, her father passed away, and Maria afterwards participated in consultations on OC. It took her around a year to make her decision, and she opted for the medical procedure in 2018.

> 'Yes, and from my side and back then I didn't think a lot about family, about children, but in 2016 my father passed away. And yes, after a long sickness then I saw how a very strong man goes towards death and becomes very soft and then [you] know the feeling, then I had the feeling, I would like to have my own child as a connection for a lifetime. With her. Then I thought, and if you, I would like to have children, but back then I didn't have a stable relationship. And then I said, okay, for security and then I decided for social freezing. And, of course, in the future I would like to have, of course, with my dear partner, which means the man I love, children eventually, […]. If I would be 45 years old […] probably I would have low chances of having children, that's why I'm choosing it for security.' (SEF_Maria, 41, Paragraph 19)

> 'At that time, it was a bit late for me. I was already 39 years old. I did social freezing. Actually, it's said it would be better [until] 35, but nevertheless I said, I'll do that.' (SEF_Maria, 41, Paragraph 21)

> '2018, because I did it and of course the decision or before it took about a year, in 2017 or in the beginning of 2018, I really badly struggled with myself as to whether I was going to do it or not, and yes. And in 2018 I made the decision.' (SEF_Maria, 41, Paragraph 23)

5.8.2 Consultation

The four participants experienced consultations on OC. Two of them described these consultations in more detail, sharing both positive and negative experiences regarding the atmosphere at the clinics and the information they received on the costs, medical procedure, risks and chances. These experiences are presented in *Table 15*.

Hanna participated in two consultations with two different clinics (*Clinic A and Clinic B*), and her experiences were very different. Whereas the first consultation with *Clinic A* had a positive outcome, *Clinic B* gave her the impression that she was not taken seriously. In *Clinic A* she got a positive response regarding her age (32 at the time of the visit) for the consultation:

They told her that she would be doing OC at the right age, as many women seek medical support for OC at a later age (i.e., in their late thirties or even in their forties). On the other hand, in *Clinic B*, she felt she was challenged for participating in the consultation at her age. The doctor commented that she should be saving the money she would be investing in OC, and that she could sign up to an online dating platform (Paarship). Hanna explicitly mentioned that *Clinic A* informed her about the risks and costs, and that both *Clinic A* and *B* provided her with certain details about the medical procedure and the expected outcome of the treatment and the retrieval. For example, both clinics estimated that she would have to undergo two to three retrieval circles in order to get 10 to 15 oocytes. Although Hanna described the doctor in *Clinic B* as competent and she felt they explained everything well, the comments about her age and the unrequested advice on her investment and her relationships (registration on the online dating platform) led to her preference for *Clinic A* over *B*. Whereas she explicitly highlighted that she did not think the doctor in *Clinic B* intended to be mean with his comments, this experience influenced her choice.

Ella first went to see her gynaecologist for her opinion about OC. She described this office as 'open-minded and cool', and as investing a sufficient amount of time in patient consultations. Her gynaecologist showed herself supportive cryopreservation and gave out the contact information of a local reproductive clinic that provided a free initial consultation on the medical procedure. Ella also mentioned that the first time she had ever come across social egg freezing was indeed in her gynaecologist's office, where she had seen a magazine article on a woman who decided to freeze her oocytes due to her strong wish to be a mother, but her inability to find the right partner at the time. I do not know whether this specific magazine article was placed in the gynaecologist office with an explicit marketing purpose, and Ella did not address this either. When Ella visited the reproductive clinic, she had a negative experience. She felt that the doctor neither cared for her nor informed her of the details. She used the word 'typical' to describe this non-caring, non-service-oriented situation; I therefore expect that she had experienced something similar with other medical procedures, or heard of comparable treatment from others, and generalised her experience. On the other hand, she indicated that her consultation case might be unique in that she left it understanding neither the medical procedure nor what was going to happen to her, although she described herself as an intelligent person. She probably also did not feel emotionally supported by the doctor, because she highlighted that 'I could have talked to a machine, and it probably could have explained things better'. Additionally, Ella mentioned that the staff at the clinic were nice and did their best, but it was really the doctor who disappointed her.

Maria and **Elisa** did not share many details on the consultations with their gynaecologist or with the clinics before cryopreservation. Maria gathered information on the internet and then she consulted with a doctor in a reproductive clinic several times before she made her final decision. Elisa also informed herself first on the internet, then consulted with her gynaecologist and received the recommendation of a reproductive clinic she visited and had a consultation at. She ultimately opted for cryopreservation and underwent the procedure at this particular clinic.

In two cases, for Elisa and Ella, I know that their first medical consultation points were their gynaecologists, who gave recommendations for the reproductive clinics. In Hanna's and Maria's cases, I do not know this explicitly.

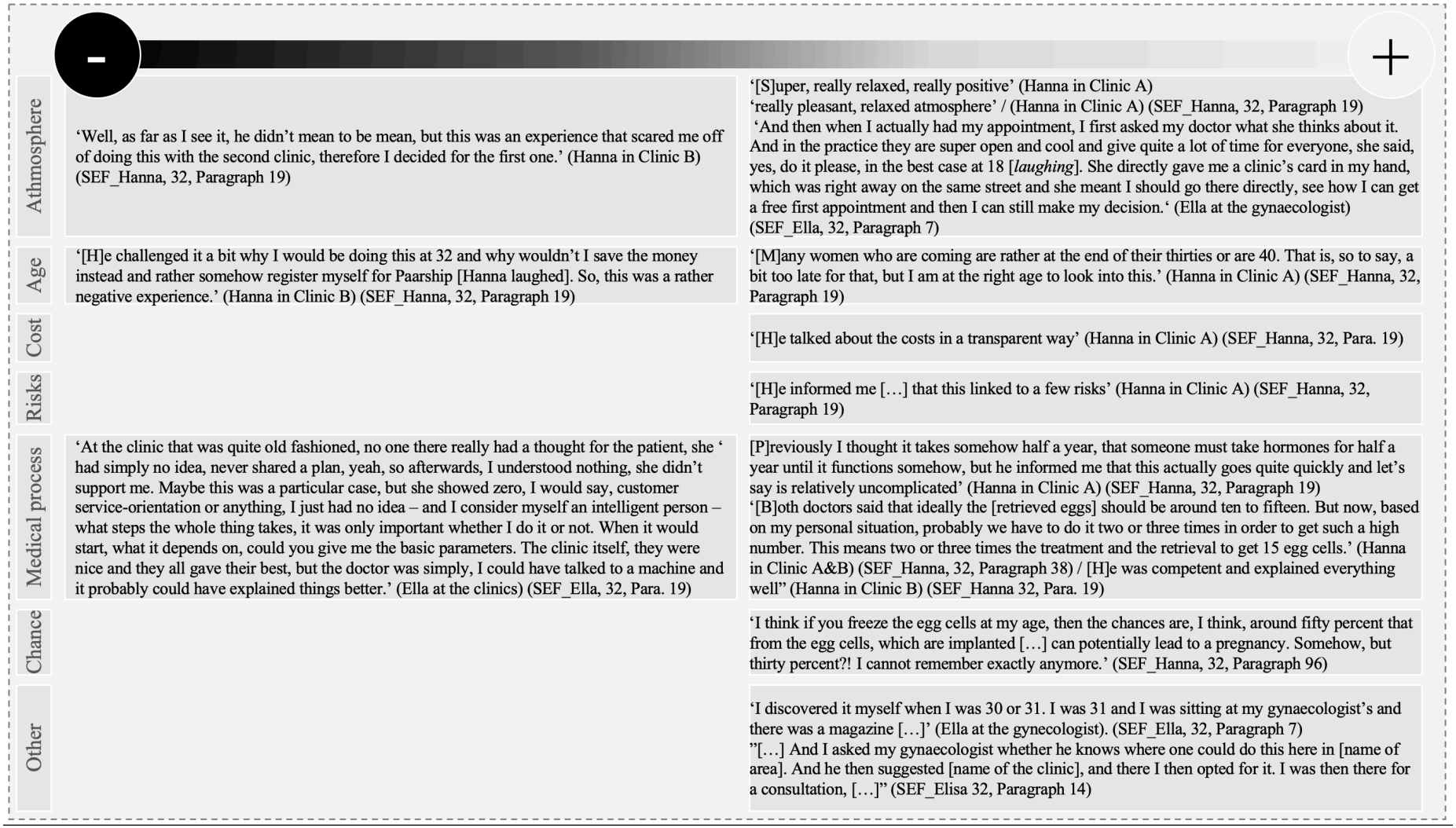


Table 15 Freezing experience – consulation

5.8.3 Medical process

In this section, I describe the medical experience SEF participants shared during the interviews. As at the time of the interviews, Hanna had not yet had her retrieval, so I analyse only the experiences of Ella, Elisa and Maria below.

5.8.3.1 Anxiety/Fear

Participants expressed fear about the medication or the medical intervention itself. **Ella** highlighted that she had respect for the hormonal medication. Although she generally would not describe herself as someone who had strong reactions after medications, she was not sure how her body would respond this time. In the end, she was happy she did not show any symptoms, however, she described: 'I was on an euphoric *high-octane hormone trip* the entire time, and I was always waiting for something to happen.' (SEF_Ella, 32, Paragraph 19) **Maria** also claimed that she had to take a deep breath, been nervious and expresses clear fear also due to the injections.

> 'But basically I was simply nervous or simply stressed, because I, well, for the whole time I didn't know how it was with the hormones. There was a point for me where I thought, okay, I'm actually quite insensitive to all medications or similar and it had an incredible effect […] but in the end I was lucky that I didn't notice anything, I was on an euphoric *high-octane hormone trip*the entire time and I was always waiting for something to happen […].' (SEF_Ella, 32, Paragraph 19)

> 'Yes, of course it's not that easy. And yes, there you have to take a deep breath. I had a bit of fear and I was nervous, and the bodily feelings, because I had to give myself these injections every day for weeks, and that wasn't so comfortable.' (SEF_Maria, 41, Paragraph 35)

5.8.3.2 Retrieval

While SEF has been frequently described (see eg. Mertes and Pennings, 2011) with the assumption that women easily go to the clinic and have their oocytes frozen, that it is not a big deal, two of the three women interviewed who underwent oocyte retrieval experienced painful days or weeks, and in one case a two-week hospital stay. Ella described the process as the least uncomfortable. She considered herself lucky because she did not report more pain than she expected before the retrieval, although she admitted that the process was uncomfortable.

Ella described it as follows: 'I had really huge ovaries, really heavy and uncomfortable, and then somehow, a day before the retrieval, and on the day of the retrieval, then I was happy and I walked to the clinic, then at some point it started. And after that, it was simply clear that it's going to be uncomfortable, because it just stretches, that you just, your ovaries are definitely irritated, so that everything is a bit sore, but I was at work again the next day, and I did

everything a bit slower, and it wasn't super comfortable, but I can count myself lucky. Two days later I was partying, so it was fairly uncomplicated for me.' (SEF_Ella, 32, Paragraph 19)

Elisa says 'it was not so nice. It was, it was hurtful, I really had pain. Especially after the oocyte retrieval, the stimulation before it was still okay, well, it's of course stupid, well, the belly was really swollen, but that was still okay. But later, after the retrieval, then I really had a lot of pain, and I had, I couldn't really walk properly for days, and that was really painful. Also, I couldn't cope with the anaesthesia very well, after the sedation I couldn't get myself together, it wasn't nice at all' (SEF_Elisa, 32, Paragraph 23). Elisa reflected on the success, but also on the consequences: 'Yes, it was really successful, according to the amount of oocytes, but later the complication was obviously also there that I really had a huge swollen belly. Everything was swollen' (SEF_Elisa, 32, Paragraph 29).

Maria shared her experience: 'And after that, after that already something happened to me, and the result wasn't that good either. Probably the doses were a bit too much because I'm Asian, probably a different body measurement than a European woman. Probably the doses were a bit too much, and then the uterus became too big. After that I had a two-week-long [stay] in the hospital as a result. Yes, that wasn't a nice experience' (SEF_Maria, 41, Paragraph 35).

When all three women's descriptions are read together, as presented in the *Table 16* below, it is obvious that they are mostly expressions with negative connotations. Whereas Ella's negative experiences and expressions were softer, such as 'uncomfortable', 'irritated' or 'stretches', Elisa used more intense words, such as 'sore', 'really painful' and 'huge swollen belly', and Maria described a two-week hospital stay. This aligns with their parallel positive expressions: Ella used the most positive expressions, such as 'fairly uncomplicated' or 'at work again the next day', Elisa summarised her experience as 'it was still okay', but Maria mentioned nothing positive about her medical experience.

Table 16 Freezing experience – retrieval

5.8.3.3 Number of oocytes retrieved

The success rate for oocyte retrieval was different for the three women, all of whom opted for one round. Maria, at the time of cryopreservation, was 39 years old and had four oocytes successfully retrieved, but only three could be cryopreserved. Ella, 31 at the time of the medical procedure, explained that 31 oocytes were successfully retrieved, but only 22 were mature enough to be cryopreserved. Elisa was aged 27 and reported 35 oocytes retrieved, although it was unclear whether this number referred to those retrieved or to the cryopreserved oocytes.

> 'I think they actually took out 31 and 22 or something like that were mature enough or big enough, so 22.' (SEF_Ella, 32, Paragraph 21)

> 'But I'm happy that I now have frozen three oocytes. […] Three pieces. Well, in the beginning the doctor said that usually one can get ten to twelve pieces, but of course the older you are, the fewer you get. They retrieved a total of four pieces back then, four pieces, four active oocytes, and after testing and checking and then they, the doctor, said in total three pieces, three oocytes will be frozen for me.' (SEF_Maria, 41, Paragraphs 37, 39)

> 'Only one [reference to the number of retrievals], that was super, I reacted to that really well, and they could get 35 oocytes with one retrieval.' (SEF_Elisa, 32, Paragraph 27)

5.8.4 Outlook

In this section, I analyse SEF women's plans for their cryopreserved oocytes; that is, whether they believed they will one day return to them and, in case they do not, what they will do with them (e.g., give them up for donation, sell them, offer them for scientific research etc.). Furthermore, years after their initial interviews, I asked them whether they have regretted their decision to undergo SEF, and lastly, their views about the potential target group for SEF.

5.8.4.1 Returning to the cryopreserved oocytes

All four women interviewed chose OC with the aim of potentially returning to their banked oocytes and using them for their future reproductive plans. However, several interviewees clearly mentioned that they would first try to conceive in a natural way and that they would only use their cryopreserved cells if this proved unsuccessful. Hanna explained why she preferred to conceive naturally: '[b]ecause the IVF also has additional costs' (SEF_Hanna, 32, Paragraph 48). Elisa had already conceived and given birth to two children without using any cryopreserved oocytes, so if she decided to try for a third child, she would first try for another natural pregnancy. Ella's perspective aligned with the other interviewees—that is, she would only return to her frozen oocytes if natural conception somehow failed or if she started planning to have children later in life. In that case, she might try to use her frozen, younger oocytes from the start. She referred to a potential consultation with a doctor to take their opinion into consideration when deciding. Ella also described her situation positively and was optimistic based on her successful retrieval experience: '[…] this way I know […] that I'm still relatively fertile, I would probably still first try the normal way. […] through this treatment I learned what my fertility's status quo is' (SEF_Ella, 32, Paragraphs 33–34). Maria had already considered contacting a sperm bank to fulfil her wish to have a child with a donor. Furthermore, she explained that a female friend of hers conceived when she was 45 years old, so if she, too, should prove able to conceive naturally, she would not return to her oocytes. However, she planned to keep them for herself until age 55 or 60.

> 'Only if I have to. Well, if I won't be able to get pregnant in the natural way, then yes. But let's say I wouldn't come back to it in the beginning. Because IVF also has additional costs. Well, that would be, let's say, my back-up plan.' (SEF_Hanna, 32, Paragraph 48)

> 'Well, first I would try of course without the frozen oocytes, and if then for some reason it doesn't work, then of course for sure. But if it works otherwise, well, both the other children came without the frozen oocytes, that of course makes sense, let's say try it the natural way, […] before you use the oocytes.' (SEF_Elisa, 32, Paragraph 44)

> ‘I seriously already considered whether I could get [sperm] from the sperm bank of Hamburg. In Germany, a single woman is allowed to buy sperm, then I could fulfil my wish for a child.’ (SEF_Maria, 41, Paragraph 55)

> ‘Oocytes, I was thinking about [them], because a friend of mine, a 45-year-old friend, had a baby a week ago, totally naturally. Of course, it’s great, when I would have a child the natural way, then I wouldn’t use my oocytes anymore. And, but if I would have children later, I would keep it always for myself, until, until I’m 55 years old, or 60 years old, as it’s said, that I also have the security if something happens to my child, etcetera. If I would later have the need, but I would use my oocytes for myself.’ (SEF_Maria, 41, Paragraph 63)

5.8.4.2 Decision about the unused cryopreserved oocytes

The interviews also addressed the topic of women’s wishes regarding their cryopreserved oocytes should they not return and use them for their own wish to have a child. In total, four possibilities were discussed, as shown in *Table 17:* (1) offering the oocytes for donation to be used by another woman to fulfil her wish for a child; (2) selling the oocytes; (3) offering the oocytes for research purposes; and (4) letting the oocytes be destroyed so that they are not used for any purpose.

Whereas Elisa and Ella were open to the option of donating their unused oocytes, Hanna and Maria did not prefer this as an option. Elisa clearly expressed that she would consider donating or selling her oocytes. Ella also believed that she would be okay with donating them, especially if someone with a strong wish for a child could use them for in vitro fertilisation. Hanna thought that she would not donate her oocytes, not just because it is not possible in Germany, but also because they have her genes. Maria argued similarly to Hanna, as she would exclude the option of donating her oocytes or offering them for research because she is conscious that they are her ‘genetic stoff’. While Maria was against using her oocytes for research purposes, Hanna was ‘open [to] something like that’ and Elisa preferred her oocytes to be used in research, so that they are at least of some use. Only as a very last option would Elisa prefer her oocytes to be destroyed. Maria and Hanna also mentioned that once they decide to not use the oocytes for themselves, they would let them be destroyed.

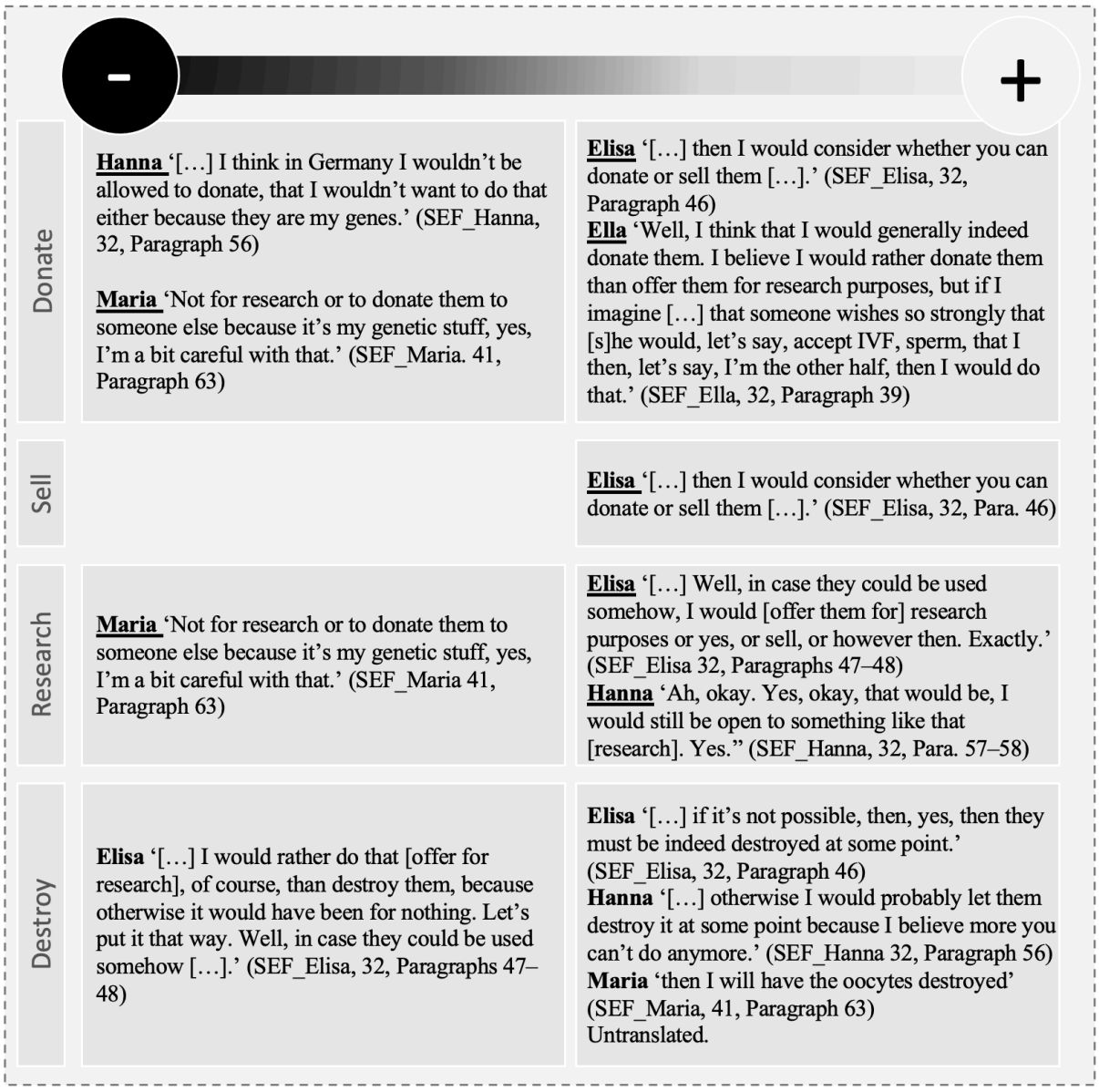


Table 17 Freezing experience – decision about unused oocytes

Two participants indicated in their thinking and answers about their unused oocytes' future that they might be influenced by the current legal possibilities. Elisa mentioned 'if I, in about ten years, decide not to use them anymore, I don't know how the legal situation will be, or how it is today […]' (SEF_Elisa, 32, Paragraph 46). Also, Hanna highlighted: '[…] due to the legal situation, I think in Germany I wouldn't be allowed to donate […]' (SEF_Hanna, 32, Paragraph 56). This does not mean that national legality would fundamentally change their minds, but their thinking may be influenced by legal boundaries. Furthermore, legal possibilities may create social norms, so that whether the women feel that oocyte donation or selling their oocytes are possibilities may be influenced by the status quo, that is, what is currently accepted by society, thus what is legal or not legal.

5.8.4.3 Regret

After a certain period of time, years after Elisa's, Ella's and Maria's cryopreservation, I was interested to learn whether they regretted their decision to cryopreserve their oocytes. Elisa expressed regret from a financial perspective, as her original motivation to cryopreserve in 2015 was to continue her doctoral research in the laboratory, where she could not have worked while being pregnant due to safety reasons. However, she became pregnant and gave birth to two children in recent years. Therefore, reflecting back, she 'would have rather saved the money' (SEF_Elisa, 32, Paragraph 50). She concluded: 'as of today, I wouldn't do it again. If it was the beginning of 2015, I would do it again because back then I couldn't have known that I would have children so quickly and was simply motivated by the fear of not having any children, so I would have done it again in 2015, yes.' (SEF_Elisa, 32, Paragraph 52)

At the time of the interview, Hanna had completed her consultations and made her decision, but the cryopreservation had not yet taken place. She described her only regret as follows:

> 'Well, let's put it this way, I wish I would have made my decision earlier, but of course this is also a financial question, well, during my studies I wouldn't have had the money […] and I wasn't into the topic either. But I believe with the knowledge I have today, I wish I would have done it earlier. That's why I suggested this to my female friends, and I believe it's quite a good thing.' (SEF_Hanna, 32, Paragraph 90)

Ella similarly expressed no regret: 'No, not at all' (SEF_Ella 32, Paragraphs 44–45). She wished she would have decided for it earlier, when she and her ex-boyfriend separated (SEF_Ella, 32, Paragraphs 46–47). Lastly, she mentioned that she was previously unaware of her reproductive abilities; by cryopreserving her oocytes, she learnt that it was possible to retrieve a good number, and this information gave her relief, that is, the feeling that she had done everything she could to give herself more reproductive freedom. When Ella reflected on her decision, she said: '[…] and even if I wouldn't use them here, I see it as an extremely good investment of money […]' (SEF_Ella, 32, Paragraph 29).

Maria described that OC had a symbolic meaning for her:

> '[F]or me it's like a new life. Especially on that day, a good friend of mine gave me a necklace as a present. The necklace and the medal are as… oocytes, it has its own design, each design was made as an oocyte, with a diamond, almost like, how do you say it, like birth. Like a present for birth. My oocytes were frozen on [day] [month] 2018. […] but the oocytes were removed from my body on that day. I'm, I'm very proud of these three oocytes (*laughs*) for me. Yes.' (SEF_Maria 41, Paragraph 73)

5.8.4.4 Who should be freezing

In conclusion, taking into acount all the motivations they had for their decisions, their experiences with the consultations and with the medical procedure and the fairly high costs, I asked the SEF women to whom they would suggest considering social egg freezing. They raised the following aspects for the potential target group:

- a woman who is young enough, being approximately in her mid-thirties, so that a high number of oocytes can be retrieved;
- a woman who is not (able) planning to have a child in the near future, but would consider having children at some point;
- a woman who is a university graduate, studying for a longer period of time and therefore postponing parenthood;
- a woman who has other priorities and dreams in life and therefore is postponing parenthood; and
- a woman who can afford the costs.

> 'I would suggest it to all women who are still young enough to have many oocytes retrieved and who are not planning to have children in the near future, but in general wouldn't want to exclude having children.' (SEF_Elisa, 32, Paragraph 68)

> 'Let me say, until the mid-thirties. After that, I believe the probability of retrieving enough oocytes or qualitatively valuable oocytes is no longer that great, but I don't know a lot about it. Well, where the limit is, from what age you can't retrieve that many oocytes.' (SEF_Elisa, 32, Paragraph 70)

> 'For sure, for university graduates who want study for a long period of time and therefore must push further into the future their wish for a child due to their education and probably, simply women who are in their mid-thirties and are single and have no partner on the horizon. For both groups, it makes sense. I also have to say, now I, I suggest it also to all of my female friends now. Well, I tell them all to do it for sure because there you cannot lose anything. Yes. If you have the money, of course you have to admit, it costs money, you should be able to afford it, therefore it's for academic graduates, that makes sense.' (SEF_Hanna, 32, Paragraph 66)

> 'Like me, when you first want to have your own life aspirations […].' (SEF_Maria, 41, Paragraph 83)

5.8.5 Conclusion: SEF women's freezing experiences

In this section, I have focused on *RQ 3(b)*, *women's experiences who had undergone SEF*. When summarising the results of the interviews with SEF women, it can be observed that their *motivations* to decide to undergo OC both differed and aligned. Only one woman mentioned her career, specifically her academic aspiration, as the main reason she decided to postpone motherhood with the SEF. For Maria, Hanna and Ella, the major motivation for choosing SEF

was not having the right partner when they felt ready to become mothers. Furthermore, Ella mentioned other reasons, such as the fear of having children born with disabilities in case of motherhood in a more advanced age, or that she would not have time to have several children due to the natural boundaries of female reproduction.

Women's experiences regarding their medical *consultation*, before they decided on SEF, were very diverse. The main points they mentioned were in relation to the consultation's atmosphere, the reaction they perceived towards their age and the information they received on the expected costs, risks, the medical procedure itself and the estimated chances or outcome of cryopreservation. It can be concluded that although most felt well informed about all of the relevant information, or at least did not mention many negative aspects, two participants clearly highlighted that the atmosphere of the consultation was negative and, in one woman's case, led her to choose one clinic over the other. Another participant felt no emotional support throughout the consultation.

As for the *medical procedure*, I analysed only three SEF women's responses, as Hanna had not yet conducted her cryopreservation at the time of the interview. Two out of the three participants—Ella and Maria—mentioned the fear or anxiety they felt in relation to the hormonal treatment and its side effects before the cryopreservation. Elisa and Maria reported the retrieval and the medical intervention's consequences negatively, using words such as 'swollen ovaries' and 'painful belly'. Maria even had to stay in the hospital for two weeks due to complications. Ella also used negative expressions to describe her experience, but balanced these with positive memories, such as quick recovery after the retrieval. Medical experts were able to retrieve oocytes for all three women, however, the numbers of successfully frozen oocytes diverged widely, namely three, 22 and 35 oocytes.

I have described the SEF participants' future plans for their cryopreserved oocytes under *outlook*. All of these women desired a (further) child and, in general, all preferred to conceive naturally first and would return to their cryopreserved oocytes to fulfil their childbearing wish only if this should not work out. If they did not return to their cryopreserved oocytes for any reason, two women would be open to offering them to be used by another woman, should such a donation be legally possible, while the other two SEF participants explicitly expressed that they would not consider donating their oocytes for such use. One participant even mentioned that she would be open to selling her non-used oocytes. Two would consider offering the oocytes for research purposes, should this prove an option, but one participant opposed such a course. Three would consider destroying their oocytes, but one participant mentioned that this would be her least preferred way, as it would mean the entire medical procedure being of no

benefit to anyone. Although some women described the cryopreservation process as painful, and one of them had already conceived and born children without returning to her frozen oocytes, none of the participants shared that they *regretted* choosing SEF. After their own personal experience of OC, SEF women shared ideas about *who should be freezing*. In summary, they suggest this method for young women who potentially want a child, but are deciding to delay motherhood due to university studies or other reasons and are able to afford the cost.

6 Discussion

In this current chapter, I discuss my research results alongside the preliminary posed three research questions, based on the twenty semi-structured interviews, I conducted. Furthermore, I address the conclusions and outcomes in relation to other existing international publications about SEF and highlight their relevance in the academic discussions.

6.1 The attitude towards SEF, the women who opted for SEF and SEF as an employee benefit

The first research aspect I focused on was RQ1, the participants' attitudes towards three attitude objects: (a) *SEF*, as the oocyte cryopreservation due to social reasons, (b) *women who opted for SEF* and (c) *SEF as a benefit* offered by employers. I defined this attitude on three levels—the participants' *beliefs*, *feelings* and *behaviour* towards the attitude objects—and analysed their direction and intensity (Allport 1935; Fishbein, Ajzen, 1975). Although all participants with no SEF experience had heard about SEF through the media or their university studies, most were unaware of the medical procedure's details yet showed strong interest in understanding the medical aspects, risks, availability and costs. All in all, they expressed strongly diverging attitudes towards the new reproductive opportunity, almost equally distributed between positive, negative and mixed or natural statements. This wide range of perceptions cannot only be observed between the participants, but also exists in the individual interviews. It implies that participants have no clear attitude towards SEF, whether in the negative or the positive direction. Out of the ten non-SEF female participants, three women would consider SEF (30%), another three were indecisive or showed a mixed reaction (30%), while four would decline the possibility to a certain extent (40%). Other attitude studies also report on women's willingness to use SEF for their reproduction, but although they provide indicative information, the different demographics of their participants disqualify them for comparative purposes. Whereas in a study conducted among Singaporean medical students, 70% of those aware of SEF would consider opting for it (Tan et al., 2014), among Lebanese participants only 45% of the women would consider SEF (Esfandiari et al., 2018). In one survey conducted in the US, 41% of the surveyed medical students would consider the procedure (Ikhena, 2016), but in another survey the public support was lower, as only 18% of the participants would do so (Lewis, 2016). Also, in Stoop's study (Stoop et al., 2011) the group of participants who would not consider SEF was higher (52%) than those who would (32%). In my study, all non-SEF male participants would either support their female partner in opting for SEF, or they would consider reproduction with their female partner's previously

banked oocytes. This implies that, as partners of women potentially interested in SEF, these male participants' perceptions would not affect negatively women's freedom to opt for SEF. Moreover, as male participants proved more open towards reproduction with SEF than their female peers in my research, it would be valuable to understand whether this gender difference originates from the fact that male participants would not have to undergo the hormonal and medical intervention, whereas female participants are more cautious and perceive more personal involvement with their bodies when SEF is discussed.

But it is not just the medical possibility of SEF that has its supporters and critics: the *women who opt for SEF* do so as well. Around half of the statements of the non-SEF participants show a positive attitude towards these women, but around one-fourth were framed negatively. As previous studies concluded (Mertes, 2013; Keglovits, 2015), these women's portrayals can be observed to cover a range in scientific publications and discussions, such as (1) selfish, career-pursuing women; (2) victims of a male-oriented society; (3) wise, proactive women; and (4) naïve consumers. Whereas my study's participants did describe such women as selfish and career-pursuing or wise and proactive, I identified no statements framing them as victims of a male-oriented society or as naïve consumers. Some participants highlighted that women might be forced to solve an individual problem—such as balancing the social expectations of motherhood and career—that was actually rooted in society, but made no explicit reference to this society as male dominated. No interviewee offered a detailed reflection on why women find it so challenging to succeed in both career and motherhood, and whether society and the labour market may be androcentric, i.e. setting traditionally male gender characteristic as norms and viewing female characteristics as deviations from these norms (Bem, 1993). Furthermore, participants perceived women's motivations in choosing SEF as mostly coming from their career, the lack of a suitable partner or in some cases financial or psychological readiness, or simply the ticking biological clock. Several studies have confirmed that women's reason for choosing cryopreservation—that is, whether the expected infertility is age-related or disease-related—impacts how they are perceived (Cobo et al., 2018; Daniluk and Koert, 2016; Feiler, 2020; Goold and Savulescu, 2009; Keglovits, 2015; Kostenzer et al., 2021; Lewis, 2016; Mertes, 2013; Petropanagos, 2010; Robertson, 2014; Sandor et al., 2017; ter Keurst et al., 2016; Van der Ven, 2017; Van de Weil, 2014). This rhetorical division can also be observed in 10 out of the 16 interviews I conducted with non-SEF participants. Whereas these interviewees see women opting for cryopreservation for disease-related reasons as the victims of their illness and as having no choice to have a biologically related child, they describe other women opting for the same medical procedure as making a conscious choice to

de-prioritise motherhood, therefore holding them responsible for their decision and for any unexpected consequences, such as involuntary childlessness or the birth of unhealthy children. Nevertheless, none of the participants would ban OC for either disease-related or age-related infertility. Whereas some participants would urge the introduction of an age-limit for the transfer of the thawed and fertilised oocytes, these named limits mostly align with current medical recommendations. These limits are also more liberal than in Sandor's research (Sandor et al., 2017), where IVF professionals would cap usage of the cryopreserved oocytes between age 40 and 45. Additionally, based on the preliminary defined variable of gender, it can be observed that male non-SEF participants are more likely to be supportive of their female partners undergoing SEF than female non-SEF participants are to opt for SEF. Yet these same male participants perceived women undergoing SEF more negatively than non-SEF female participants did, especially when the reason for the cryopreservation (age-related vs. disease-related) was addressed. This may imply that men show more support towards their own female partners considering SEF than towards other women who wish to opt for SEF due to age-related infertility.

I assessed the attitudes of both non-SEF participants and SEF women towards *SEF as an employee benefit* and concluded that they were mixed, as I identified almost as many positive statements as negative ones. Participants who believed that SEF does not support gender equality argued that there exist other challenges in society that cannot be solved by introducing and financing SEF, and that SEF ultimately only postpones the conflict of career and motherhood to a later age but does not solve the problem itself. Similarly to Vieth's (2016) arguments, participants claimed that companies are driven by their economic interests in keeping competent female employees focused on their work; they also judged that employers offer SEF to attract female talents and retain their younger female employees, whom they classified as more productive, more motivated and quicker learners than their senior peers. Other participants even believed this possibility may turn into an unspoken expectation, with employers intending to exploit those who use it for their own interests: this aligns with Feiler's (2020, p. 190) results, where the benefit was also described as a 'trap' for women, or Baylis's (2015, p. 65) conclusions, which emphasised that this benefit might disempower women through its underlying assumption that only childless women can have careers. Those participants who stated that SEF supports gender equality on the labour market argued that SEF affords women the same reproductive timeframe choices as men, thus giving them more freedom to plan their career paths; they also assume that women would face less career discrimination, as they would be less likely to leave their positions early on in their careers.

Thus, they, too, believe that employers want to enable women to concentrate on their careers, by providing flexibility for family planning. Aligned to other research results (BMFSFJ, 2021, p. 78; Johnston et al., 2022; Martinelli, 2015; Miner et al., 2021; Ravitsky & Lemoine, 2014; Schneider, 2017), I also confirmed that participants perceived other employee benefits as positively impacting gender equality and female employment, such as company childcare, re-integration programmes, flexible working conditions and active support for fathers becoming care-givers as well. Although participants perceived employer intentions in offering SEF as a benefit as driven by self-interest rather than by a real concern for gender equality and female careers, many would still find an employer offering this benefit attractive and, in certain cases, even prefer them over another one not providing financial support for SEF. Three out of the four SEF women would have welcomed such a benefit for their own cryopreservation. The variable *personal experience with SEF*, applied in the research, indicates that SEF women were more likely than non-SEF participants to prefer an employer with a SEF policy, mostly because they were also more positive about SEF as a means of supporting gender equality. This suggests that once the personal interest or need for SEF exists, SEF as an employee benefit could positively affect employer attractiveness and employee experience, but in case of non-interest it could be seen critically by the target group. As employers consider how they can attract young talents, and whether to offer SEF, it can be concluded that the target group may perceive SEF as an interesting employee benefit that could improve gender equality, in the sense of overcoming certain biological boundaries and extending the female reproductive timeframe, therefore achieving similar reproductive choices as men have. On the other hand, SEF as a benefit itself will not solve gender equality, and additional irreplaceable measures remain as important as before. Therefore companies, even if they are considering offering SEF as an employee benefit, are advised to invest in other benefits addressing the root of gender equality on the labour market.

6.2 Social norms in relation to SEF

A further aspect of my research was RQ 2(a), that is, understanding what perceived social norms would increase the chances of opting or not opting for SEF among both non-SEF and SEF participants. I assessed this research question on three levels of perception, linked to: (1) neoliberal feminism, (2) internalised social norms related to reproduction and (3) the meta-perception, i.e. how participants believe society sees SEF and the women who choose it. Cattapan et al. (2014) linked SEF to the narratives of neoliberal feminism, and I identified some of these narratives among my interviewees as well. Participants not just highlighted that SEF

tends to provide an individual solution to a social problem, as described above, but linked its high costs to its limited accessibility and therefore its luxurious attribute and to the social privilege and social inequality, aspects mentioned in previous studies (Tarasoff, 2014; Ravitsky, 2014, p. 3). Nevertheless, for those who can afford it, they perceive it SEF as a free choice and as the extension of freedom, as long as no social pressure is applied, or other hidden interests are involved, e.g. the employer's, as discussed above. The interview results confirm that the *having it all generation's* (van de Wiel, 2014) list comprises conflicting individual wishes and social expectations for (largely) one's twenties and thirties, such as pursuing an academic degree, establishing a career and aiming for financial independence and stability, having the right partner and becoming a parent, and that some participants do not wish to prioritise one over the other.

As Baldwin et al. (2014) and Scala and Orsini (2022) already highlighted, women face challenges due to social norms and struggle to gain acceptance if they do not become mothers at the 'right time'. Even IVF professionals have argued parents that should be alive until the children grow up, and accordingly did not support postponed motherhood in Sandor et al.'s study (2017). Women deviating from this timeframe by being either too young or too old may face ageism (Baldwin et al., 2014). In my research, non-SEF participants set the latest acceptable age to become a mother with SEF at an average of 47.6 and SEF participants set it at 51.3, both mostly referencing the physical impacts of a pregnancy and the child's wellbeing. Participants referred to media coverage of older celebrities or successful pregnancies of friends in more advanced age. Some also mentioned that children may be stigmatised and become victims of the ageism originally targeted at their elderly parents (Harwood, 2009; Wunder, 2013), as actual parents may look like and perceived to be grandparents by others and therefore sharing concerns about the children's mental wellbeing, like children being ashamed of their elderly parents. Furthermore, participants confirmed similar points to Van der Ven (2017), arguing that children of elderly parents may face the challenge of early responsibilities, such as taking care of their parents as early as adolescence and not having enough years to live with them due to their advanced age. No participant, however, discussed the mental wellbeing of children born with SEF, in contradiction to the negative comment mentioned in the preliminary study (Keglovits, 2015). Although some participants addressed the advantages of nuclear families—i.e. that it is preferable to avoid single motherhood—only one SEF participant expressed a negative perception of achieving pregnancy with a sperm donor, as she sees knowing one's biological father as essential to a child's psychological development. Adoption was mentioned only once in a positive connotation, as a parenthood alternative preferable to

SEF. Participants spoke negatively of female childlessness, regardless of its voluntary or involuntary nature, either by making general statements or by sharing their personal experiences, such as parents pressuring them to become mothers. Some compared to other measures enabling reproductive freedom, such as abortion and contraception, in line with the arguments of Vieth (2016) and Rybak (2009).

Participants also expressed their meta-perception of SEF, that is, how they believe society perceives the medical procedure and the women who opt for it. In conclusion, most participants expect society to react very controversially, partially because the procedure is new and unknown. They linked the meta-perception to stereotypes framed as polarities, such as that individuals living in cities would be more accepting than individuals living on the countryside. Similarly, they expected younger people to be more open than older people, and the non-religious more accepting than the religious. In line with the meta-perception on the city-countryside polarity, Wennberg et al. (2016) in their attitude research concluded a greater acceptance towards SEF in the urban cohort than in the national cohort. Brezis (2011), Dembinska (2012) and Lewis (2016) also highlighted that religious affiliation may influence one's attitude towards SEF, as participants belonging to a religious minority were more likely to disapprove of SEF than atheist or agnostic participants. The participants of my own research further assumed that society will link SEF to women's descriptive and prescriptive gender roles related to motherhood and blame women for prioritising career or selfish, individualistic goals over childbearing and family. They expected society to envy these women, but mostly for their ability to afford such an expensive medical treatment. On a positive note, some participants believed the society may see SEF as an opportunity and admire the women who take advantage of it.

6.3 Control factors of SEF

With RQ 2(b), I assessed non-SEF participants' perceived behavioural control factors of opting or not opting for SEF and compared them with the SEF participants' actual behavioural control factors in choosing the procedure, addressed in RQ 3(a). I defined these behavioural control factors as the individual's wish for a child, what they believe would be the right age to freeze, how information on SEF is available and gathered, how the costs of this expensive medical process may be covered and the state of the support network, such as family and friends' reactions to SEF. SEF is intended, in general, to enable women to preserve their fertility for future childbearing plans, either because they wish to have a child but do not feel it to be the right time, or because they are indecisive about their childbearing plans. Therefore, the first

control factor for SEF is the participant's *wish for a child*. Similarly to all SEF participants, almost all non-SEF participants expressed a wish to have a child, with a minority still indecisive. Non-SEF participants perceived the *right age to freeze* the oocytes to lie between 21.5 and 35, with an average age of 27.5. Most of the non-SEF female participants neither had passed this age, nor the average age, when SEF participants opted for SEF (average age 32.3), nor the age, which medical experts define as ideal. Other publications report an even higher average age among female participants who opt for SEF, such as age 36 (Greenwood et al., 2017), 37 (Hammarberg et al., 2017; Yee et al., 2017), 38 (ESHRE, 2010) or 38.6 (Gold et al., 2006; Vallejo et al., 2013). Therefore, the non-SEF female participants of the current research seem to be at the right age for SEF, both based on their own perceptions and medical opinion, and are younger than SEF women in this or other research. As per Van de Wiel's definition (2015), if the non-SEF participants were to opt for SEF in the next years, they would become freezers with 'anticipated infertility', thus undergoing cryopreservation while still highly fertile and with a higher chance of success, and could avoid becoming 'last-minute' freezers, with expected lower childbearing success.

As Rybak (2009) concluded, the ethical success of SEF depends on the transparency provided to potential users about the possibilities, chances, and related risks. Harwood (2009) highlighted that information sources must avoid conjuring up false hopes, which may create doubly disadvantageous situations for vulnerable women approaching the end of their fertility. In this research, I did not assess the quality of the information source, but rather the channel. Both non-SEF and SEF participants named the internet as their potential and actual initial source of information. They also named gynaecologists and medical experts as another means of information gathering, in some cases even calling them their most reliable information source. None of the participants mentioned the egg-freezing parties organised by certain fertility clinics, which Van der Ven (2017) has described as a means of information gathering in a less formal atmosphere than that of a clinical consultation.

Based on several studies (e.g., Cardozo et al., 2020; Stanton et al., 2014), SEF's high costs are a major concern that makes the medical opportunity less appealing to the target group. Whereas all SEF participants financed the costs from their own savings, thus without financial support of their families or without applying for credit, not all non-SEF participants believed they would currently be able to afford the costs by themselves, but could do so with family help or alternatively after entering the labour market. As they were all positive that they could find a way of financing SEF sooner or later, the costs seem to be neither a perceived behavioural control factor among non-SEF participants not an actual control factor among SEF participants.

This implies that SEF's high costs would not prevent the interviewed non-SEF participants from opting for the medical possibility, and that based on their current or expected future financial background they could be defined as SEF's target group.

Lewis (2016) highlighted that participants' comfort levels with sharing their SEF decision with others depends on with their demographic characteristics. Individuals from a minority group, living in a Republican state or aged 45–65 are less likely to share this information. On the other hand, ter Kuerst et al.'s (2016) research participants did not perceive their families as unaccepting of SEF. Similarly in the current research, non-SEF participants believed they would have a supportive network; they would exclude those persons they believe would be unsupportive from the decision making or the information wouldn't be shared with them, but they wouldn't hinder explicitly their decision. The SEF women also described receiving support from their friends, mostly from female friends or a husband. They related how they usually brought family members or parents into their circle of trust only after they had already made their decision, or the cryopreservation had already been conducted. Therefore, the support network—both as perceived behavioural control factor among non-SEF participants and actual control factor among SEF participants— did not feature as a major obstacle to opting for the procedure.

6.4 Freezing experience

I focused my interviews with women who chose SEF on their experiences, as addressed by RQ 3(b), by mainly discussing their motivations, their experiences throughout the consultation and medical process, their intentions as regards returning to their cryopreserved oocytes, or their potential plans for any unused oocytes, and finally their reflection on the decision as a whole, that is, whether they regretted opting for SEF or not.

Previous studies (e.g., Baldwin et al., 2015; Baldwin et al., 2018; ESHRE, 2010; Gold et al., 2006; Hodes-Wertz et al., 2013; Inhorn et al., 2020; Jones et al., 2020; Stoop et al., 2014a; Tozzo et al., 2019; Vallejo et al., 2013) confirmed that women's main *motivation* in opting for SEF is mainly that they have not yet found the right partner. In my research, three out of four SEF participants also cited the lack of a partner for childbearing plans, while the one married participant chose SEF because she would not have been able to continue her lab research for her doctoral degree while pregnant and therefore wanted to postpone her childbearing plans. As Baldwin et al. (2018) and Inhorn et al. (2022) observed in their research, some women's decisions about SEF can be linked to negative experiences or trauma, such as a relationship

ending, a birthday or health issues: one SEF participant mentioned that her father's death made her reassess certain aspects of her life and triggered her decision to opt for SEF.

The ESHRE (2020) advises reproductive clinics to inform women during OC consultation about certain topics, such as fertility prevention and treatments, cryopreservation, storage and the potential pregnancy. The four SEF participants reported mixed experiences, even highlighting the clinics' different atmospheres, which also led to prioritising one over the other. For instance, one of the participants, 32 at the time of the consultation, was advised to sign up for a dating site rather than opt for SEF. Another participant felt not fully informed about cryopreservation in detail, claiming to have received no clear descriptions. Other SEF participants mentioned no negative experiences regarding information about OC's costs, risks and chances. With regard to the medical procedure itself, two SEF participants described fear of the hormonal medication or the medical intervention itself; this aligns with Greenwood et al.'s (2017) study, in which women claimed that the involvement of a mental health professional would have improved their cryopreservation experience, as they felt a lack of emotional support, loneliness and hopelessness. The fear SEF participants expressed was not unfounded. Although SEF has numerous times been described as a luxury tool for women (e.g., Mertes and Pennings, 2011), a procedure characterised by ease and simplicity, two out of the three interviewees who undergone oocyte retrieval experienced painful days, or weeks, in one case even with a two-week hospital stay. These interventions also led to different successes. The number of oocytes expected to be retrieved in one round varies widely depending on the patient's age and other individual health factors or genetics. Published opinions on the appropriate number of oocytes to be banked to ensure a fair chance at future pregnancy diverge sharply: whereas Cobo et al. (2016) propose banking 8–10 oocytes for women under 36, Oktay et al.'s (2006) meta-analysis suggests 22 oocytes for the same age group. Brower et al. (2014) recommend banking 103 oocytes for women at the age of 42. In previous studies, participants have cryopreserved on average 13 (Baldwin et al., 2015, p. 240), 14.2 (Hammarberg et al., 2017), 18 oocytes (Greenwood et al., 2017) or 9.5 (Kakkar et al., 2023). In the current research, the three SEF women had diverging success rates for one round of oocyte retrieval. The oldest woman at the time of the cryopreservation was 39 and banked three oocytes. The second oldest woman was 31 and successfully cryopreserved 22 oocytes. The youngest woman banked 35 oocytes[28] at the age of 27. Whereas the average number of oocytes per woman is 20, the differences are significant on the individual level. Although this research represents a very

[28] In the interview it was not explicitly mentioned whether this number refers to the number of the retrieved or the cryopreserved oocytes.

small sample and no medical conclusion can be drawn, it may be observed that the younger the woman, the more successful the retrieval.

SEF participants highlighted that they would return to their cryopreserved oocytes should they fail to fulfil a desired pregnancy naturally, but that they would first try to conceive without thawing the oocytes and applying ART. Their plans for any cryopreserved oocytes they did not return to, however, strongly differed. Whereas two of the four women clearly stated that they would consider donating their oocytes to another woman, the other two would not, even if this were legal in their country. Only one woman mentioned that she could imagine selling the oocytes, as destroying them would be her least favoured option. Two women were also in favour of offering the oocytes for research purposes, whereas one woman was clearly against it. The ESRE (2010) reported that women who have undergone OC would rather donate their unused oocytes for research (45%) than to another woman (13%). In Baldwin et al.'s (2015) research, 14 of the 16 interviewed participants would donate their unwanted eggs to other women or to research. Tozzo et al. (2019) concluded that most participants (65%) preferred not to donate their oocytes to someone they knew, but that some (43%) would still consider donating them to the biobank. At the time of my interviews, no participant had regretted her decision. One SEF woman, who has had two children since the procedure, still judged SEF to have been a good decision, as she did not know at the time of cryopreservation that she would conceive naturally, and that her plans would change. Giannopapa et al.'s review (2022) as well as Jones at al.'s (2020) and Wafi et al.'s (2020) study reports also found no real regret amongst women who chose SEF; for some in my research, the only regret was not opting for SEF earlier. This insight is similar to the results of Yee et al. (2017), Gold et al. (2006) and Vallejo et al. (2013), as most of their participants wished they had been aware of the possibility earlier. Greenwood et al. (2017), meanwhile, reported that one third of their participants mildly and 16% strongly regretted undergoing SEF. The SEF participants in my own research suggested that women should consider SEF if they wish to have children at some point, but not in the close future due to other circumstances and priorities, and are simultaneously still young enough to effectively cryopreserve enough oocytes.

7 Conclusion

I have focused this research on social egg freezing, a modern reproductive technology that may enable women to cryopreserve their oocytes and thereby expand their fertility to a more advanced age than would be biologically possible. Although oocyte cryopreservation has been available to women choosing it for certain medical reasons, it has gained more relevance in

ethical and social discussions since it has also become available to women choosing it for so-called social reasons, and since some US employers now even provide financial support it. Over the last centuries, our Western society has changed in manifold ways: life expectancy has significantly increased and traditional gender roles have shifted dramatically, due to women's higher representation in the labour market and academia. Yet the timeframe of female fertility remains unaltered. Thus, the socially ideal time and the biologically ideal time to become a mother has narrowed; SEF's proponents claim that it offers a medical solution to expand this timeframe. With my research, I have aimed to address SEF's potential target group in Germany, i.e. female and male university students and young graduate professionals in the urban areas who may be able to afford the related high costs, and potentially face delayed childbearing or even risk unwanted childlessness and may see SEF as a means of reproduction. I set out to understand this target group's attitude towards SEF, women who opted for SEF and SEF as an employee benefit by applying the Tripartite attitude model. Furthermore, I needed to discover the perceived social norms and behaviour control factors that influence individuals to opt or not opt for SEF, based on the Theory of Planned Behaviour. In order to provide an overarching picture of SEF's perception, I invited women who had chosen the medical procedure to share their experiences. My dissertation builds on international research results and with its outcomes contributes to the scientific discussion about SEF.

I may summarise the key results of my research alongside the research question as follows. Attitudes towards SEF among female and male participants with no personal experience of the procedure are very diverse and mixed, as individuals argue both negatively against and positively for this medical opportunity to expand female fertility. Although they see the freedom SEF might bring, they are also concerned about its impact on society, women and the unborn child. Whereas only approximately one third of the female participants would consider opting for SEF, all male participants could imagine supporting their female partner in cryopreserving her oocytes. The same participants' attitudes towards women who have undergone SEF are mainly positive, as they appreciate the biological and social challenges they face, such as finding a suitable partner, the demands of academic studies and career and biological aspects of childbearing. Still, some criticised deviation from traditional gender roles, such as prioritising career over motherhood and showed also more support towards women, who opted for cryopreservation due to medical reasons than due to social reasons. All in all, no participant suggested banning SEF, and only a few would more strictly regulate the age limit for using cryopreserved oocytes than limits suggested by current German medical guidelines. Finally, participants viewed SEF as an employee benefit positively, especially those

women who already had personal experience with SEF. Although most interviewees highlighted how SEF could improve gender equality in the labour market and provide more flexibility for women to align career and family plans, they did not define SEF as an ultimate solution for this conflict. Additionally, they believed that employers providing this benefit are not necessarily motivated by a desire to help women with family planning, but by their own interests in keeping female employers focused on their careers and away from care-giver roles such as motherhood. Nevertheless, many participants would welcome such a benefit package from an employer.

Participants mentioned perceptions linked to norms that are supportive of women opting for SEF, such as the freedom of *choice* and a *chance* for women to *have it all*, that is, time to find the right partner with whom they wish to start a family, concentrate on their careers in their thirties and establish financial stability before deciding on parenthood. They also set the *latest acceptable age* for motherhood beyond the biological boundary, the start of menopause. Some even argued that reproduction should not be expected to necessarily follow the *rules of nature*, thus welcoming ART, and that SEF would be *just the next step* towards reproductive freedom. The perceptions and meta-perception influencing a woman's decision not to opt for SEF would be that the concept of SEF emphasises *individual responsibility* and shifts the focus from societal responsibility in balancing working life with private life. Additionally, only *privileged women* could afford this medical solution, so its costs exclude most women from its target group. Participants expected *becoming mother at a more advanced age* to be more stigmatised than becoming father at the same age, and furthermore assumed that the *children* would become victims of this negative judgement as well. They expected society's controversial perception of the new reproductive technology to hold women back from opting for SEF, addressing negative views such as the egotistical image of women who choose it and the stigmatisation of focusing on career instead of childbearing- and caring, especially among those with certain demographic characteristics, such as those living in the countryside, belonging to the older generation, and being religious.

Non-SEF participants also perceived the behavioural control factors of opting or not opting for SEF similarly to the actual control factors reported by the SEF participants. The non-SEF participants either wished to have a child or had not yet decided; they assessed the right age to freeze within the medically advised timeframe; they believed that they would have access to the right information and would be able to finance the costs by themselves now or in the near future, or alternatively that they would be able to count on their families' financial support. They believed themselves to have close friends and family who could act as a support network

were they to express interest in SEF. SEF women either wished to have a child or already had children. Similarly to the non-experienced participants, SEF women also gathered information on the internet, from their gynaecologists and in reproductive centres to make their decisions, and financed the medical procedure from their savings, without any financial support from relatives or institutions. These women also had a support network with whom they shared their thoughts and decisions, yet either excluded some family members from the decision-making or did not share that they had undergone SEF with them at all.

Analysing these SEF women's experiences reveals that most chose SEF because they lacked a suitable partner with whom to start a family; only one woman cited pursuing her academic career as a motivation. They judged some consultations as providing no clear medical details or emotional support—a medical professional once even negatively commented on a participant's lifestyle choices. They described the medical intervention most negatively of all, emphasising the discomfort, pain and unexpected complications. The three SEF women all underwent one round of cryopreservation, on average at the age of 32, with very different success rates, but on average cryopreserved 20 oocytes. Once these women feel themselves and their circumstances ready for motherhood, they would prefer to conceive naturally, but would return to their banked oocytes should that prove unsuccessful. Should they not use their oocytes, they would either donate them, offer them for research purposes or let them be destroyed. However, some women did not see donation and research purposes as acceptable options, as they were conscious of their genetic relation to the material; accordingly, they would either use them for their own pregnancies or not have them be used at all.

To offer concluding remarks to these research questions, I would like to highlight seven observations.

1. *SEF is a new phenomenon and triggers curiosity among non-SEF participants.* Both female and male participants with no personal experience confirmed that they had heard about SEF; although most were unaware of the medical process in detail, including its risks and potentials, they showed strong interest in understanding it and posed numerous questions, with special focus on the success rate and the applicability.
2. *Men support women undergoing SEF.* All male participants would support their female partner's wish to cryopreserve their oocytes, or they would not oppose her using her previously cryopreserved oocytes to fulfill her wish for a child. However, they would like to understand the motivation and be involved in the decision if the child in question is theirs as well.

3. *Women's motivation to opt for SEF is perceived to be career and confirmed to be the lack of partner.* Whereas non-SEF participants mention career as the main reason they assume one opts for SEF, almost all of the SEF women name the lack of a suitable partner as the reason they postponed motherhood by cryopreserving their oocytes.
4. *The reason for the cryopreservation impacts how the women who undergo the treatment are perceived.* Women who opt for cryopreservation due to medical reasons received more acceptance and empathy than women undergoing the same medical process but due to social reasons. Therefore, women cannot always decide freely, without potential judgement or even reproductive restrictions, if they do not possess a socially validated reason, such as physical sickness, to do so.
5. *Women who opt for SEF garner both sympathy and blame.* As long as participants were disucssing women's motivations for undergoing SEF, such as career or lack of a partner, they showed understanding and sympathy: they expressed how difficult it is to find the right partner and acknowledged that little time remains after finishing academic education, starting work and establishing financial security until the biologically most advantageous timeframe for female reproduction closes. Yet these same participants described women who had undergone SEF as careerist (with negative connotations), as women who push back having children, while branding SEF as a construct of the meritocracy and discouraging the medical process for social reasons in comparison to medical reasons..
6. *The support network may consist of emotional and financial support.* On the one hand, some non-SEF and SEF participants mention that they would leave out—or indeed have left out—close family members from their decision-making about cryopreservation. On the other hand, several non-SEF participants highlighted that they would currently have to rely on their families' financial support to afford SEF, thus these family members probably cannot be left out of the decision-making and should be informed about the cryopreservation plans. Therefore, these family members' potential negative attitude towards SEF or disapproval of financially supporting SEF could be a control factor for these participants.
7. *Participants may not see SEF as a benefit made with the best of intentions towards female employees and their careers, but still welcome it.* Although participants perceived employers' intentions in offering SEF as a benefit as made more out of self-interest than true interest in supporting gender equality and female careers, many would

still find such an employer attractive and potentially prefer them over another not offering SEF financial support.

As I explained when laying out this research's original objective, this dissertation contributes to the international academic discussion on social egg freezing by addressing the German target group and analysing their attitude towards SEF with a qualitative research method, and confirming that the majority recognises SEF's potential to extend female fertility and serve as a means of reproduction in society, even if they personally would not necessarily consider this method for family planning. Contrary to other existing attitude research studies, I explicitly addressed men in the discussion and concluded that these male participants would be open to supporting their female partner to cryopreserve their oocytes, or would consider having children with their female partner's previously cryopreserved oocytes. This is a meaningful outcome as men also play a crucial role in reproduction, and without their support of oocyte preservation, women could face further challenges to fulfil their wish to have a child with this method: for example, a single woman might opt for SEF and later on in life find the right partner to start her family with, but then learn that her male partner objects to conceiving a child with previously cryopreserved oocyte, due to the method's artificial, unromantic nature or the additional risks and costs associated with in vitro fertilisation. Moreover, my research has highlighted the sociological context in which the opportunity of SEF was created and offered as a valid solution for a sociological problem. As described above, the participants and their experiences confirm the perceived gender inequality in society and the labour market, but they do not believe that SEF can be the ultimate solution. I also explicitly addressed the target group perception of, and their need for, SEF as an employee benefit. Whereas they expect employers to act to minimise the existing gender inequality and support parental employment in the labour market, they welcome SEF as only one of multiple possible employee benefits, and do not believe that it can replace other supportive measures and benefits. Last but not least, this research contributes to German academic discussion about the motivations and experiences of women who already decided and opted for SEF, although only a small number participated in the interviews.

To further dig into and validate the above-mentioned results and observations, researchers could assess whether non-SEF participants with detailed medical knowledge about the oocyte cryopreservation, i.e. success rate and medical intervention, feel differently about SEF than participants without a deeper understanding of the medical process. Additionally, although this research's male participants supported women undergoing SEF, they did not generally perceive SEF as an ultimate solution to gender equality in the labour market or to combining private and

work life. Therefore, it would be valuable to understand how they would reflect on and perceive their role as future fathers to support gender equality —with or without women opting for SEF. Both in other research and in the current study, SEF women mostly opted for cryopreservation because they had no ideal partner with whom to share parenthood. I suggest further research into what factors play a role in not having the ideal partner present at the biologically most advantageous age for reproduction, i.e. women and/or men prioritising individual goals over partnership; facing challenging events in their lives, such as taking care of or losing parents; working on mental issues, etc. Last but not least, to facilitate effective financial investment into benefit offers, employers could research which policies supporting family planning employees would most appreciate and believe to best support gender equality on the labour market the most by asking participants to rank different benefits, such as paid parental leave, day-care support or SEF. As the target group in my research showed high interest in SEF by posing questions about the medical procedure, I would suggest gynaecologist to include the opportunities and risks of SEF in their regular consultations, in order to ensure professional and factual information to the target group. In light of the changing governmental support through parental allowance among higher earner families, it would be interesting to learn whether more women will now consider further postponing motherhood and preserving their fertility with SEF.

I should also mention the limitations of this research. As for the participants, this investigative study included only a small and non-representative sample, as I interviewed only 10 non-SEF women and six men, and the participant numbers were not equal across the variables of gender and SEF experience. I could reach only four women who had chosen SEF and were willing to participate in the study, and one of them was still in the consultation phase at the time of the interview and cryopreserved her oocytes shortly afterwards. Additionally, the non-SEF target group of the research could have been extended with a further variable, i.e. participants who have spent a longer period of time at the labour market, might have had built a successful career and therefore have personal experience about challenges with regard to career- and family planning, or prioritizing one over the other. These non-SEF participants could have brought new insights into the research and therefore the non-SEF students' perspective could have been complemented. With regard to the theory applied, I used the Tripartite model () to analyse the participants' attitudes towards the attitude objects. Whereas participants were able to express their beliefs and potential behaviours, they struggled to verbalise their feelings, especially about women who opted for SEF and about SEF as employee benefit. The applied Theory of Planned Behaviour (Ajzen, 1985; Ajzen, 2005) focuses on the

individuals' intentions to perform a behaviour, and whereas it considers by the individual perceived social norms and perceived control factors to opt or not to opt for the behaviour, the current research results focused less on the societal aspects of SEF and more on the individual attitude. The participants' beliefs, e.g., about women who underwent SEF, were not always questioned or challenged for deeper understanding. By extending the interviews, it would have been feasible to gather this data for further valuable results. Furthermore, the previously circulated FAZ article about SEF could have an influence, a priming-effect (Bermeitinger, 2015) on the participants' perception about SEF and women, who opted for SEF. This could have been avoided by not sharing any material with the participants, and risk that some participants may not have been able to relate to the interview questions, as they are not familiar with the concept of SEF. A further alternative could have been to establish a control group, who would not have received the FAZ article before the interview. Additionally, the flyer used for the recruitment illustrates a frozen pacifier, and could have had a priming-effect on the participants or on the potential participants, who decided not to take part in this research. Finally, it may be assumed that only non-SEF participants took advantages of the interview, who had some initial interest in research topic and was motivated to spend time and discuss this reproductive technology.

8 Bibliography

Aarntzen, L., Derks, B., van Steenbergen, E., & van der Lippe, T. (2023). When work–family guilt becomes a women's issue: Internalized gender stereotypes predict high guilt in working mothers but low guilt in working fathers. *British J Social Psychol., 62*(1), 12-29. https://doi.org/10.1111/bjso.12575

Ahuja, K. K., & Simsons, E. G. (2006). Advanced oocyte cryopreservation will not undermine the practice of ethical egg sharing. *Reproductive BioMedinice Online*, *12*(3), 282-283. https://doi.org/10.1016/s1472-6483(10)60997-2

Ajzen, I. (1985). From intentions to actions: A theory of planned behavior. In J. Kuhl, & J. Beckman (Eds.), *Action-control: From cognition to behavior.* Heidelberg: Springer.

Ajzen, I. (1991). The Theory of Planned Behavior. *Organizational Behavior and Human Decision Processes, 50*(2), 179-211. https://doi.org/10.1016/0749-5978(91)90020-T

Ajzen, I. (2005). *Attitues, personality and behavior.* UK: Open University Press.

Ajzen, I. (2019). *Theory of planned behavior diagram*. UMAS. Retrieved November 6, 2023, from https://people.umass.edu/aizen/tpb.diag.html

Ajzen, I., & Cote, N. G. (2008). Attitude and the Prediction of Behavior. In W. Crano, & R. Prislin (Eds.), *Attitude and Attitude Change.* New York: Psychology Press.

Ajzen, I., & Fishbein, M. (1980). *Understanding attitudes and predicting social behavior.* Englewood Cliffs, NJ: Prentice-Hall.

Allport, G. W. (1935). Attitudes. In C. Murchison (Ed.), *A handbook of social psychology.* Worcehster: Clark University Press.

Almeida Ferreira Braga, D.P., Souza Setti, A., M.Sc., Sávio Figueira, R. C., de Castro Azevedo, M., Iaconelli, A. Jr., Lo Turco, E. G., & Borges, E. Jr. (2016). Freeze-all, oocyte vitrification, or fresh embryo transfer? Lessons from an egg-sharing donation program. *Fertility and Sterility, 106*(3), 615-622. https://doi.org/10.1016/j.fertnstert.2016.05.004

American Psychological Association. (2022, September 8). *Common Reference Example Guide, 7th edition*. From APA Style: https://apastyle.apa.org/instructional-aids/reference-examples.pdf

Argyle, C. E., Harper, J.C., & Davies, M.C. (2016). Oocyte cryopreservation: where are we now? *Human Reproduction Update, 22*(4), 440-449. https://doi.org/10.1093/humupd/dmw007

Avraham, S., Machtinger R., Cahan T., Sokolov, A., Racowsky, C., & Seidman D.S. (2014). What is the quality of information on social oocyte cryopreservation provided by websites of Society for Assited Reproductive Technology member fertility clinics? *Fertility and Sterility, 101(1)*, 222-226. https://doi.org/10.1016/j.fertnstert.2013.09.008

Bachmann, G. (2018). Need for Comprehensive Counseling in Women Requesting Oocyte Cryopreservation. *J Womens Health, 27*(3), 227-230. https://doi.org/10.1089/jwh.2017.6423

Balasch, J., & Gratacos, E. (2012). Delayed childbearing: effects on fertility and the outcome of pregnancy. *Curr Opin Obstet Gynecol., 24*(3), 187-193. https://doi.org/10.1097/GCO.0b013e3283517908

Baldwin, K. (2015). Oocyte cryopreservation for social reasons: demographic profile and disposal intentions of UK users. *Reprod Biomed Online, 31*(2), 239-245. https://doi.org/10.1016/j.rbmo.2015.04.010

Baldwin, K. (2016). *Ice, Ice, Baby? A Sociological Exploration of Social Egg Freezing.* Leicester: De Montfort University.

Baldwin, K. (2017). ‘I suppose I think to myself, that’s the best way to be a mother’: how ideologies of parenthood shape women’s reproductive intentions and their use of social egg freezing. *Sociological Research Online, 22*(2), 20-34. https://doi.org/10.5153/sro.4187

Baldwin, K. (2018). Conceptualising women’s motivations for social egg freezing and experience of reproductive delay. *Sociol Health Illn., 40*(5), 859-873. https://doi.org/ 10.1111/1467-9566.12728

Baldwin, K., Culley, L., Hudson, N., & Mitchell, H. (2014). Reproductive technology and the life course: current debates and research in social egg freezing . *Human Fertility*, *17*(3), 170-179. https://doi.org/10.3109/14647273.2014.939723

Baldwin, K., Culley, L., Hudson, N., & Mitchell, H. (2018). Running out of time: Exploring women’s motivations for social egg freezing. *Journal of Psychosomatic Obsterics & Gynecology. 40*(2), 166-173. https://doi.org/ 10.1080/0167482X.2018.1460352

Bauer, Zs. (2013). Bound together by Fate and Faith. A Qualitative Analysis of Online Discussions on Assisted Reproduction in Hungary. *Proceedings of FIKUSZ ’13 Symposium for Young Researchers* (pp. 109-122). Budapest: Óbuda University.

Baumann, H. (2017). Stories of women at the top: narratives and counternarratives of women’s (non-) representation in executive leadership. *Palgrave Commun., 3*, Article 17009. https://doi.org/10.1057/palcomms.2017.9

Baylis, F. (2015). Left Out in the Cold: Arguments Against Non-Medical Oocyte Cryopreservation. *J Obstet Cynaecol Can., 37*(1), 64-67. https://doi.org/ 10.1016/S1701-2163(15)30365-0

Beck-Gernsheim, E. (2016). *Reproduktionsmedizin und ihre Kinder.* Salzburg: Residenz Verlag.

Bem, S. L. (1993). *The lenses of gender: transforming the debate on sexual inequality.* London: Yale University Press.

Ben-Rafael, Z. (2018). The dilemma of social oocyte freezing: usage rate is too low to make it cost-effective. *Reproductive BioMedicine Online, 37*(4), 443-448. https://doi.org/ 10.1016/j.rbmo.2018.06.024

Benaglia, L., Fornelli, G., La Vecchia, I., Sterpi, V., Basili, L., Viganò, P., & Somigliana, E. (2023). Elective oocyte freezing for fertility preservation in endometriosis: Opportunity or resource wastage? *Journal of Endometriosis and Uterine Disorders, 1*, 1-7. https://doi.org/10.1016/j.jeud.2023.100017

Benard, S., & Correll, S. J. (2010). Normative Discrimination and the Motherhood Penalty. *Gender and Society*, 24(5), 616-646. https://doi.org/10.1177/0891243210383142

Bermeitinger, C. (2015). Priming. In Zheng, J. (Ed.), *Exploring Implicit Cognition: Learning, Memory, and Social Cognitive Processes* (pp. 16-60). Hershey, PA: Information Science Publishing.

Bernstein, S. (2015). *Zwischen Technikglaube und Selbstbestimmung - Einfrieren von Eizellen gesunder Frauen. Inaugural-Dissertation.* Göttingen: Georg-August-Universität zu Göttingen.

Bernstein, S., & Wiesemann, C. (2014). Should Postponing Motherhood via "Social Freezing" Be Legally Banned? An Ethical Analysis. *Laws*, *3*(2), 282-300. https://doi.org/10.25595/513

Bertram, H. (2017). Von starren zu atmenden Lebensläufen: Berufliche Integration von Frauen und Fertilität. In K. van der Ven et al. (Eds.), *Social Freezing. Die Möglichkeiten der modernen Fortpflanzungsmedizin und die ethische Kontroverse* (pp. 30-34). Wiesbaden: Springer Fachmedien Wiesbaden GmbH.

Bertram, H., & Deuflhard, C. (2014). *Die überforderte Generation. Arbeit und Familie in der Wissensgesellschaft.* Opladen: Barbara Budirich.

Beruf und Familie. (2020, March 25). *Umfrage zeigt: Wunsch nach Vereinbarkeit ist grundsätzlich keine Frage des Alters*. From Berufundfamilie: https://beruf-und-familie.blogspot.com/2020/03/CiveyUmfrageAlter.html

Best, D. L., & Williams, J. E. (2006). A biológiai, illetve a társadalmi nemek és a kultúra. In L. L. A. Nguyen (Ed.), *Kultúra és Pszichológia.* Budapest: Orsis Kiadó.

Bittner, U. (2009). A reply to Karey Harwood. *Bioethics, 23*(9), 525. https://doi.org/10.1111/j.1467-8519.2009.01751.x

BMFSFJ. (2018). *Väterreport.* Berlin: Bundesministerium für Familie, Senioren, Frauen und Jungend. https://www.bmfsfj.de/bmfsfj/service/publikationen/vaeterreport-112722

BMFSFJ. (2020). *(Existenzsichernde) Erwerbstätigkeit von Müttern.* Berlin: Bundesministerim für Familie, Senioren, Frauen und Jungend. https://www.bmfsfj.de/bmfsfj/service/publikationen/-existenzsichernde-erwerbstaetigkeit-von-muettern-158748

BMFSFJ. (2021). *Familie heute. Daten. Fakten. Trends Familienreport 2020.* Berlin: Bundesministerium für Familie, Senioren, Frauen und Jungend. https://www.bmfsfj.de/resource/blob/163108/ceb1abd3901f50a0dc484d899881a223/familienreport-2020-familie-heute-daten-fakten-trends-data.pdf

BMFSFJ. (2023, September 7). *Fragen und Antworten zu den neuen Einkommensgrenzen im Elterngeld*. From Bundesministerium für Familie, Senioren, Frauen und Jungend: https://www.bmfsfj.de/bmfsfj/themen/familie/familienleistungen/fragen-und-antworten-zu-den-neuen-einkommensgrenzen-im-elterngeld-228588

Borini, A., Coticchio, G., & Flamigni, C. (2003). Oocyte freezing: a positive comment based on our experience. *Reproductive BioMedicine Online*, *7*(1), 120. https://doi.org/10.1016/s1472-6483(10)61740-3

Borovecki, A., Tozzo, P., Cerri, N., & Caenazzo, L. (2018). Social egg freezing under public health perspective: Just a medical reality or a women's right? An ethical case analysis. *Journal of Public Health Research*, 7(3), 101-105. https://doi.org/10.4081/jphr.2018.1484

Bowen-Simpkins, P., Wang, J.J., & Ahuja, K.K. (2018). The UK´s anomalous 10-year limit on oocyte storage: time to change the law. *reproductive BioMedicine Online, 37*(4), 387-389. https://doi.org/10.1016/j.rbmo.2018.07.004

Bozzaro, C. (2018). Is egg freezing a good response to socioeconomic and cultural factors that lead women to postpone motherhood? *Reproductive BioMedicine Online, 36*(5), 594-603. https://doi.org/10.1016/j.rbmo.2018.01.018

Brehm, U. (2017). *A Life Course Perspective on Women's Reconciliation of Family and Employment.* Bamberg: Otto-Friedrich-Universität Bamberg.

Brezis, M., Malkiel A., Chinitz D., & Lehmann L.S. (2011). Discordant views of experts and lay-persons on the adoption of new fertility technology. *Med Care, 49*(4), 420-423. https://doi.org/10.1097/MLR.0b013e3182028ca3

Brower, M., Hill, D., Danzer, H., Surrey, M., Ghadir, S., Lim, B., Munne, S., & Barritt, J. (2014). Don't wait to freeze your eggs: as age increses significantly more eggs are needed to generate a normal embryo. (Abstract). *Fertility and Sterility*, *102*(3), e59-60. https://doi.org/10.1016/j.fertnstert.2014.07.203

Browne, J. (2006). *Sex segregation and inequality in the modern labour market.* Bristol: Policy Press Scolarschip Online. https://doi.org/10.1332/policypress/9781861345998.001.0001,

Browner, C. H. (2016). Reproduction: From Rights to Justice? In L. Disch, & M. Haskesworth (Eds.), *The Oxford Handbook of Feminist Theory* (pp. 803-831). Oxford: Oxford Handbooks.

Brüggmann, D. (2020). Women's employment, income and divorce in West Germany: a causal approach. *Journal of Labour Market Research, 54*, Article 5. https://doi.org/https://doi.org/10.1186/s12651-020-00270-0

Bühler, N. (2022). The 'good' of extending fertility: ontology and moral reasoning in a biotemporal regime of reproduction. *History and Philosophy of the Life Science, 44,* Article 21. https://doi.org/10.1007/s40656-022-00496-w

Bundeszentrale für politische Bildung. (2017, April 11). *Vor 35 Jahren: Erstes "Retortenbaby" kommt in Deutschland zur Welt*. From Bundeszentrale für politische Bildung: https://www.bpb.de/kurz-knapp/hintergrund-aktuell/246449/vor-35-jahren-erstes-retortenbaby-kommt-in-deutschland-zur-welt/#:~:text=Am%2016.,die%20k%C3%BCnstliche%20Befruchtung%20gesetzlich%20geregelt.

Burgess, N. (2013). The Motherhood Penalty: How Gender and Parental Status Influence Judgements of Job Related Competence and Organizational Commitment. *Seminar Research Paper Series*, Paper 32.

Campbell, M. (2021). Ethics: use and misuse of assisted reproductive techniques across species. *Reproduction and Fertility, 2*(3), C23-C28. https://doi.org/ 10.1530/RAF-21-0004

Cardozo, E. R., Turocy, J.M., James, K.J., Freeman, M.P., & Toth, T.L. (2020). Employee benefit or occupational hazard? How employer coverage of egg freezing impacts reproductive decisions of graduate students. *Fertility and Sterility, 1*(3), 186-192. https://doi.org/ 10.1016/j.xfre.2020.09.007

Carlson, E. N., & Barranti, N. (2016). Metaperceptions: Do people know how others perceive them? In J. A. Hall, M.S. Mast, & T. V. West (Eds.), *The social psychology of perceiving others accurately.* (pp. 165-182). Cambridge: Cambridge University Press.

Cattapan, A., Hammond, K., Haw, J., & Tarasoff, L. A. (2014). Breaking the ice: Young feminist scholars of reproductive politcs reflect on egg freezing. *International Journal of Feminist Approaches to Bioethics, 7*(2), 236-247. https://doi.org/10.3138/ijfab.7.2.0236

Caughey, L. E., & White, K. M. (2021). Psychosocial determinants of women's intentions and willingness to freeze their eggs. *Fertility and Sterility*, *115*(3), 742-752. https://doi.org/ 10.1016/j.fertnstert.2020.09.150

Caughey, L. E., Lensen, S., White, K. M., & Peate, M. (2021). Disposition intentions of elective egg freezers toward their surplus frozen oocytes: a systematic review and meta-analysis. *Fertility and Sterility, 116*(6), 1601-1619. https://doi.org/10.1016/j.fertnstert.2021.07.1195

Caughey, L. E., White, K. M., Lensen, S., & Peate, M. (2023). Elective egg freezers' disposition decisions: a qualitative study. *Fertility and Sterility, 120*(1), 145-160. https://doi.org/10.1016/j.fertnstert.2023.02.022

Cavaliere, G., & Fletcher, J. R. (2022). Age-discriminated IVF Access and Evidence-based Ageism: Is There a Better Way? *Science, Technology, & Human Values, 47*(5), 986-1010. https://doi.org/10.1177/01622439211021914

Charles, M. (2003). Deciphering Sex Segregation: Vertical and Horizontal Inequalities in Ten National Labour Markets. *Acta Sociologica, 46*(4), 267-287. https://www.jstor.org/stable/4194993

Chatzinikolaou, N. (2010). The ethics of assisted reproduction. *Journal of Reproductive Immunology, 85*(1), 3-8. https://doi.org/ 10.1016/j.jri.2010.02.001

Christopher, K. (2012). Extensive mothering. Employed Mothers' Constructions of the Good Mother. *Gender and Society, 26*(1), 73-96. http://www.jstor.org/stable/23212242

Chronopoulou, E., Raperport, C., Sfakianakis, A., Srivastava, G., & Homburg, R. (2021). Elective oocyte cryopreservation for age-related fertility. *Journal of Assisted Reproduction and Genetics, 38*(5), 1177-1186. https://doi.org/ 10.1007/s10815-021-02072-w

Cialdini, R. B., Demaine, L. J., Sagarin, B. J., Barrett, D. W., Rhoads, K., & Winter P. L. (2006). Managing social norms for persuasive impact. *Social Influence*, *1*(1), 3-15. https://doi.org/10.1080/15534510500181459

Cil, A.P., Bang, H., & Oktay, K. (2013). Age specific probability of live birth with oocyte cryopresrvation: an individual patient data meta-analysis. *Fertility and Sterility*, *100(*2); 492-499.e.3. https://doi.org/ 10.1016/j.fertnstert.2013.04.023

Cislaghi, B., & Heise, L. (2018). Theory and practice of social norms interventions: eight common pitfalls. *Globalization and Health*, 14, Article 83. https://doi.org/10.1186/s12992-018-0398-x

Cobo, A., Garcia-Velasco, J.A., Coello, A., Domingo, J., Pellicer, A., & Remohi, J. (2016). Oocyte vitrification as an efficient option for elective fertility preservation. *Fertility and Sterility*, *105*(3), 755-764.e.8. https://doi.org/ 10.1016/j.fertnstert.2015.11.027

Cobo, A., Garcia-Velasco, J.A., Domingo, J., Pellicer, A., & Remohi, J. (2018). Elective and Onco-fertility preservation: factors related to IVF outcomes. *Human Reproduction*, 33(12); 2222-2231. https://doi.org/10.1093/humrep/dey321

Cobo, A., Garcia-Velasco, J.A., Domingo, J., Remohi, J., & Pellicer, A. (2013). Is vitrification of oocytes useful for fertility preservation for age-related fertility decline and in cancer patients? *Fertility and Sterility, 99*(6), 1485-1495. https://doi.org/10.1016/j.fertnstert.2013.02.050

Cohen, J., Grudzinskas G., & Johnson, M.H. (2012). Welcome to the '100% Club'! *Reproductive Biomedicine Online*, 24(4), 375-376. 10.1016/j.rbmo.2012.03.001

Connor, R. A., & Fiske, S. T. (2018). Warmth and Competence: A Feminist Look at Power and Negotiation. In C. Travis, & J. W. White (Eds.), *APA Handbook of the Psychology of Women.* American Psychological Association.

Cooper, M., & Waldby, C. (2014). *Clinical Labor. Tissue Donors and Research Subjects in the Global Bioeconomy.* Durham and London: Duke Univesity Press.

Correll, S. J., Benard, S., & Paik, I. (2007). Getting a Job: Is There a Motherhood Penalty? *American Journal of Society*, *112*(5), 1297-1338. https://doi.org/10.1086/511799

Cyr, J. (2019). *Focus Groups for the Social Science Researcher.* Cambridge: Cambridge University Press.

Daar, J. (2017). *The New Eugenics: Selective Breeding in an Era of Reproductive Technologies.* Yale University Press.

Dain, L., Auslander, R., & Dirnfeld, M. (2011). The effect of paternal age on assisted reproduction outcome. *Fertility and Sterility*, *95*(1); 1-8. 10.1016/j.fertnstert.2010.08.029

Daly, I., & Bewley, S. (2013). Reproductive ageing and conflicting clocks: King Midas' touch. *Reproductive BioMedicine Online, 27*(6), 722-732. https://doi.org/10.1016/j.rbmo.2013.09.012

Daniluk, J. C. (2015). ''Sleepwalking into Infertility'': The need for a gentle wake-up call. *The American Journal of Bioethics, 15*(11), 52-54. https://doi.org/10.1080/15265161.2015.1088990

Daniluk, J. C., & Koert, E. (2016). Childless women's beliefs and knowledge about oocyte freezing for social and medical reasons. *Human Reproduction, 31*(10), 2313-2320. https://doi.org/10.1093/humrep/dew189

Daniluk, J. C., & Koert, E. (2013). The other side of the fertility coin: A comparison of childless men's and women's knowledge of fertility and assisted reproductive

technology. *Fertility and Sterility, 99*(3), 839-846. https://doi.org/10.1016/j.fertnstert.2012.10.033
Davis, S. N., & Greenstein, T. N. (2009). Gender Ideology: Components, Prdictors, and Consequences. *Annual Review of Sociology, 35*(1), 87-105. https://doi.org/10.1146/annurev-soc-070308-115920
de Jonge, J. (2012). *Rational Choice. In: Rethinking Rational Choice Theory.* London: Palvrave Macmillan.
de Proost, M., & Coene, G. (2022). "It gives me time, but does it give me freedom?": a contextual understanding of anticipatory decision-making in social egg freezing. (Abstract). *BioSocieties*, 1-18. https://doi.org/10.1057/s41292-022-00297-1
de Proost, M., & Paton, A. (2022). Medical versus social egg freezing: the importance of future choice for women's decision making. *Monash Bioethics Review, 40*, 145-156. https://doi.org/10.1007/s40592-022-00153-9
Dembinska, A. (2012). Bioethical dilemmas of assisted reproduction in the opinions of Polish women in infertilty treatment: a research report. *J Med Ethics, 38*(12), 731-734. https://doi.org/10.1136/medethics-2011-100421
Destatis. (2023a, July 21). *Zusammengefasste Geburtenziffer nach Kalenderjahren*. Destatis. https://www.destatis.de/DE/Themen/Gesellschaft-Umwelt/Bevoelkerung/Geburten/Tabellen/geburtenziffer.html
Destatis. (2023b, July 21). *Daten der Lebensgeborenen nach Altersgruppen der Mütter dür die Jahre 2018 bis 2022*. Statistisches Bundesamt. https://www.destatis.de/DE/Themen/Gesellschaft-Umwelt/Bevoelkerung/Geburten/Tabellen/lebendgeborene-alter.html
Destatis. (2023c, January 30). *Gender Pay Gap*. Statistisches Bundesamt. https://www.destatis.de/EN/Themes/Labour/Earnings/GenderPayGap/Tables/bgpg-01-by-territory-gpg.html
Destatis. (2023d, März 29). *Elterngeld 2022: Väteranteil steigt weiter auf 26,1 %.* Statistisches Bundesamt. https://www.destatis.de/DE/Presse/Pressemitteilungen/2023/03/PD23_123_22922.html
Deutsches IVF-Register. (2022). *Jahresbuch 2021.* Gablitz: Verlag für Medizin un Wirtschaft.
Deutsches IVF-Register. (2023). *Jahresbuch 2022.* Gablitz: Verlag für Medizin un Wirtschaft.
Devine, K., Mumford S.L., Goldman K.N., Hodes-Wertz, B., Druckenmiller, S., Propst, A.M., & Noyes, N. (2015). Baby budgeting: oocyte cryopreservation in women delaying reproduction can reduce cost per live birth. *Fertil Steril*, *103*(6), 1446-1453. https://doi.org/ 10.1016/j.fertnstert.2015.02.029
Deyer, M. (2011). In M. Heiss (Ed.), *Yes She Can.* München: Redline Verlag.
Dondorp, W. J. & de Wert, G. M. W. R. (2009). Fertility preservation for healthy women: ethical aspects. *Human Reproduction, 24*(8), 1785. https://doi.org/ 10.1093/humrep/dep102
Dougall, K. M., Beyene, Y., Nachtigall, R. D. (2012). 'Inconvenient biology:' advantages and disadvantages of first-time parenting after age 40 using in vitro fertilization. *Human Reproduction, 27*(4), 1058-1065. https://doi.org/10.1093/humrep/des007
Dowling, E. (2021, May 6). *New survey finds employers adding fertility benefits to promote DIE*. Mercer. https://www.mercer.com/en-us/insights/us-health-news/new-survey-finds-employers-adding-fertility-benefits-to-promote-dei/?size=n_20_n
Doyle, J. O., Richter, K.S., Lim, J., Stillman, R.J., Graham, J.R., & Tucker, M.J. (2016). Successful elective and medically indicated oocyte vitrification and warming for

autologous in vitro fertilization, with predicted birth probabilities for fertility preservation according to number of cryopreserved oocytes and age at retrieval. *Fertility and Sterility, 105*(2), 459-466.e2. https://doi.org/10.1016/j.fertnstert.2015.10.026

Dr. dresing & pehl GmbH. (2020). *f4analyse (Version 3.1.0) [Software].* https://www.audiotranskription.de/en/f4analyse/

Dr. dresing & pehl GmbH. (2020). *f4transkript (Version 8.1.1) [Software].* https://www.audiotranskription.de/en/f4transkript/

Dresing, T., & Pehl, T. (2018). *Praxisbuch Interview, Transkription & Analyse. Anleitungen und Regelsysteme für qualitative Forschende.* Marbung: dr. dresing & pehl GmbH.

Eckes, T. (2008). Geschlechterstereotype: Von Rollen, Identitäten und Vorurteilen. In R. Becker, & B. Kortendiek (Eds.), *Handbuch Frauen- und Geschlechterforschung. Theorie, Methoden, Empirie. 2., erweiterte und aktualisierte Auflage.* Wiesbaden: VS Verlag für Sozialwissenschaften.

Eckes, T., & Trautner, H. M. (2012). Developmental Social Pschology of Gender: An Integrative Framework. In T. Eckes, & H. M. Trautner (Eds.), *The Developmental Social Psychology of Gender.* New York: Psychology Press.

Esfandiari, N., Sayler, J. K., Litzky, J. F., Zagadailov, P., George, K. E., & DeMars, L. R. (2018). Egg freezing for fertility prevention and family planning: a survey of ob/gyn residents across United States. (Abstract). *Fertility and Sterility, 110*(4), e85.

Esfandiari, N., Sayler, J. K., Litzky, J. F., Zagadailov, P., George, K. E., & DeMars, L. R. (2019). Egg freezing for fertility prevention and family planning: a nationwide survey of US Obstetrics and Gynecology residents. *Reproductive Biology and Endocrinology. 17*, Article 16. https://doi.org/10.1186/s12958-019-0459-x

ESHRE. (2010, June 29). *Studies of women's attitudes to 'social egg freezing' find reasons differ with age*. ScienceDaily. https://www.sciencedaily.com/releases/2010/06/100628111842.htm

ESHRE Task Force on Ethics and Law, Dondorp, W., de Wert, G., Pennings, G., Shenfield, F., Devroey, P., Tarlatzis, B., Barri, P., & Diedrich, K. (2012). Oocyte Cryopreservation for age-related fertility loss. *Human Reproduction*, 27(5), 1221-1237. https://doi.org/10.1093/humrep/des029

ESHRE. (2017). *Regulation and legislation in assisted reproduction. ESHRE fact sheets 2.* ESHRE.

ESHRE. (2020). *Female Fertility Preservation.* ESHRE Female Fertility Preservation Guideline Development Group. https://www.eshre.eu/Guidelines-and-Legal/Guidelines/Female-fertility-preservation

Ethics Committee of the American Society for Reproductive Medicine. (2018). Planned oocyte cryopreservation for women seeking to preserve future reproductive potential: an Ethics Committee opinion. *Fertility and Sterility, 110*(6), 1022-1028. https://doi.org/ 10.1016/j.fertnstert.2018.08.027

European Commission. (2017). *Gender Equality 2017.* European Union: European Commission.

Fässler, S., Aebi-Mueller, R., Mueller, F., Hertig, V., Luegner, A., Kind, C., & Balthasar, A. (2019). *Social Freezing - Kinderwunsch auf Eis.* Zürich: TA-SWISS Publikationsreihe TA 69/2019.

Feiler, J. (2020). *Social Freezing - Reproduktionsmedizin im Spannungsfeld zwischen Risiko, Moral und Verantwortung.* Wiesbaden: Springer Fachmedien Wiesbaden GmbH.

Ferguson, M. L. (2010). Choice Feminism and the Fear of Politics. *Perspective on Politics, 8*(1), 247-253. http://www.jstor.org/stable/25698532

Fertiprotekt an der Oper. (2018, September). *Kostenaufstellung für Social Freezing mit Kryokonservierung*. From Kinderwunschzentrum an der Oper: https://www.kinderwunschzentrum-an-der-oper.de/files/content/Kostenaufstellungen/Kinderwunschzentrum-an-der-oper-kostenaufstellung-social-freezing-2018.pdf

Fishbein, M., & Ajzen, I. (1975). *Belief, Attitude, Intention and Behavior. An Introduction to Theory and Research.* USA: Addison-Wesley Publishing Company.

Fiske, S. T., & Cuddy, A. J., Glick, P., & Xu, J. (2002). A model of (often mixed) stereotype content: Competence and warmth respectively follow from perceived status and competition. *Journal of Personality and Social Psychology*, *82*(6), 878-902. https://doi.org/10.1037//0022-3514.82.6.878

Fiske, S. T., & Stevens, L. E. (1993). What's so special about sex? Gender stereotyping and discrimination. In S. Oskamp, & M. Costanzo (Eds.), *Gender Issues in Contemporary Society* (pp. 173-196). Newbury Park, CA: Sage.

Forke, A., & Siegers, P. (2022). More benefit or harm? Moral contextualism shapes public attitudes towards social egg freezing. *Front. Polit. Sci., 4.*, 1-12. https://doi.org/10.3389/fpos.2022.995009

Foth, D. (2017). Was bedeutet das Social Freezing für die individuelle Patientin? In K. van der Ven et al. (Eds.), *Social Freezing. Die Möglichkeiten der modernen Fortpflanzungsmedizin und die ethische Kontroverse* (pp. 13-15). Wiesbaden: Springer Fachmedien Wiesbaden GmbH.

Friedman, M. (2013). *Mommyblogs and the Changing Face of Motherhood.* Toronto: University of Toronto Press.

Fujii, L. A. (2018). *Interviewing in Social Science Research.* New York: Routledge.

Galletta, A. (2013). *Mastering the Semi-Structured Interview and Beyond.* New York: New York University Press.

Garcia-Velasco, J. A., Domingo, J., Cobo, A., Martinez, M., Carmona, L., & Pellicer, A. (2013). Five years' experience using oocyte vitrification to preserve fertility for medical and nonmedical indications. *Fertility and Sterility, 99*(7), 1994-1999. https://doi.org/ 10.1016/j.fertnstert.2013.02.004

Garcia, D., Vassena, R., Prat, A., & Vernaeve, V. (2017). Poor knowledge of age-related fertility decline and assisted reproduction among healthcare professionals. *Reproductive BioMedicinie Online, 34*(1), 32-37. https://doi.org/10.1016/j.rbmo.2016.09.013

Gemeinsamer Bundesausschuss. (2022a, August 18). *Kryokonservierung von Eierstockgewebe wird Kassenleistung*. Gemeinsamer Bundesausschuss. https://www.g-ba.de/presse/pressemitteilungen-meldungen/1066/

Gemeinsamer Bundesausschuss. (2022b). *Richtlinie des Gemeinsamen Bundesausschusses zur Kryokonservierung von Ei- oder Samenzellen oder Keimzellgewebe sowie entsprechende medizinische Maßnahmen wegen keimzellschädigender Therapie (Kryo-RL).* Gemeinsamer Bundesausschuss. https://www.g-ba.de/downloads/62-492-2970/2022-08-18_Kryo-RL.pdf

Giannopapa, M., Sakellaridi, A., Pana, A., & Velonaki, V. S. (2022). Women Electing Oocyte Cryopreservation: Characteristics, Information Sources, and Oocyte Disposition: A Systematic Review. *J Midwifery Womens Health, 67*(2), 178-201. https://doi.org/10.1111/jmwh.13332

Gill, R. (2016). Post-postfeminism? New feminist visibilities in postfeminist times. *Feminist Media Studies, 16*(4), 610-630. https://doi.org/10.1080/14680777.2016.1193293

Gold, E., Copperman, K., Witkin, G., Jones, C., & Copperman A. B. (2006). A motivational assessment of women undergoing elective egg freezing for fertility preservation.

(Abstract). *Fertility and Sterility, 86*(3), S201. https://doi.org/ 10.1016/J.FERTNSTERT.2006.07.537
Goldhahn, A. (2021). *Wissen, wo man hingehört - Das Phänomen Adoption. Dissertation.* Chemnitz: Technische Universität Chemnitz.
Goldin, C., Pekkala Kerr, S., & Olivetti, C. (2022). *When the Kids Grow Up: Women's Employment and Earnings across the Family Cycle.* Cambridge: National Bureau of Economic Research.
Goldman, R. H., Racowsky, C., Farland, L.V., Munné, S., Ribustello L., & Fox, J.H. (2017). Predicting the likelihood of live birth for elective oocyte cryopreservation: a counseling tool for physicians and patients. *Human Reproduction, 32*(4), 853-859. https://doi.org/ 10.1093/humrep/dex008
Gook, D. A. (2011). History of oocyte cryopreservation. *Reproductive BioMedicine Online*, *23*(3), 281-289. https://doi.org/ https://doi.org/10.1016/j.rbmo.2010.10.018
Goold, I. (2017). Trust women to choose: a response to John A. Robertson's Egg freezing and Egg banking: empowerment and alienation in assisted reproduction. *Journal of Law and the Biosceinces, 4*(3), 507-541. https://doi.org/10.1093/jlb/lsx020
Goold, I., & Savulescu, J. (2009). In favour of freezing eggs for non-medical reasons. *Bioethics, 23*(1), 47-58. https://doi.org/ 10.1111/j.1467-8519.2008.00679.x
Gorthi, S., Wright, C., & Balen, A. H. (2010). Is egg freezing for social reasons a good idea? What young women really think. *26th Annual Meeting of ESHRE.* Rome, Italy: ESHRE.
Gosden, R. G., Tan, S. L., & Oktay, K. (2000). Oocytes for late starters and posterity: are we on to something good or bad? *Fertility and Sterility, 74*(5), 1057-1058. https://doi.org/ 10.1016/s0015-0282(00)01574-0
Gournelos, T., Hammonds, J. R., & Wilson, M. A. (2019). *Doing Academic Research: A Practical Guide to Research Methods and Analysis.* New York: Routledge.
Graham, M. E., Jelin, A., Hoon Jr, A. H., Wilms Floet, A. M., Levey, E., & Graham, E. M. (2023). Assisted reproductive technology: Short- and long-term outcomes. *Dev Med Child Neurol., 65*(1), 38-49. https://doi.org/ 10.1111/dmcn.15332
Greenwood, E. A., Hastie, J., Pasch, L., & Huddleston, H. (2017). Emotional experience and decision satisfaction in women undergoing elective oocyte cryopreservation. (Abstract). *Fertility and Sterility, 108*(3), e191. https://doi.org/10.1016/j.fertnstert.2017.07.565
Greenwood, E. A., Hastie, J., Pasch, L., Cedars, M.I., & Huddleston, H.G. (2018). To freeze or not to freeze: decision regret and satisfaction following elective oocyte cryopreservation. *Fertility and Sterility, 109*(6), 1097-1103. https://doi.org/10.1016/j.fertnstert.2018.02.127
Grunow, D., Begall, K., & Buchler, S. (2018). Gender Ideologies in Europe: A Multidimensional Framework. *Journal of Marriage and Family, 80*, 42-60. https://doi.org/10.1111/jomf.12453
Guedes, M., & Canavarro, G. C. (2014). Childbearing motivational patterns of primiparous women of advanced age and their partners. *Reproductive and Infant Psychology, 32*(4), 326-339. https://doi.org/10.1080/02646838.2014.910866
Haddock, G., & Maio, G. R. (2004). *Contemporary Perspectives on the Psychology of Attitudes.* New York: Psychology Press.
Hafezi, M., Zameni, N., Nemati Aghamaleki, S. Z., Omani-Samani, R., & Vesali, S. (2022). Awareness and attitude toward oocyte cryopreservation for non-medical reasons: a study on women candidates for social egg freezing. *J Psychosom Obstet Gynaecol. 43(4)*, 532-540. https://doi.org/ 10.1080/0167482X.2022.2090332

Hammarberg, K., Kirkman, M., Pritchard, N., Hickey, M., Peate, M., McBain, J., Agresta, F., Bayly, C., & Fisher, J. (2017). Reproductive experiences of women who cryopreserved oocytes for non-medical reasons. *Human Reproduction, 32*(3), 575-581. https://doi.org/ 10.1093/humrep/dew342

Hartl, K. (2003). *Expatriate Women Managers. Gender, Culture and Career.* München: Rainer Hampp Verlag.

Harwood, K. (2009). Egg freezing: a breakthrough for reproductive authonomy? *Bioethics*, *23*(1), 39-46. https://doi.org/10.1111/j.1467-8519.2008.00680.x

Harwood, K. (2015). On the ethics of social egg freezing and fertility prevention for nonmedical reasons. *Medicolegal and Bioethics, 5*, 59-67. https://doi.org/doi.org/10.2147/MB.S66444

Hens, K. (2017). The Ethics of Postponed Fatherhood. *International Journal of Feminist Approaches to Bioethics, 10*(1), 103-118. https://www.jstor.org/stable/90012258

Hirshfeld-Cytron, J., Grobman, W.A., & Milad, M.P. (2012). Fertility preservation for social indications: a cost-based decision analysis. *Fertility and Sterility*, *97*(3), 665-670. https://doi.org/ 10.1016/j.fertnstert.2011.12.029

Hirshfeld-Cytron, J., van Loendersloot, L. L., Mol, B. W., Goddijn, M., Grobman, W. A., Moolenaar, L. M., & Milad, M. P. (2012). Cost-effectivness analysis of oocyte cryopreservation: Stunning similarities but differences remain. *Human Reproduction. 27*(2). https://doi.org/10.1093/humrep/des339

Ho, J., Woo, I., Bendikson, K., Paulson, R., & Chung, K. (2016). Is oocyte cryopreservation as effective as embryo cryopreservation in freezing eggs as effective as freezing embryos to achieving live births? (Abstract). *Fertility and Sterility. 105(2)*, e21-e22. https://doi.org/10.1016/j.fertnstert.2015.12.070

Hodes-Wertz, B., Druckmiller, S., Smith, M., & Noyes, N. (2013). What do reproductive-age women who undergo oocyte cryopreservation think about the process as a means to preserve fertility? *Fertility and Sterility, 100*(5), 1343-1349. https://doi.org/ https://doi.org/10.1016/j.fertnstert.2013.07.201

Hoffmann, M. (2023, October 17). *Kinderwunschbehandlung vom Arbeitgeber Chef, ich will ein Kind von dir*. Spiegel. https://www.spiegel.de/karriere/kinderwunschbehandlung-vom-arbeitgeber-chef-ich-will-ein-kind-von-dir-a-aecbea79-ea43-4ed9-8c50-1bf0c2741af1

Hoffmeyer-Zlotnik, J. H. P., & Warner, U. (2018). *Sociodemographic Quiestionnaire Modules for Comparative Social Surveys.* Switzerland: Springer.

Hudson, N., Baldwin, K., Herbrand, C., Buhler, N., & Daly, I. (2019). Reproduction research: From complexity to methodological innovation. *Methodological Innovations, 12*(1), 1-4. https://doi.org/10.1177/2059799119829427

Hughes, J., Camden, A., & Yangchen, T. (2016). Rethinking and Updating Demographic Questions: Guidance to Improve Descriptions of Research Samples. *Psy Chi Journal of Psychological Research, 21*(3), 138-151. https://doi.org/ 10.24839/2164-8204.JN21.3.138

Hyden-Granskog, C. (2009). Paramedical interactive debate on social freezing. *Abstracts of the 25th Annual Meeting of ESHRE, Amsterdam, the Netherlands, 28 June – 1 July, 2009* (p. i100). Amsterdam: ESHRE.

Ikemoto, L. C. (2015). Egg freezing, stratified reproduction and the logic of not. *Journal of Law and the Biosciences*, *2*(1),112-117. https://doi.org/ 10.1093/jlb/lsu037

Ikhena-Abel, D. E. (2021). Do we need a more wholistic approach on counseling on egg freezing? When facts alone are not enough. *Fertility and Sterility, 115*(3), 601-602. https://doi.org/ 10.1016/j.fertnstert.2020.12.025

Ikhena, D. E., Confino, R., Shah, N. J., Lawson, A. K., Klock, S., & Pavone, M. G. (2016). Knowledge of egg freezing among medical students and the importance of employer coverage of elective egg freezing on decision making. (Abstract). *Fertility and Sterility, 106*(3), e114. https://doi.org/10.1016/j.fertnstert.2016.07.343

Inhorn, M. C. (2020). Where has the quest for conception taken us? Lessons from anthropology and sociology. *Reproductive BioMedicine and Society Online, 10*, 46-57. https://doi.org/10.1016/j.rbms.2020.04.001

Inhorn, M. C. (2023). *Motherhood in Ice: The Mating Gap and Why Women Freeze Their Eggs.* New York: New York University Press.

Inhorn, M. C., Birenbaum-Carmeli, D., & Patrizio, P. (2020). Elective egg freezing and male support: A qualitative study of men's hidden roles in women's fertility preservation. *Human Fertility, 25*(1), 99-106. https://doi.org/ 10.1080/14647273.2019.1702222

Inhorn, M. C., Carmeli, D., Westphal, L. M., Doyle, J., Gleicher, N., Meirow, D., Raanani, H., Dirnfeld, M., & Patrizio, P. (2017). Medical egg freezing, financial pressure, and the state: results from the first binational comparison of the U.S. and Israel. (Abstract). *Fertility and Sterility, 108*(3), e181. https://doi.org/10.1016/j.fertnstert.2017.07.538

Inhorn, M. C., Carmeli, D., Yu, R., & Patrizio, P. (2022). Egg Freezing at the End of Romance: A Technology of Hope, Despair, and Repair. *Fertility and Sterility, 47*(1), 53-84. https://doi.org/10.1177/0162243921995892

Institut für Demoskopie Allenbach. (2019). *Veränderungen der gesellschaftlichen Rahmenbedingungen für die Familienpolitik.* Allensbach: Berichte für das Bundespresseamt.

Institut für Demoskopie Allensbach. (2021). *Familien in der Corona-Krise: Eine Repräsentativbefragung von Eltern mit Kindern unter 15 Jahren.* Allensbach: Berichte für das Bundespresseamt.

Jackson, E. (2018). The ambiguities of 'social' egg freezing and the challenges of informed consent. *BioSocieties, 13*, 21-40. https://doi.org/10.1057/s41292-017-0044-5

Jain, J. K., R. J. Paulson (2006). Oocyte cryopreservation. *Fertility and Sterility*, *86*(4 Suppl), 1037-1046. https://doi.org/10.1016/j.fertnstert.2006.07.1478

Jain, V. (2014). 3D Model of attitude. *International Journal of Advanced Research in Management and Social Sciences*, 3(3), 1-12.

Jóhannsdóttir, Á., Egilson S.Þ., & Haraldsdóttir, F. (2022). Implications of internalised ableism for the health and wellbeing of disabled young people. *Sociol Health Illn.*, *44*(2), 360-376. https://doi.org/10.1111/1467-9566.13425

Johnston, D., & Swanson, D. H. (2006). Constructing the “good mother”: The experience of mothering ideologies by work status. *Sex Roles, 54*(7), 509-519. https://doi.org/10.1007/s11199-006-9021-3

Johnston, M., Fuscaldo, G., Richings, N. M., Gwini, S. M., & Catt, S. (2022). Employer-Sponsored Egg Freezing: Carrot or Stick? *AJOB Empir Bioeth., 13*(1), 33-47. https://doi.org/10.1080/23294515.2021.1941413

Jones, B. P., Kasaven, L., L'Heveder, A., Jalmbrant, M., Green, J., Makki, M., Odia, R., Norris, G., Bracewell Milnes, T., Saso, S., Serhal, P., & Ben Nagi, J. (2020). Perceptions, outcomes, and regret following social egg freezing in the UK; a cross-sectional survey. *Acta Obstet Gynecol Scand., 99*(3), 324-332. https://doi.org/10.1111/aogs.13763

Kakkar, P., Geary, J., Stockburger, T., Kaffel, A., Kopeika, J., & El-Toukhy, T. (2023). Outcomes of Social Egg Freezing: A Cohort Study and a Comprehensive Literature Review. *J. Clin. Med., 12*(13), 4182. https://doi.org/10.3390/jcm12134182

Kapuka, M. S. (2019). Social Egg Freezing - wann, wie mit welchem Erfolg. *Gynäkologische Endokrinologie, 17*(2), 91-95. https://doi.org/10.1007/s10304-019-0243-1
Katz, O., Hashiloni-Dolev, Y., Kroløkke, C., & Raz, A. (2020). Frozen: social and bioethical aspects of cryopreservation. *New Genetics and Society, 39*(3), 243-249. https://doi.org/ 10.1080/14636778.2020.1802823
Kearny, A. T. (2012). *Analyse der Karriere-Pfade.* München: PowerPoint-Beitrag.
Keglovits, B. (2015). *A social egg freezing és a munkaerő -piaci nemi egyenlőtlenség kapcsolata. (Master thesis).* Budapest: Eötvös Loránd Tudományegyetem.
Keglovits, B., & Kovács, M. (2017). A Social Egg Freezing és a munkaerőpiaci nemi egyenlőtlenség kapcsolata. Megállítható-e a biológiai óra, vagy csak a ketyegés halkítható? *Alkalmazott Pszichológia. 17(3)*, 7-36. https://doi.org/10.17627/ALKPSZICH.2017.3.7
Kelly, B., Margolis, M., McCormack, L., LeBaron, P. A., & Chowdhury, D. (2017). What Affects People's Willingness to Participate in Qualitative Research? An Experimental Comparison of Five Incentives. *Fields Methods, 29*(4), 333-350. https://doi.org/10.1177/1525822X17698958
Kitterød, R. (2016). *The Organisaiton and Division of Caregiving Work among Parents in Norway. Evidence from Focus Groups with Full-time Working Mothers and Fathers.* Oslo: Insitute for Social Reseach.
Koenig, A. M. (2018). Comparing Prescriptive and Descriptive Gender Stereotypes About Children, Adults, and the Elderly. *Frontiers in Psychology, 9,* 1086. https://doi.org/10.3389/fpsyg.2018.01086
Konc, J., Kanyó, K., Kriston, R., Somoskői, B., & Cseh, S. (2014). Cryopreservation of embryos and oocytes in human assisted reproduction. *BioMed Research International. 2014:037268*. https://doi.org/10.1155/2014/307268
Konstenzer, J., de Bont, A., & van Exel, J. (2021a). Women's viewpoints on egg freezing in Austria: an online Q-methodology study. *BMC Medical Ethics, 22*(1), 4. https://doi.org/10.1186/s12910-020-00571-6
Konstenzer, J., ME Bos, A., de Bont, A., & van Exel, J. (2021b). Unveiling the controversy on egg freezing in The Netherlands: A Q-methodology study on women's viewpoints. *Reproductive BioMedicine Online, 12*, 32-43. https://doi.org/10.1016/j.rbms.2020.09.009
Koppetsch, C., & Speck, S. (2015). *Wenn der Mann kein Ernährer mehr ist.* Berlin: Suhrkamp Verlag.
Kovács, G. (2013). Frozen future - ethical questions of social egg freezing. *Family Forum. 3*, 201-210. https://czasopisma.uni.opole.pl/index.php/ff/article/view/896
Krankenkassen Deutschland. (n.d.). *Künstliche Befruchtung. Kosten - Methoden - Beste Krankenkassen*. Krankenkassen Deutschland. Retrieved November 6, 2023, from https://www.krankenkassen.de/gesetzliche-krankenkassen/leistungen-gesetzliche-krankenkassen/geburt-kinder/kuenstliche-befruchtung/
Krause, F. (2017). Social Freezing un die Selbstbestimmung der Frau. In K. van der Ven et al. (Eds.)*, Social Freezing. Die Möglichkeiten der modernen Fortpflanzungsmedizin und die ethische Kontroverse* (pp. 43-44). Wiesbaden: Springer Fachmedien Wiesbaden GmbH.
Kuckartz, U. (2016). *Qualitative Inhaltsanalyse. Methoden, Praxis, Computerunterstützung.* Wiesbaden: Springer VS.
Kuckartz, U., Dresing, T., Rädiker, S., & Stefer, C. (2008). *Qualitative Evaluation. Der Einstieg in die Praxis.* Wiesbaden: Verlag für Sozialwissenschaften.
Kuhnt, A-K., & Passet-Wittig, J. (2022). Families formed through assisted reproductive technology: Causes, experiences, and consequences in an international context.

Reproductive BioMedicine and Society Online, 14, 289-296. https://doi.org/10.1016/j.rbms.2022.01.001
Leite, M. (2013). (M)Othering: Feminist Motherhood, Neoliberal Discourses and the Other'. *Studies in the Maternal, 5(2)*, 1-23. https://doi.org/10.16995/sim.19
Lemke, T. (2019). Beyond Life and Death Investigating Cryopreservation Practices in Contemporary Societies. *Soziologie, 48*(4), 450-466. https://doi.org/10.31235/osf.io/shr37
Lemke, T. (2021). Welcome to Whenever: Exploring Suspended Life in Cryopreservation Practices. *Science Technology, & Human Values, 48*(8), 700-726. https://doi.org/10.1177/01622439211057860
Lemoine, M-E., & Ravitsky, V. (2015). Sleepwalking Into Infertility: The Need for a Public Health Approach Toward Advanced Maternal Age. *The American Journal of Bioethics, 15*(11), 37-48. https://doi.org/10.1080/15265161.2015.1088973
Leung, A. Q., Baker, K., Vaughan, D., Shah, J. S., Korkidakis, A., Ryley, D. A., Sakkas, D., & Toth, T. L. (2021). Clinical outcomes and utilization from over a decade of planned oocyte cryopreservation. Reproductive BioMedicine Online, 43(4), 671-679. https://doi.org/10.1016/j.rbmo.2021.06.024
Lewis, E. I., Missmer, S. A., Farland, L. V., & Ginsburg, E. S. (2016). Public support in the United States for elective oocyte cryopreservation. *Fertility and Sterility, 106*(5), 1183-1189. https://doi.org/ 10.1016/j.fertnstert.2016.07.004
Li, S., Nong, Y., Wang, F., Li, Z., Liu, W., Xie, Y., Peng, T., Zhang, X., & Liu, F. (2022). Clinical efficacy analysis of oocyte cryopreservation: A propensity score matched study. *J. Obstet Gynaecol. Res., 48*(12), 3152-3159. https://doi.org/10.1111/jog.15412
Liebenthron, J. (2017). Social Freezing - Reproduktionsbiologische Hintergründe und aktuelle Sicht. In K. van der Ven et al. (Eds.), *Social Freezing. Die Möglichkeiten der modernen Fortpflanzungsmedizin und die ethische Kontroverse* (pp. 15-18). Wiesbaden: Springer Fachmedien Wiesbaden GmbH.
Lindner, R. (2014, October 15). *Das Einfrieren von Eizellen zahlt die Firma*. Frankfurter Allgemeine Zeitung. https://www.faz.net/aktuell/wirtschaft/agenda/silicon-valley-apple-und-facebook-zahlen-einfrieren-von-eizellen-13209317.html
Linkeviciute, A., Peccatori, F. A., Sanchini, V., & Boniolo, G. (2015). Oocyte cryopreservation beyond cancer: tools for ethical reflection. *J Assist Reprod Genet., 32*(8), 1211-1220. https://doi.org/10.1007/s10815-015-0524-0
Lockwood, G. (2002). Politics, ethics and economics: oocyte cryopreservation in the UK. *Reproductive BioMedicine Online, 6*(2), 151-153. https://doi.org/ 10.1016/s1472-6483(10)61701-4
Lockwood, G. (2011). Social egg freezing: the prospect of reproductive 'immortality' or a dangerous delusion? *Reproductive BioMedicine Online, 23*(3), 334-340. https://doi.org/10.1016/j.rbmo.2011.05.010
Lockwood, G. (2018). Social egg freezing: Who chooses and who uses? *Reproductive BioMedicine Online, 37*(4), 383-384. https://doi.org/10.1016/j.rbmo.2018.08.003
Lockwood, G., & Johnson, M. H. (2015). Having it all? Where are we with "social" egg freezing today? *Reproductive BioMedicine Online, 31*(2), 126-127. https://doi.org/ 10.1016/j.rbmo.2015.06.005
Lutter, M., & Schröder, M. (2020). Is There a Motherhood Penalty in Academia? The Gendered Effect of Children on Academic Publications in German Sociology. *European Sociological Review*, 36(3), 442-459. https://doi.org/10.1093/esr/jcz063
Martin, L. J. (2010). Anticipating infertility: egg freezing, genetic preservation and risk. *Croatian Medical Journal*, *24*(4), 526-545. https://doi.org/10.1177/0891243210377172

Martinelli, L., Busatta, L., Galvagni, L., & Piciocchi, C. (2015). Social egg freezing: A reproductive chance or smoke and mirrors? *Croatian Medical Journal, 56*(4), 387-391. https://doi.org/10.3325/cmj.2015.56.387

McClam, M., & Xiao, S. (2022). Preserving Oocytes in Oncofertility. *Biology of Reproduction, 106*(2), 328-337. https://doi.org/10.1093/biolre/ioac008

McRobbie, A. (2013). Feminism, the family and the new "mediated" maternalism. *New Formations: a journal of culture/theory/politics, 80*, 119-137. https://www.muse.jhu.edu/article/529456.

Merck. (13. September 2023). *Merck startet Programm zur Unterstützung von Mitarbeitenden mit Kinderwunsch. Pressemitteilung.* Darmstadt: Merck Media Relations.

Merriam, S. (2014). *Qualitative Research. A Guide to Design and Implementation.* San Francisco: Jossey-Bass.

Mertes, H. (2013). The portrayal of healthy women requesting oocyte cryopreservation. *Facts, Views and Vision, Issues in Obstetrics Gynaecology and Reproductive Health*, *5*(2), 141-146.

Mertes, H. (2015). Does company-sponsored egg freezing promote or confine women's reproductive authonomy? *J Assist Reprod Genet., 32*(8), 1205-1209. https://doi.org/10.1007/s10815-015-0500-8

Mertes, H., & Pennings, G. (2011). Social egg freezing: for better, not for worse. *Reproductive BioMedicine Online*, *23*(7), 824-829. https://doi.org/10.1016/j.rbmo.2011.09.010

Mertes, H., & Pennings, G. (2012). Elective oocyte cryopreservation: who should pay? *Hum Reprod., 27*(1), 9-13. https://doi.org/ 10.1093/humrep/der364

Mesen, T. B., Mersereau J. E., Kane, J. B., & Steiner, A. Z. (2014a). P-63 Analysis of Timing and Success of Oocyte Cryopreservation for Social Indications: A Decision Based Model. (Abstract). *Fertility and Sterility, 101*(2), e33-34. https://doi.org/10.1016/j.fertnstert.2013.11.120

Mesen, T. B., Mersereau J. E., Kane, J. B., & Steiner, A. Z. (2015). Optimal timing for elective egg freezing. *Fertility and Sterility, 103*(6), 1551-1556. https://doi.org/10.1016/j.fertnstert.2015.03.002

Mesen, T. B., Mersereau J. E., Kane, J. B., & Steiner, A. Z. (2014b). P-88 Timing oocyte cryopreservation for elective indcations: a cost-effectiveness analysis. (Abstract). *Fertility and Sterility, 102(3),* e168. https://doi.org /10.1016/j.fertnstert.2014.07.574

Meta. (n.d.). *Benefits*. Meta Careers. Retrieved November 4, 2023, from https://www.metacareers.com/facebook-life/benefits

Milman, L. W., Senapati, S., Sammel, M.D., Cameron, K.D., & Gracia, C. (2017). Assessing reproductive choices of women and the likelihood of oocyte cryopreservation in the era of elective oocyte freezing. *Fertility and Sterility, 107*(5), 1214-1222. https://doi.org/ 10.1016/j.fertnstert.2017.03.010

Miner, S. A., Miller, W. K., Grady, C., & Berkman, B. E. (2021). "It's Just Another Added Benefit": Women's Experiences with Employment-Based Egg Freezing Programs. *AJOB Empir Bioeth., 12*(1), 41-52. https://doi.org/ 10.1080/23294515.2020.1823908

Mohapatra, S. (2014). Using Egg Freezing for Non-Medical Reasons. Fertility Insurance or False Hope? - Legal, Ethical, and Policy Considerations. *Harvard Law & Policy Review, 381*. http://dx.doi.org/10.2139/ssrn.2352111

Morgan, L. M., & Taylor, J. S. (2013, April 14). *Op-Ed: Egg freezing: WTF?* (*Why's This Feminist?)*. The feminist wire. https://thefeministwire.com/2013/04/op-ed-egg-freezing-wtf/

Myers, K. (2017). “If I'm going to do it, I'm going to do it right”: Intensive mothering ideologies among childless women who elect egg freezing. *Gender and Society, 31*(6), 777-803. https://doi.org/10.1177/0891243217732329
Naderifar, M., Goli, H. & Ghaljaei, F. (2017). Snowball Sampling: A Purposeful Method of Sampling in Qualitative Research. *Strides in Development of Medical Education*, *14*(3), 1-6. https://doi.org/10.5812/sdme.67670
Nagy, B. (2007). A társadalmi nem szerepe a vezetésben Magyarországon. In B. Nagy (Ed.), *Szervezet, menedzsment és nemek* (pp. 110-121.). Budapest: Aula.
Nasab, S., Ulin, L., Nkele, C., Shah, J., Abdallah, M. E., & Sibai, B. M. (2020). Elective egg freezing: what is the vision of women around the globe? *Future Science, 6*(5), Article FSO468. https://doi.org/10.2144/fsoa-2019-0068
National Council of Churches of Singapore. (2019). *Social egg freezing: Ethical and Social Issues.* Statement by the National Council of Churces of Singapore. https://nccs.org.sg/wp-content/uploads/2023/01/NCCS-Social-Egg-Freezing.pdf
Nawroth, F. (2013). "Social freezing"-Pro und Contra. *Der Gynäkologe*, 46, 648-652. https://doi.org/10.1007/s00129-013-3145-7
Nawroth, F. (2015). *Social Freezing.* Wiesbaden: Springer Fachmedien Wiesbaden.
Neely, M. T. (2020). The Portfolio Ideal Worker: Insecurity and Inequality in the New Economy. *Qualitative Sociology, 43*, 271-296. https://doi.org/10.1007/s11133-020-09444-1
Negrin, K. A., Slaughter, S. E., Dahlke, S., & Olson, J. (2022). Successful Recruitment to Qualitative Research: A Critical Reflection. *International Journal of Qualitative Methods, 21*(2), 1-12. https://doi.org/10.1177/16094069221119576
Nguyen, L. L. A. (2005). Nök és férfiak a munka világában: nemi szerepek a munkahelyen. *Magyar Pszichológiai Szemle, 40*(1), 111-134. https://doi.org/10.1556/MPSzle.60.2005.1-2.7
Noyes, N., Procu, E., & Borini, A. (2009). Over 900 oocyte cryopreservation babies born with no apparent increase in congential anomalies. *Reproductive BioMedicione Online, 18*(6), 769-776. https://doi.org/10.1016/s1472-6483(10)60025-9
Ohlendorf, D., & Bundschuh, M. (2015). Social Freezing. Kostenübernahme von Eizellkryokonservierung durch US-amerikanische IT-Firmen. *Zentralblatt für Arbeitsmedizin, Arbeitsschutz und Ergonomie*, *65*, 41-43. https://doi.org/10.1007/s40664-014-0081-x
Oktay, K., Cil, A.P., & Bang, H. (2006). Efficiency of oocyte cryopreservation: a meta-analysis. *Fertility and Sterility, 86*(1), 70-80. https://doi.org/ 10.1016/j.fertnstert.2006.03.017
Oktay, K., Cil, A.P., & Zhang, J. (2010). Who is the best candidate for oocyte cryopreservation research? *Fertility and Sterility*, *93*(1), 13-15. https://doi.org/ 10.1016/j.fertnstert.2007.10.005
Olafsdottir, H. S., Wikland, M., & Möller, A. (2011). Reasoning about timing of wanting a child: A qualitative study of Nordic couples from fertiltiy clinics. *Reproductive and Infant Psychology, 29*(5), 493-505. https://doi.org/ 10.1080/02646838.2011.635298
Pape, J., & Tschudin, S. (2023). Pro und kontra Social Freezing – eine Stellungnahme aus reproduktionsmedizinischer und psychosomatischer Perspektive. *Gynäkologische Endokrinologie, 21*, 53-58. https://doi.org/10.1007/s10304-022-00482-2
Patrizio, P., Molinari, E., & Caplan, A. (2016). Ethics of medical and nonmedical oocyte cryopreservation. *Curr Opin Endocrinol Diabetes Obes., 23*(6), 470-475. https://doi.org/10.1097/MED.0000000000000292

Pavone, V. (2015). IVF as looking glass: Kinship, biology, technology and society through the lens of assisted reproductive technologies. *BioSocieties, 10*, 111-115. https://doi.org/10.1057/biosoc.2014.44

Peate, M., Sandhu, S., Braat, S., Hart, R., Norman, R., Parle, A., Lew., R. & Hickey, M. (2022). Randomized control trial of a decision aid for women considering elective egg freezing: The Eggsurance study protocol. *Women's Health., 18*, 1-12. https://doi.org/ 10.1177/17455057221139673

Peel, E., Parry, O., Douglas, M., & Lawton, J. (2006). "It's No Skin off My Nose": Why People Take Part in Qualitative Research. *Qualitative Health Research, 16*(10), 1335-1349. https://doi.org/10.1177/1049732306294511

Perrier, M. (2013). No right time: The significance of reproductive timing for younger and older mothers' moralities. *The Sociological Review, 61*(1), 69-87. https://doi.org/10.1111/1467-954X.12005

Petropanagos, A. (2010). Reproductive 'Choice' and Egg freezing. In T. K. Woodruff, et al. (Eds.), *Oncofertility, Cancer Treatment and Research* (pp. 209-221). Springler-Verlag GmbH.

Peyser, A., & Herslag, A. (2019). Is the increase in egg freezing cycles related to increased numbers of single women in the United States? (Abstract). *Fertility and Sterility, 112*(3), e119. https://doi.org/10.1016/j.fertnstert.2019.07.431

Platts, S., Trigg, B., Bracewell-Milnes, T., Jones, B. P., Saso, S., Parikh, J., Nicopoullos, J., Almeida, P., Norman-Taylor, J., Nikolaou, D., Johnson, M., & Thum, M-Y. (2021). Exploring women's attitudes, knowledge, and intentions to use oocyte freezing for non-medical reasons: A systematic review. *Acta Obstet Gynecol Scand., 100*(3), 383-393. https://doi.org/10.1111/aogs.14030

Poli, M., & Capalbo, A. (2021). Oocyte Cryopreservation at a Young Age Provides an Effective Strategy for Expanding Fertile Lifespan. *Front. Reprod. Health, 3*, https://doi.org/10.3389/frph.2021.704283

Practice Committees of the American Society for Reproductive Medicine and the Society for Assisted Reproductive Technology. (2013). Mature oocyte cryopreservation: a guideline. *Fertility and Sterility, 99*(1), 37-43. https://doi.org/10.1016/j.fertnstert.2012.09.028

Procher, V., Ritter, N., & Vance, C. (2018). Housework Allocation in Germany: The Role of Income and Gender Identity. *Social Science Quarterly, 99*(1), 43-61. https://doi.org/10.1111/ssqu.12390

Quaas, A. M., Melamed, A., Chung, K., Bendikson, K.A., & Paulson, R.J. (2013). Egg banking in the United States: current status of commercially available cryopreserved oocytes. *Fertility and Sterility, 99*(3), 827-831. https://doi.org/ 10.1016/j.fertnstert.2012.10.047

Quinn, G. P., Stearsman, D. K., Campo-Engelstein, L., & Murphy, D. (2012). Preserving the Right to Future Children: An Ethical Case Analysis. *The American Journal of Bioethics, 12*(6), 38-43. https://doi.org/10.1080/15265161.2012.673688

Rattay, P., von der Lippe, E., Borgmann, L-S., & Lampert, T. (2017). Gesundheit von alleinerziehenden Müttern und Vätern in Deutschland. *Journal of Health Monitoring, 2*(4), 24-44. https://doi.org/10.17886/RKI-GBE-2017-112

Ravitsky, V. (2014, June 13). *Social egg freezing in the race against the biological clock*. Impact Ethics. https://impactethics.ca/2014/06/13/social-egg-freezing-in-the-race-against-the-biological-clock/

Ravitsky, V., & Lemoine, M-E. (2014, October 14). *We need a culture thaw, not frozen eggs*. The Globe and Mail. https://www.theglobeandmail.com/opinion/we-need-a-culture-thaw-not-frozen-eggs/article21138405/

Reis, E., & Reis-Dennis, S. (2017). Freezing Eggs and Creating Patients: Moral Risks of Commercialized Fertility. *Hastings Center Report, 47,*Suppl 3, S41-S45. https://doi.org/10.1002/hast.794

René, C., Landry, I., & de Montigny, F. (2022). Couples' experiences of pregnancy resulting from assisted reproductive technologies: A qualitative meta-synthesis. *International Journal of Nursing Studies Advances, 4*, 1-17. https://doi.org/10.1016/j.ijnsa.2021.100059

Richards, E. (2013). *Motherhood rescheduled: The new frontier of egg freezing.* USA: Simon & Schuster.

Rimon-Zarfaty, N., Konstanzer, J., Sismuth, L-K., & de Bont, A. (2021). Between "Medical" and "Social" Egg Freezing. *Bioethical Inquiry, 18*(4), 683-699. https://doi.org/10.1007/s11673-021-10133-z

Rimon-Zarfaty, N. & Schicktanz, S. (2022). The emergence of temporality in attitudes towards cryo-fertility: a case study comparing German and Israeli social egg freezing users. *HPLS., 44,* Article 19. https://doi.org/10.1007/s40656-022-00495-x

Robertson, J. A. (2014). Egg freezing and egg banking: empowerment and alienation in assisted reprodcution. *Journal of Law and the Biosciences*, *1*(2); 113-136. https://doi.org/10.1093/jlb/lsu002

Rottenberg, C. (2014). The rise of neoliberal feminism. *Cultural Studies, 28*(3), 1-20. https://doi.org/ 10.1080/09502386.2013.857361

Rudick, B., Opper, N., Paulson, R., Bendikson, K., & Chung, K. (2010). The status of oocyte cryopreservation in the United States. *Fertility and Sterility*, *94*(7); 2642-2646. https://doi.org/10.1016/j.fertnstert.2010.04.079

Rybak, E. A., & Lieman, H. J. (2009). Egg freezing, procreative liberty, and ICSI: the double standards confronting elective self-donation of oocytes. *Fertility and Sterility, 92*(5), 1509-1512. https://doi.org/ 10.1016/j.fertnstert.2009.09.008

Samtleben, C., & Müller, K-U. (2022). Care and careers: Gender (in)equality in unpaid care, housework and employment. *Research in Social Stratification and* Mobility, 77, 1-17. https://doi.org/10.1016/j.rssm.2021.100659

Sandhu, S., Hickey, M., Braat, S., Hammarberg, K., Lew, R., Fisher, J., Ledger, W., & Peate, M. (2023). Information and decision support needs: A survey of women interested in receiving planned oocyte cryopreservation information. *J Assist Reprod Genet., 40*(6), 1265-1280. https://doi.org/10.1007/s10815-023-02796-x

Sandor, J., Vicsek, L., & Bauer, Zs. (2017). Let us talk about eggs! Professional resistance to elective egg vitrification and gendered medical paternalis. *Med Health Care and Philos., 21*(3), 311-323. https://doi.org/ 10.1007/s11019-017-9805-y

Savulescu, J., & Goold, I. (2008). Freezing Eggs for Lifestlye Reasons. *Bioethics, 8*(6), 32-35. https://doi.org/10.1080/15265160802248492

Scala, F., & Orsini, M. (2022). Problematising older motherhood in Canada: ageism, ableism, and the risky maternal subject. *Health, Risk & Society*, *24*(3-4), 149-166. https://doi.org/ 10.1080/13698575.2022.2057453

Schäder, B. (2023, September 13). *Merck sponsert Beschäftigten Kinderwunschbehandlung*. Frankfurter Allgemeine Zeitung. https://www.faz.net/aktuell/rhein-main/wirtschaft/merck-unterstuetzt-kinderwunschbehandlungen-von-beschaeftigten-19170545.html

Schattman, G. L. (2016). A healthy dose of reality for the egg-freezing party. *Fertility and Sterility, 105*(2), 307. https://doi.org/10.1016/j.fertnstert.2015.12.001

Schneider, S. (2017). *HR Policies and Maternal Labor Supply. The Example of Employer-Supported Childcare.* Frankfurt am Main: Peter Lang GmbH.

Schuman, L., Witkin, G., Copperman K., & Acosta-La Greca, M. (2011). Psychology of egg freezing patients: would they consider single motherhood? (Abstract). *Fertility and Sterility, 96*(3), S206. https://doi.org/10.1016/j.fertnstert.2011.07.799

Shkedi-Rafid, S., & Hashiloni-Dolev, Y. (2011). Egg freezing for age-related fertility decline: preventive medicine or a further medicalization of reproduction? Analyzing the new Israeli policy. *Fertility and Sterility, 96*(2), 291-294. https://doi.org/ 10.1016/j.fertnstert.2011.06.024

Snyder-Hall, C. (2010). Third-Wave Feminism and the Defense of "Choice". *Perspective on Politics, 8*(1), 255-261. http://www.jstor.org/stable/25698533

Srinivas, S. (2014, October 15). *Facebook and Apple to pay for female employees to freeze their eggs*. The Guardian. https://www.theguardian.com/money/us-money-blog/2014/oct/14/apple-facebook-pay-women-employees-freeze-eggs

Standton, C., & Sussman, E. (2014). A Survey on Awareness and Interest Towards Proactive Egg Freezing among Women 25 - 35 Years Old. (Abstract.). *Fertility and Sterility, 101*(2), e34-35. https://doi.org/10.1016/j.fertnstert.2013.11.051

Statista. (2023, July). *Durchschnittliches Alter der Mütter und Väter bei der Geburt eines Kindes in Deutschland von 1991 bis 2022*. Statista. https://de.statista.com/statistik/daten/studie/1180171/umfrage/durchschnittliches-alter-der-muetter-und-vaeter-bei-der-geburt-in-deutschland/

Statistisches Bundesamt. (2013). *Geburttrends und Familiensituationen in Deutschland 2012.* Wiesbaden: Statistisches Bundesamt. https://www.destatis.de/DE/Themen/Gesellschaft-Umwelt/Bevoelkerung/Haushalte-Familien/Publikationen/Downloads-Haushalte/geburtentrends-5122203129004.pdf?__blob=publicationFile

Statistisches Bundesamt. (2016). *Statistik und Wissenschaft. Demographische Standards. Ausgabe 2016.* Wiesbaden: Statistisches Bundesamt.

Statistisches Bundesamt. (2019). *Kinderlosigkeit, Geburten und Familien - Ergebnisse des Mikrozensus 2018.* Destatis.

Steele, C. (2019). Who is the ideal worker? How gendered organizations adversely impact women's promotability and development. Dissertation. *Academy of Management Proceedings*. https://doi.org/10.32469/10355/78161

Stoop, D. (2010). Social egg freezing. *Facts, Views and Vision, Issues in Obstetrics Gynaecology and Reproductive Health, 2*(1), 31-34.

Stoop, D. (2016). Oocyte vitrification for elective fertility preservation: lessons for patient counseling. *Fertility and Sterility, 105*(3), 603-604. https://doi.org/10.1016/j.fertnstert.2015.12.044

Stoop, D., Cobo, A., & Silber, S. (2014a). Fertility preservation for age-related fertility decline. *Lancet*, 384(9950), 1311-1319. https://doi.org/10.1016/S0140-6736(14)61261-7

Stoop, D., Maes, E., Polyzos, N. P., Verheyen, G., Tournaye, H., & Nekkerbroeck, J. (2015). Does oocyte banking for anticipated gamete exhaustion influence future relational and reproductive choices? A follow-up of bankers and non-bankers. *Human Reproduction, 30*(2), 338-344. https://doi.org/ 10.1093/humrep/deu317

Stoop, D., Nekkebroeck, J., & Devroey, P. (2011). A survey on the intentions and attitudes towards oocyte cryopreservation for non-medical reasons among women of reproductive age. *Human Reproduction, 26*(3), 655-661. https://doi.org/10.1093/humrep/deq367

Stoop, D., van der Veen, F., Deneyer, M., Nekkebroeck, J., & Tournaye, H. (2014b). Oocyte banking for anticipated gamete exhaustion (AGE) is a preventative intervention,

neiter social or nonmedical. *Reproductive BioMedicine Online, 28*(5), 548-551. https://doi.org/10.1016/j.rbmo.2014.01.007
Strauss, S. (2014). Implicit Bias and Employment Discrimination. In M. Paludi (Ed.), *Women, Work, and Family: How Companies Thrive with a 21st-Century. Multicultural Workforce* . Santa Barbara: ABC-CLIO.
Tan, S. Q., Tan, A. W. K., Lau, M. S. K., Tan, H. H., & Nadarajah, S. (2014). Social oocyte freezing: A survey among Singaporean female medical students. *Obsterics and Gynaecology Research, 40*(5), 1345-1352. https://doi.org/10.1111/jog.12347
Tarasoff, L. A. (2014, October 16). *"Exciting and terrifying": A young feminist scholar reflects on (social egg freezig as a solution for) "having it all"*. University of Toronto Press. https://utorontopress.com/blog/2014/10/16/exciting-and-terrifying-a-young-feminist-scholar-reflects-on-social-egg-freezing-as-a-solution-for-having-it-all/
Taube, A. (2014, October 14). *Apple And Facebook Are Paying Employees To Freeze Their Eggs*. Business Insider. https://www.businessinsider.com/apple-and-facebook-pay-women-to-freeze-eggs-2014-10
Taupitz, J. (2021). Donogene Insemination; Verwendung von Spender-Samen zur Herbeiführung einer Schwangerschaft bei homosexuellen (Ehe-)Paaren und alleinstehenden Frauen. *Hessisches Ärztzeblatt*, *82*(9), 509-512. https://www.laekh.de/heftarchiv/ausgabe/2021/9-september-2021
ter Keurst, A., Boivin, J., & Gameiro, S. (2016). Women's intentions to use fertiltiy preservation to prevent age-related fertility decline. *Reproductive BioMedicine Online, 32*(1), 121-131. https://doi.org/ 10.1016/j.rbmo.2015.10.007
The Nobel Prize. (2023, October 9). *Press release*. The Nobel Prize. https://www.nobelprize.org/prizes/economic-sciences/2023/press-release/
Thorn, P. (2017). Social Freezing aus der Perspektive der psychosozialen Kinderwunschberatung: Zwischen Kinderwunsch und Kindeswohl. In K. van der Ven et al. (Eds.), *Social Freezing. Die Möglichkeiten der modernen Fortpflanzungsmedizin und die ethische Kontroverse* (pp. 26-28). Wiesbaden: Springer Fachmedien Wiesbaden GmbH.
Thwaites, R. (2017). Making a choice or taking a stand? *Feminist Theory, 18*(1), 55-68. https://doi.org/10.1177/1464700116683657
Tozzo, P., Fassina, A., Nespeca, P., Spigarolo, G., & Caenazzo, L. (2019). Understanding social oocyte freezing in Italy: a scoping survey on university female students' awareness and attitude. *Life Sciences, Society and Policy, 15*(3), 1-14. https://doi.org/10.1186/s40504-019-0092-7
Tran, M. (2014, October 15). *Apple and Facebook offer to freeze eggs for female employees*. The Guardian. https://www.theguardian.com/technology/2014/oct/15/apple-facebook-offer-freeze-eggs-female-employees
Trappe, H. (2017). Assisted Reproductive Technologies in Germany: A Review of the Current Situation. In: Kreyenfeld, M., Konietzka, D. (Eds.), *Childlessness in Europe: Contexts, Causes, and Consequences. Demographic Research Monographs*. Springer, Cham. https://doi.org/10.1007/978-3-319-44667-7_13
Uber. (n.d.). *Benefits at Uber*. Uber. Retrieved November 4, 2023, from https://www.uber.com/ca/en/careers/benefits/
Ullrich, C. (2017). Stigma „unerfüllter Kinderwunsch“? Situation und Handlungsstrategien von Paaren in reproduktionsmedizinischer Behandlung. *Geschlossene Gesellschaften, 38*, 1-8.
United Nations. (5–13 September 1994). Programme of Action. *International Conference on Population and Development* (p. 60). Cairo: United Nations.

Utasi, A. (2011). Szubjektív feszültség és munkastressz a házasok életében. Összehasonlítás Európa 24 országában. . In I. Nagy, & T. Pongrácz (Eds.), *Szerepváltozások. Jelentés a nök és férfiak helyzetéröl.* Budapest: TÁRKI - Nemzeit Eröforrás és Miniszterium.

Vallejo, V., Lee, J.A., Schuman, L., Witkin, G., Cervantes, E., Sandler, B., & Copperman, A.B. (2013). Social and psychological assessment of women undergoing oocyte cryopreservation: A 7-year analysis. *Open Journal of Obstetrics and Gynecology, 3*(1), 1-7. https://doi.org/10.4236/ojog.2013.31001

van de Wiel, L. (2014). From Whom the Clock Ticks: Reproductive Ageing and Egg Freezing in Dutch and British News Media. *Studies in the Maternal*, *6*(1), 1-28. https://doi.org/10.16995/sim.4

van de Wiel, L. (2015). Frozen in anticipation: Eggs for later. *Women's Studies International Forum, 53,* 119-128. https://doi.org/10.1016/j.wsif.2014.10.019

van de Wiel, L. (2020a). The speculative turn in IVF: egg freezing and the financialization of fertility. *New Genetics and Society, 39*(3), 306-326. https://doi.org/10.1080/14636778.2019.1709430

van de Wiel, L. (2020b). *Freezing Fertility: Oocyte Cryopreservation and the Gender Politics of Aging*. New York: New York University Press.

van der Ven, K., Pohlmann, M., & Hößle, C. (2017). *Social Freezing. Die Möglichkeiten der modernen Fortpflanzungsmedizin und die ethische Kontroverse.* Wiesbaden: Springer Fachmedien Wiesbaden GmbH.

van Loendersloot, L. L., Moolenaar, L.M., Mol, B.W.J., Repping, S., van der Veen, F., & Goddijn, M. (2011). Expanding reproductive lifespan: a cost-effectiveness study on oocyte freezing. *Human Reproduction, 26*(11), 3054-3060. https://doi.org/10.1093/humrep/der284

Varlas, V. N., Bors, R. G., Albu, D., Penes, O. N., Nasu,i B. A., Mehedintu, C., & Pop, A.L. (2021). Social Freezing: Pressing Pause on Fertility. *Int J Environ Res Public Health., 18*(15), 8088. https://doi.org/10.3390/ijerph18158088

Vida, K., & Kovács, M. (2017). A token helyzet és a meritokrácia illúziója: a kivétel erősíti a szabályt. In M. Kovács (Ed.), *Társadalmi nemek. Elméleti megközelítések és kutatási eredmények* (pp. 141-154). Budapest: ELTE Eötvös Kiadó.

Vieth, A. (2016). *Schwangerschaftsethik und social egg freezing. Moralische, soziale und ökonomische Übergriffigkeiten.* Münster: Author.

von Wolff, M. (2013a). "Social freezing" Sinn oder Unsinn? *Gynäkologische Endokrinologie, 11*, 222-224. https://doi.org/10.1007/s10304-013-0572-4

von Wolff, M. (2013b). Anlage einer Fertilitätsreserve bei nicht-medizinischen Indikationen ("Social freezing"): Techniken und kritische Bewertung. *Journal für Gynäkologische Endokrinologie*, *23*(1), 14-19.

Wafi, A., Nekkebroeck, J., Blockeel, C., De Munck, N., Tournaye, H., & De Vos, M. (2020). A follow-up survey on the reproductive intentions and experiences of women undergoing planned oocyte cryopreservation. *Reproductive BioMedicine Online, 40*(2), 207-214. https://doi.org/10.1016/j.rbmo.2019.11.010

Waldby, C. (2015a). The Oocyte Market and Social Egg Freezing: From Scarcity to Singularity. *Journal of Cultural Economy, 8*(3), 275-291. https://doi.org/10.1080/17530350.2015.1039457

Waldby, C. (2015b). ‘Banking time': egg freezing and the negotiation of future fertility. *Culture, Health & Sexuality, 17*(4), 470-482. https://doi.org/ 10.1080/13691058.2014.951881

Waldby, C. (2019). *The Oocyte Economy: The Changing Meaning of Human Eggs.* Durham: Duke University Press.

Walker, Z., Lanes, A., & Ginsburg, E. (2022). Oocyte cryopreservation review:

outcomes of medical oocyte cryopreservation and planned oocyte cryopreservation. *Reproductive Biology and Endocrinology, 20*, Article 10. https://doi.org/10.1186/s12958-021-00884-0

Wennberg, A. L. (2020). Social freezing of oocytes: a means to take control of your fertility. *Upsala Journal of Medical Sciences, 125*(2), 95-98. https://doi.org/ 10.1080/03009734.2019.1707332

Wennberg, A. L., Rodriguez-Wallberg, K. A., Milson, I., & Brannstrom M. (2016). Attitudes toward new assisted reproductive technologes in Sweden: a survery in women 30-39 years of age. *Acta Obstet Gynecol Scand., 95*(1), 38-44. https://doi.org/ 10.1111/aogs.12781

WHO. (n.d.). *Ageing: Agism*. World Health Organisation. Retrieved November 4, 2023, from https://www.who.int/news-room/questions-and-answers/item/ageing-ageism

Wicker, A. W. (1969). Attitudes versus actions: The relationship of verbal and overt behavioral responses to attitude objects. *Journal of Social Issues*, *25*(4), 41-78. https://doi.org/10.1111/j.1540-4560.1969.tb00619.x

Will, E. A., Maslow, B. S., Kaye, L., & Nulsen, J. (2017). Increasing awareness of age-related fertility and elective fertility preservation among medical students and house staff: a pre- and post-intervention analysis. *Fertility and Sterility, 107*(5), 1200-1205. https://doi.org/10.1016/j.fertnstert.2017.03.008

Williamson, T., Wagstaff, D. L., Goodwin, J., & Smith, N. (2023). Mothering Ideology: A Qualitative Exploration of Mothers' Perceptions of Navigating Motherhood Pressures and Partner Relationships. *Sex Roles, 88*, 101-117. https://doi.org/10.1007/s11199-022-01345-7

Wunder, D. (2013). Social freezing in Switzerland and worldwide - a blessing for women today? *Swiss Medical Weekly*, *143*, 1-6. https://doi.org/ 10.4414/smw.2013.13746

Yee, S., Gordon, D., & Librach, C.L. (2017). Identifying egg freezing decision-making factors to inform the development of the decision aid app called 'Frzmyeggs'. (Abstract). *Fertility and Sterility, 108*(3), e189. https://doi.org/10.1016/j.fertnstert.2017.07.560

Young, P. (2015). The Evolution of Social Norms. *Annu. Rev. Econ., 7*, 359-387. https://doi.org/10.1146/annurev-economics-080614-115322

Yu, L., Peterson, B., Inhorn M. C., Boehm, J.K., & Patrizio P. (2016). Knowledge, attitudes, and intentions toward fertility awareness and oocyte cryopreservation among obsterics and gnyecology resident physicians. *Human Reproduction. 31*(2), 403-411. https://doi.org/ 10.1093/humrep/dev308

Zaami, S., Driul, L., Sansone, M., Scatena, E., Andersson, K. L., & Marinelli, E. (2021). ART Innovations: Fostering Women's Psychophysical Health between Bioethics Precepts and Human Rights. *Healthcare, 9*(11), 1-8. https://doi.org/10.3390/healthcare9111486

Zamberlan, A., & Barbieri, P. (2023). A 'potential motherhood' penalty? A longitudinal analysis of the wage gap based on potential fertility in Germany and the United Kingdom. *European Sociological Review*, jcad003. https://doi.org/10.1093/esr/jcad003

Zava. (n.d.). *Ungewollte Kinderlosigkeit – Künstliche Befruchtung auf dem Vormarsch?* Zavamed. Retrieved November 4, 2023, from https://www.zavamed.com/de/zava-studie-kuenstliche-befruchtung.html

Zhou, M. (2017). Motherhood, employment and the dynamics of women's gender attitudes. *Gender and Society, 31*(6), 751-776. https://www.jstor.org/stable/26597025

Zore, T., Joshi, N., Schon, S. B., Mason, P., & Chan, J. L. (2017). Assessment of fertility clinics websites on oocyte cryopreservation (OC). (Abstract). *Fertility and Sterility, 108*(3), e189. https://doi.org/10.1016/j.fertnstert.2017.07.559

9 Appendix

9.1 Demographic survey (English translation)

Social Egg Freezing
Demographic Survey

TECHNISCHE UNIVERSITÄT DARMSTADT

What gender do you identify as?

☐ female
☐ male
☐ divers
☐ no indication

Which age group do you belong to?

☐ 18-25 ☐ 26-32 ☐ 33-38 ☐ 39-44 ☐45+

What is your marital status?

☐ single
☐ married
☐ widow
☐ divorced
☐ separated

What is your sexual orientation?

☐ heterosexuell ☐ other:

What is the highest degree or level of education you have completed?

☐ High school
☐ High school with Abitur (or similar)
☐ Apprenticeship
☐ Uncompleted/ongoing university degree
☐ Bachelor's Degree
☐ Master's Degree
☐ Ph.D

If you are employed, in which of the following industries are you employed currently?

☐ Automobile Industry
☐ Health Industry
☐ Commerce
☐ Engineering Industry
☐ Construction Industry
☐ Banking/Financial Industry/Insurance
☐ Public service
☐ Union/Institutions (e.g. political parties, church)
☐ Other industries

If you are employed, how many years of working experience do you have?

☐ less than 3 years ☐ 3-5 years ☐ 6-10 years ☐ more than 10 years

Hinweise sehen Sie in dem beigefügten Dokument: *Aufklärungsbogen & Erklärung zum Datenschutz.*
Bei Rückfragen stehe ich Ihnen jederzeit zur Verfügung unter barbara.keglovits@stud.tu-darmstadt.de

1

What is your postal code?

Which journals do you read?

If there were an election next Sunday, which party would you vote for?

Are you member of any religion?

☐ Yes | ☐ No

If applicable, please specify your religion.

Do you plan to have a child in the future?

☐ Yes | ☐ No | ☐ I don't know

Have you heard of social egg freezing before this study?

☐ No, not yet

☐ Yes, I've heard already the term, but I didn't know what it is exactly

☐ Yes, I knew what social egg freezing is

☐ Other:

What personal experience do you have with social egg freezing?

☐ I don't have any personal experience

☐ I've informed myself about the possibility in detail

☐ I've seriously considered to opt for social egg freezing

☐ I've had a consultation in a medical center

☐ I've opted for social egg freezing

☐ I've used my frozen oocytes

Have you read the article *Das Einfrieren von Eizellen zahlt die Firma* (FAZ) before the interview?

☐ Yes | ☐ No

Thank you for your reply!

9.2 Research code design

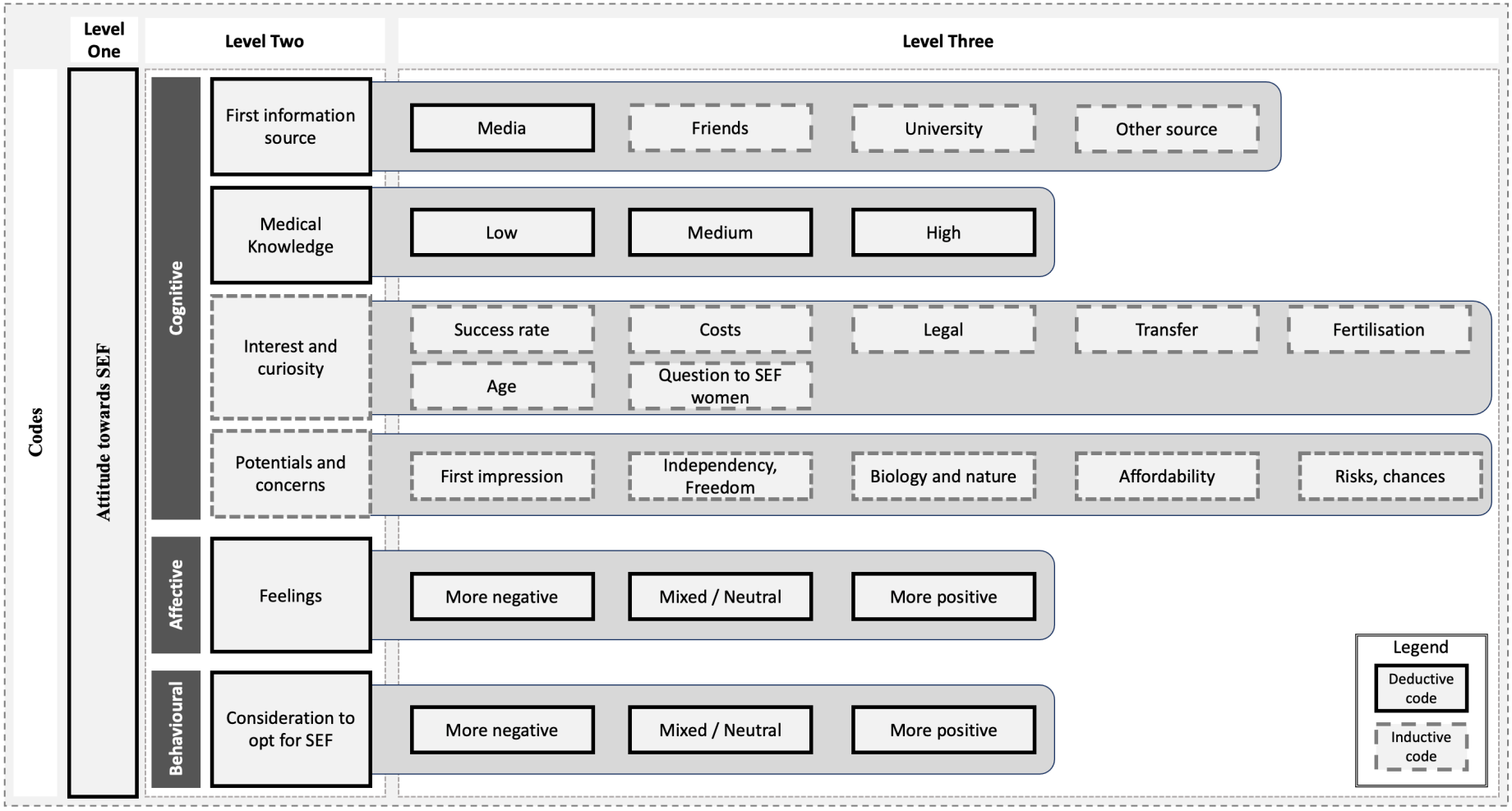


Figure 55 Codes - attitude towards SEF

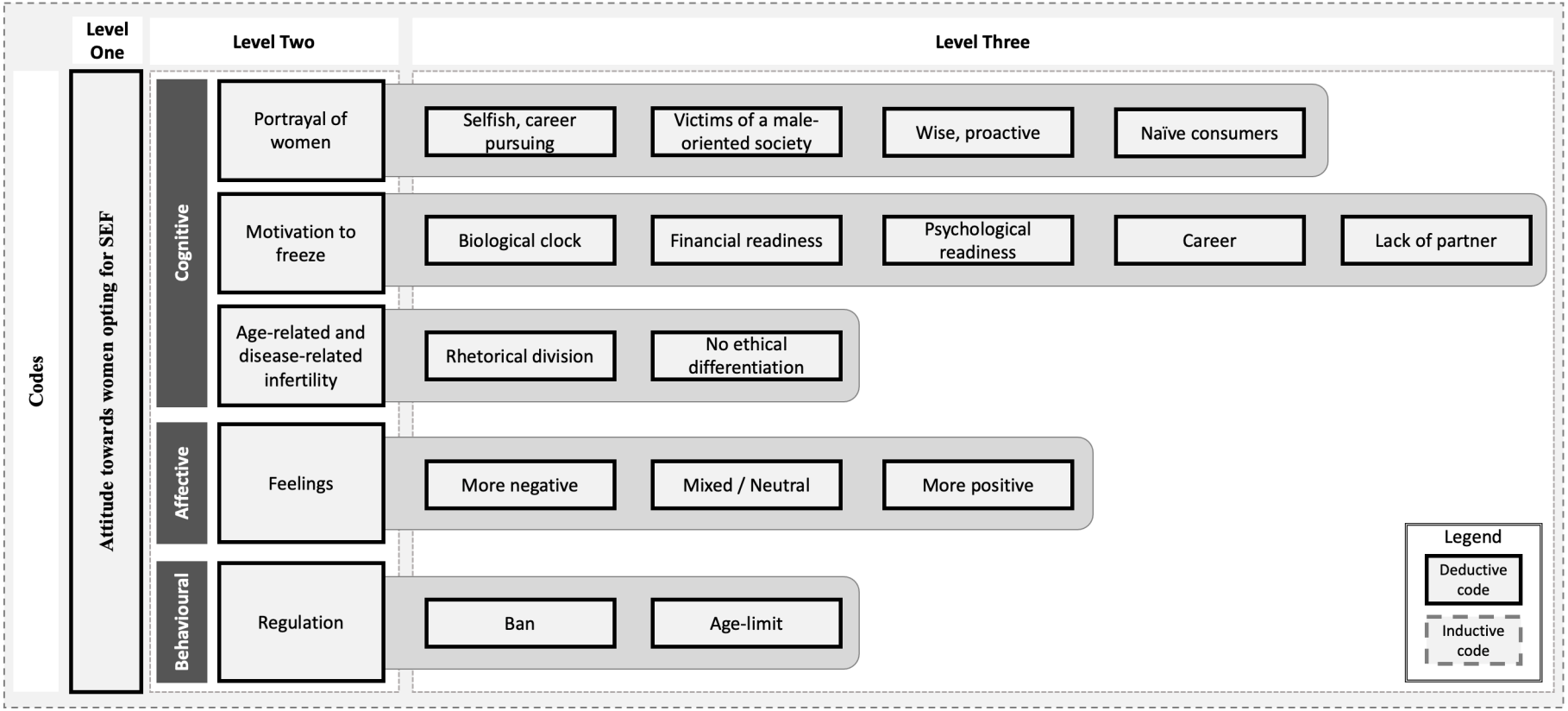


Figure 56 Codes - attitude towards women opting for SEF

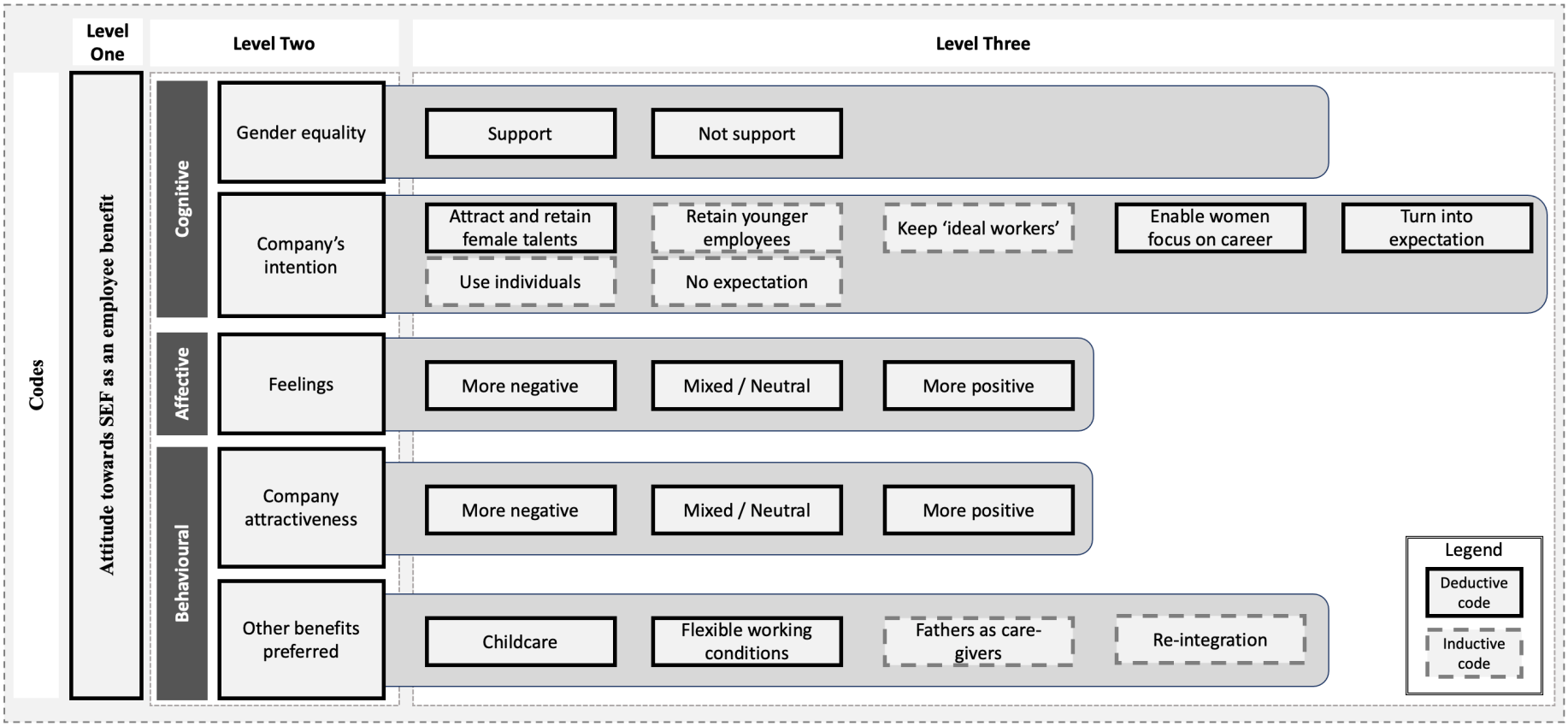


Figure 57 Codes - attitude towards SEF as an employee benefit

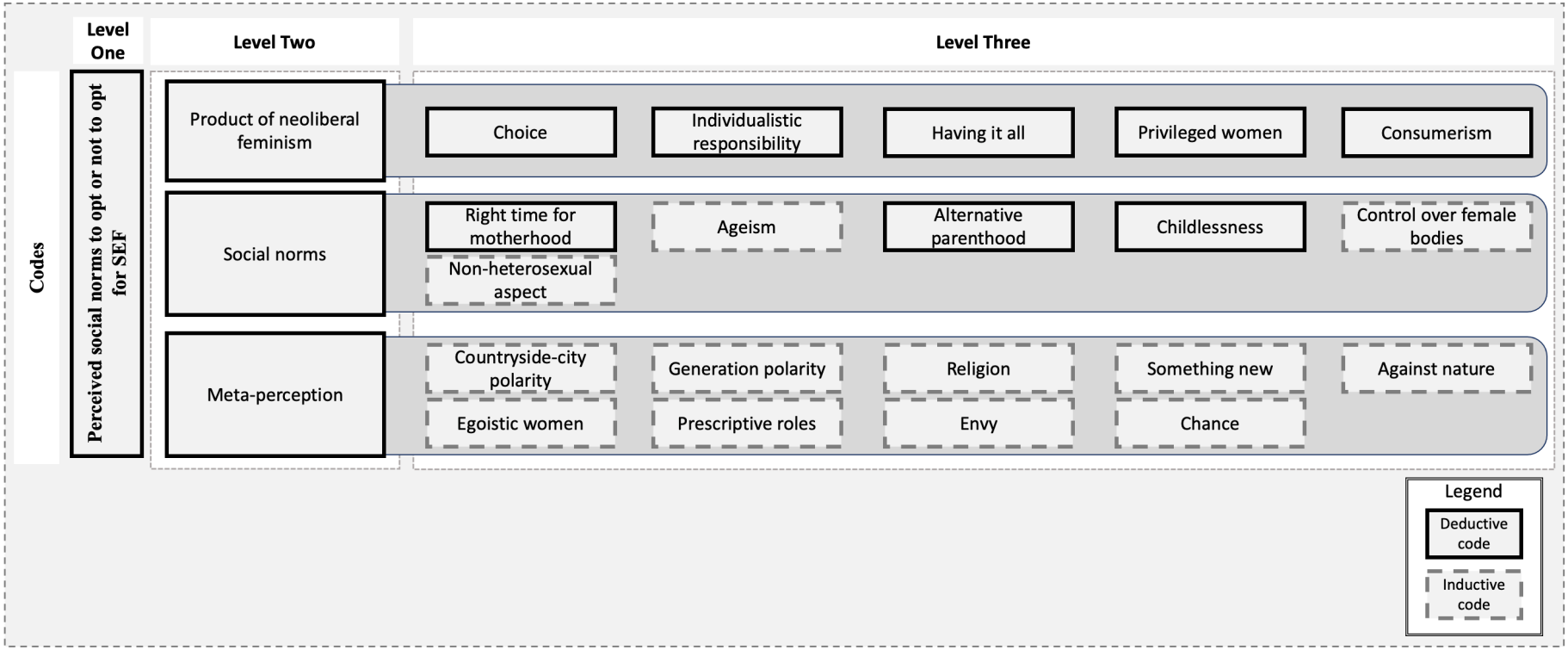


Figure 58 Codes - perceived social norms to opt or not to opt for SEF

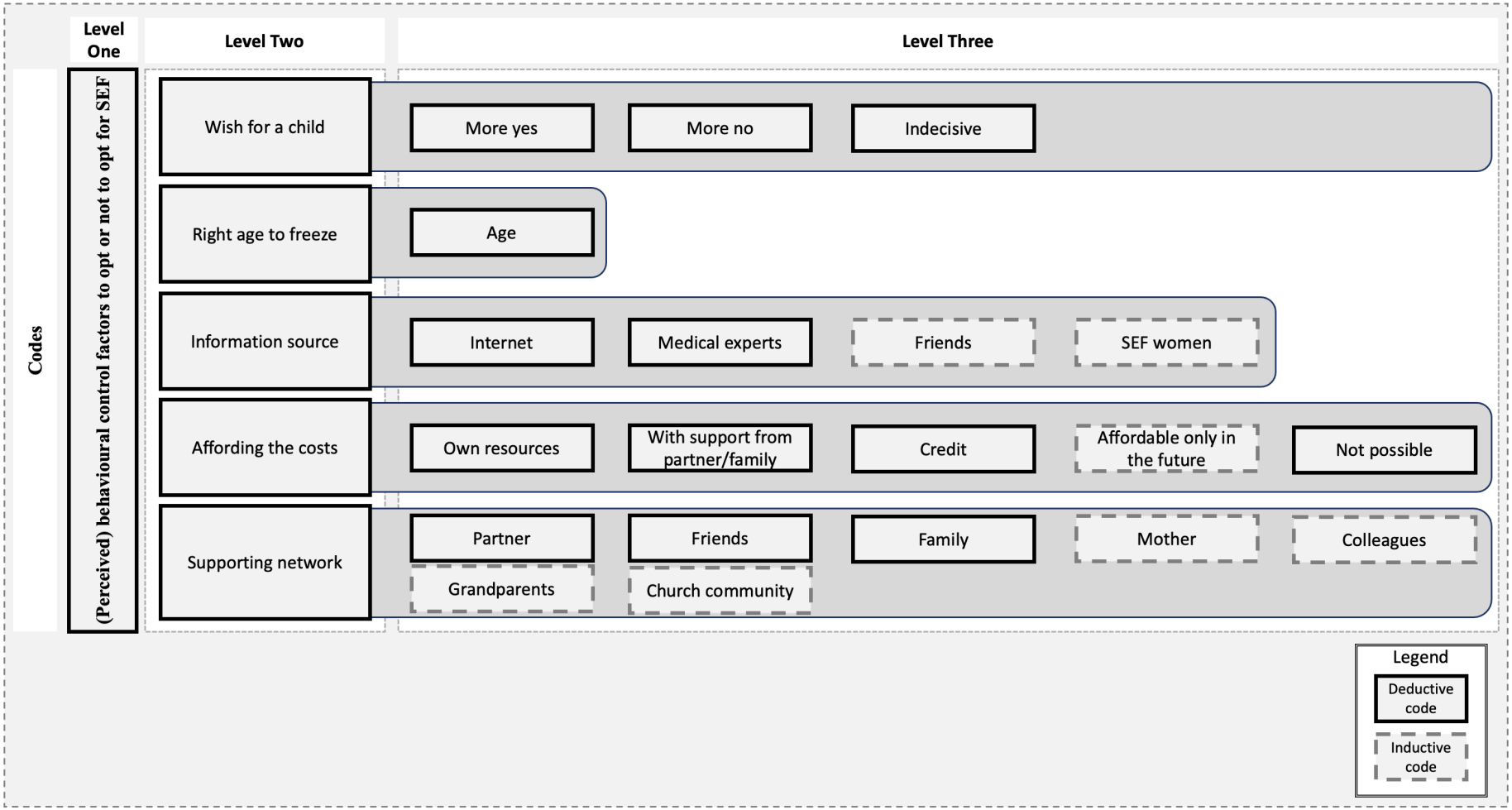


Figure 59 Codes – perceived and actual control factors to opt or not to opt for SEF

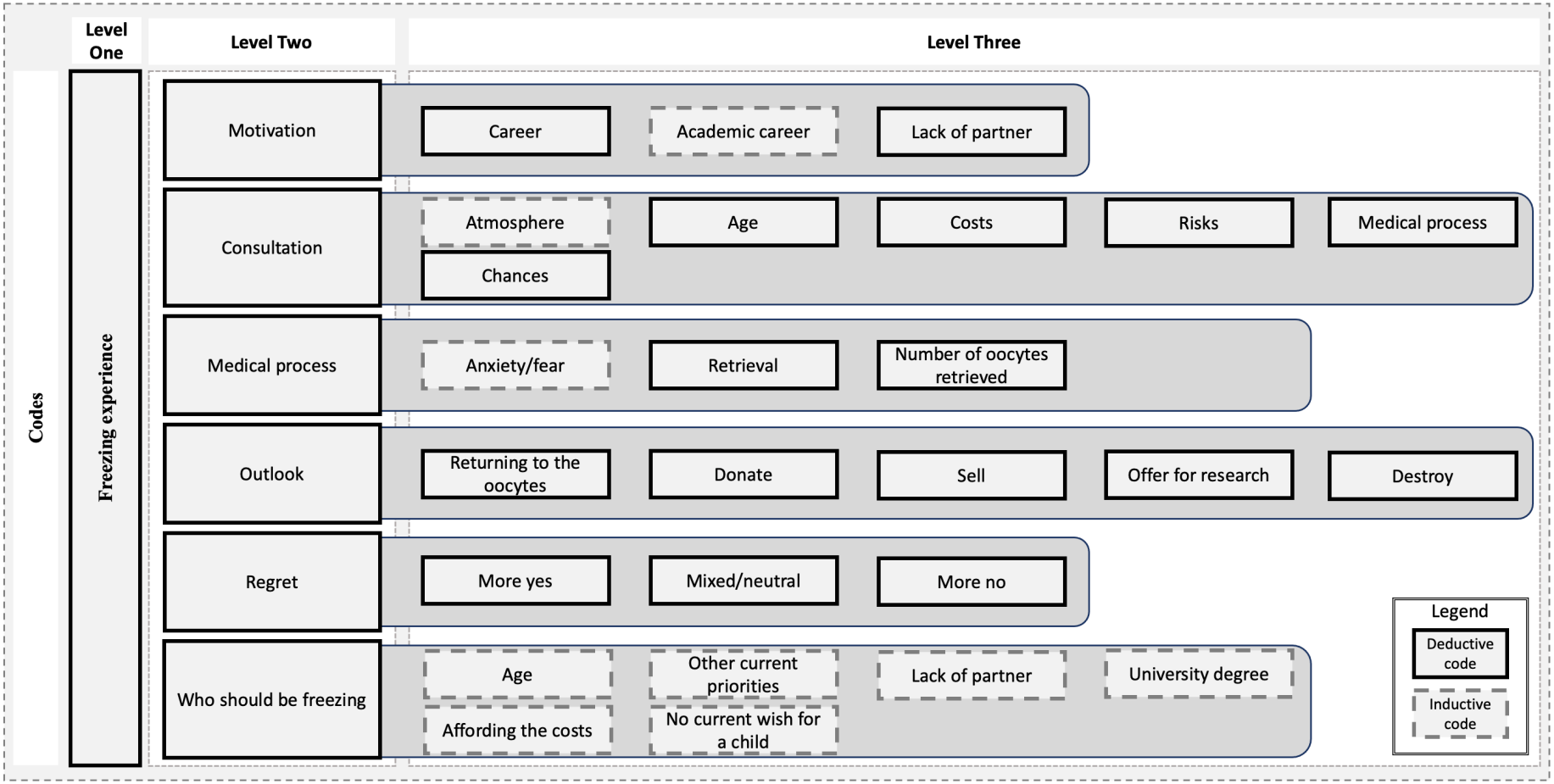


Figure 60 Codes – freezing experience

9.3 Distribution of all statements

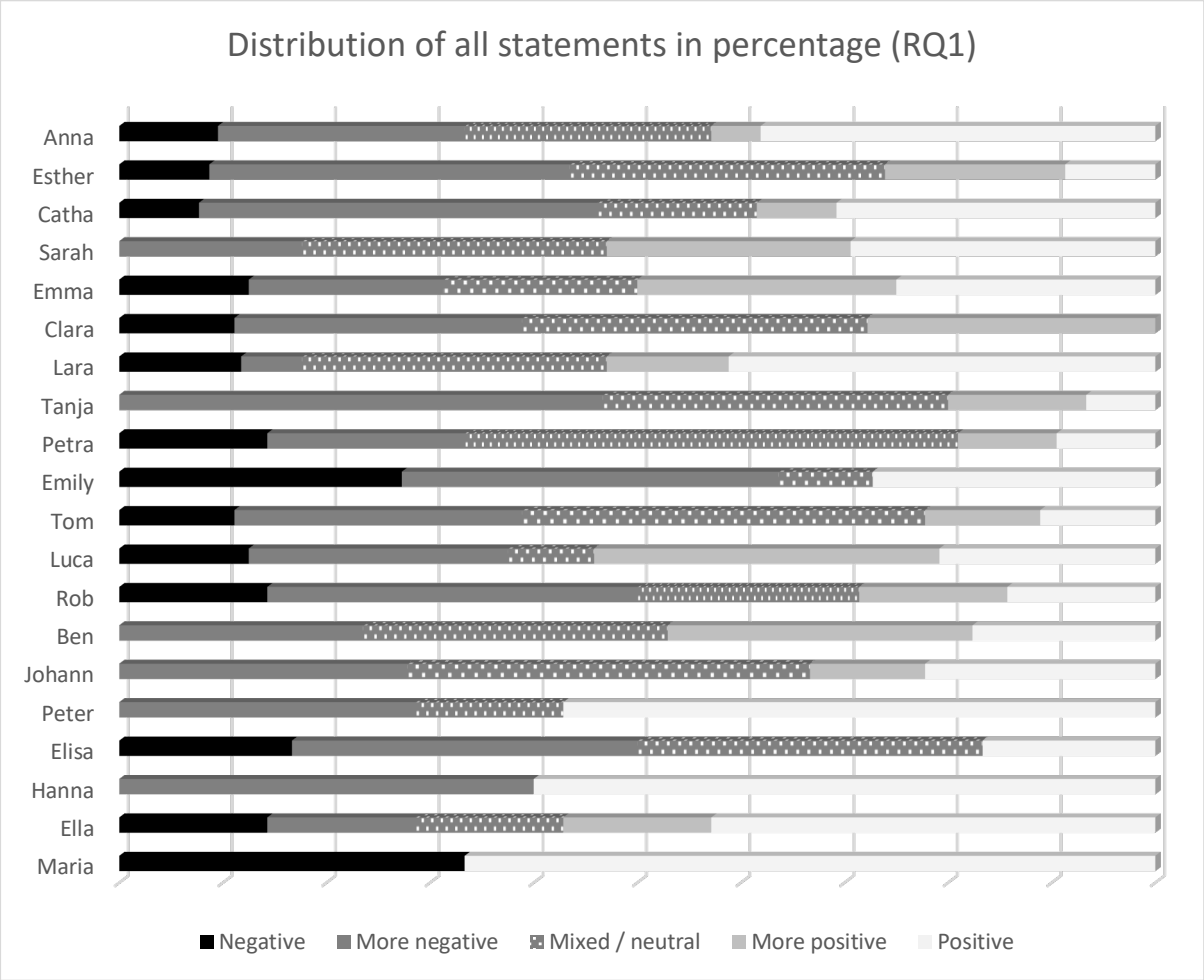


Figure 61 Distribution of all statements in percentage (RQ1)