

IMAGINING MOTHERHOOD AND BECOMING A MOTHER AFTER EGG FREEZING. AN ANTHROPOLOGICAL STUDY IN THE FRENCH CONTEXT

IMAGINAR LA MATERNIDAD Y CONVERTIRSE EN MADRE DESPUÉS DE UNA AUTOCONSERVACIÓN DE ÓVULOS. UN ESTUDIO ANTROPOLÓGICO EN EL CONTEXTO FRANCÉS

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Abstract

This paper examines how women accessing social egg freezing (SEF), medical egg freezing (MEF), and egg sharing (ESH) imagine becoming a mother (normative motherhood) in contrast to how they become a mother (reproductive trajectory). It uses data collection from 43 semi-structured in-depth interviews with French women who have had their eggs cryopreserved in France and abroad, five of whom have had children. It was found that most of the women interviewed associate motherhood with heterosexual coupledom, the nuclear family, and a normalized desire for biogenetic motherhood. Nevertheless, *ontological disruptions* caused by infertility, singlehood, or illness introduce the possibility that they will be unable to have children as expected, which leads them to imagine (and consider) both medical and non-medical ways of having a child. Women's narrations of alternative paths toward motherhood describe a *fragmentation* of motherhood into genetic, biological, and social components, which are combined and hierarchized in unexpected

ways. I argue that, although alternative reproductive trajectories might modify the kinship ties between the parties involved, they do not necessarily defy normative motherhood. To my knowledge, this is the first empirical study conducted among French women undertaking egg freezing. It seeks to contribute to a growing corpus of empirical research that analyzes egg freezing and its links with motherhood. Second, it mobilizes an innovative approach by examining similarities between SEF, MEF, and ESH. Furthermore, it proposes that women who freeze their eggs for medical reasons or in exchange for an egg donation also inscribe their egg freezing procedure within a heteronormative, biogenetic ideal of motherhood, and a normalized desire for a nuclear family. Finally, it contributes to analyzing the decision-making processes of women who become a mother after egg freezing.

Keywords: France; qualitative research; social egg freezing; medical egg freezing; egg sharing; normative motherhood; reproductive trajectory

Resumen

Este artículo examina cómo las mujeres que acceden a la autoconservación de óvulos por razones sociales, médicas y en el marco de una donación de óvulos (*egg sharing*), imaginan ser madres (maternidad normativa) en contraste con cómo se convierten en madres (trayectoria reproductiva). Metodológicamente, se utilizan 43 entrevistas en profundidad semiestructuradas, conducidas entre mujeres francesas que han criopreservado sus óvulos en Francia y en el extranjero, cinco de las cuales han tenido hijos. En el análisis se constató que la mayoría de las mujeres entrevistadas asocian la maternidad con la pareja heterosexual, la familia nuclear y un deseo normalizado de maternidad biogénica. Sin embargo, diversas *interrupciones ontológicas* causadas por la infertilidad, la soltería o una enfermedad introducen la posibilidad de que no puedan tener hijos como lo desean, lo que las lleva a imaginar (y considerar) otras vías para tener hijos/as; vías médicas y no médicas. Las narraciones de las mujeres que se han convertido en madres sobre sus trayectorias alternativas hacia la maternidad describen una *fragmentación* de la maternidad en componentes genéticos, biológicos y sociales, que se combinan y jerarquizan de forma original. A través de mi argumentación muestro que, aunque las trayectorias reproductivas alternativas pueden modificar los vínculos de parentesco entre las partes implicadas, no necesariamente desafían la maternidad normativa. Que yo sepa, este es el primer estudio empírico realizado en Francia sobre la congelación de óvulos. El mismo contribuye al emergente corpus de literatura académica que explora la autoconservación de óvulos y sus vínculos con la maternidad y moviliza una aproximación innovativa al examinar las similitudes entre congelación de óvulos por razones médicas, sociales y *egg sharing*. Igualmente, propone que las mujeres que congelan sus óvulos por razones médicas y por *egg sharing* también aspiran a una maternidad normativa. Finalmente, este

artículo contribuye a analizar el proceso de toma de decisión de las mujeres que se convierten en madres después de una autoconservación de óvulos.

Palabras clave: Francia; investigación cualitativa; autoconservación social de óvulos; autoconservación médica de óvulos; egg *sharing*; maternidad normativa; trayectoria reproductiva

1. INTRODUCTION

Oocyte vitrification or egg freezing is a new assisted reproductive technology (ART) that aims to cryopreserve ova (female gametes) to keep open the possibility of procreating in the future. Oocyte retrieval is preceded by traditional ovarian stimulation (the same used for *in vitro* fertilization (IVF)), which consists of hormonal stimulation for 12-14 days to stimulate the development of follicles in the ovaries. Egg harvesting occurs under local or general anesthesia and requires a short hospital stay. Apart from in exceptional cases¹, the same protocol of hormonal stimulation and retrieval is used regardless of the woman's age, although this factor influences the success of IVF with vitrified oocytes (Cobo et al., 2016). Oocyte vitrification became possible in the late 20th century (American Society for Reproductive Medicine & Society for Assisted Reproductive Technology SART, 2013); the first baby conceived from devitrified oocytes was born on June 20, 1999 (Kuleshova et al., 1999).

Two main categories of women freezing their eggs are identified in scientific literature. The most controversial and the most commonly studied is elective or social egg freezing (SEF). Scholars (Baldwin, 2016; Brunet & Fournier, 2017; Göçmen & Kılıç, 2017; Gürtin et al., 2019; Inhorn et al., 2018a, 2018b; Pérez-Hernández, 2021; Stoop et al., 2011) agree that so-called social reasons for SEF are mostly related to singlehood and age. This category is often distinguished from medical egg freezing (MEF), that is, women who

1. Some women with cancer cannot undergo the hormonal stimulation protocol. In these cases, *in vitro* maturation (IVM) or ovarian tissue freezing (OTF) may be offered. IVM involves obtaining immature oocytes from the ovaries and maturing them in the laboratory instead of stimulating the ovaries and then harvesting them. OTF involves removing ovary or cortex fragments for future self-transplantation.

undergo oocyte vitrification as part of a medical treatment or after a diagnosis of a disease potentially affecting fertility. MEF studies are extremely rare (Inhorn et al., 2017; Birenbaum-Carmeli et al., 2021). While there is an academic consensus on the legitimacy of the latter, the former is the subject of significant ethical, philosophical and feminist debate (Goold & Savulescu, 2009; Lafontaine, 2019; Martinelli et al., 2015). Some authors (Blyth, 2004; Gürtin 2012; Gürtin et al., 2019; Kretz et al., 2020) have also researched a less well-known and less studied practice, egg sharing (ESH), which involves free or discounted treatments to patients who agree to share their eggs with other patients.

Feminist debates on SEF and motherhood are polarized and frequently put two positions in tension: emancipation versus the risk of exploitation of women (Van de Wiel, 2014; Inhorn, 2017). For its supporters, egg freezing is a good *secondary strategy* for women who wish to pursue a career while waiting for a reorganization of society (Goold & Savulescu, 2009). The prohibition of SEF in some countries has been described as medical paternalism (Sándor et al., 2018), because after being made aware of the available options and associated risks, women might decide to vitrify their oocytes as insurance for reproduction without ethical risks (Tan et al., 2014). Likewise, it has been argued that egg freezing can prevent women from having to undergo late, long, and painful IVF procedures in the future (Brunet & Fournier, 2017; Froidevaux-Metterie, 2017). Its detractors argue that there are important ethical and medical risks, such as the medicalization of healthy bodies, the side effects of hormonal stimulation, the risks of late pregnancies, and the risks of creating *false hopes* of having a child with vitrified oocytes (Argyle et al., 2016; Baldwin et al., 2014). Some authors also question the consumerist and neoliberal meaning of the discourse of oocyte cryopreservation as part of reproductive autonomy (De Proost & Coene, 2019; Shkedi-Rafid & Hashiloni-Dolev, 2012).

However, the majority of researchers agree that egg freezing cannot solve the structural problems that prevent women from being able to balance motherhood and professional life (Cattapan et al., 2014; Miner et al., 2021). From this perspective, policy changes such as parental leave for all parents and increased access to childcare should be enacted to enable such conciliation (Harwood, 2009, 2017), as the use of egg freezing cannot resolve

gender inequalities linked to the perpetuation of the sexual division of *care* activities in the private sphere or to productive work (gendered jobs, pay gap, and the *glass ceiling*). Egg freezing would appear to reaffirm women's sole responsibility for reproduction and their assignment to reproductive work (which they are now supposed to be able to defer over time) (Pérez & Rozée, 2019). Oocyte vitrification also establishes the possibility that every woman can, potentially, become a mother irrespective of her health, age, and life-course and «reinstates the assumption of a universal maternal desire as part of women's nature. It may result in a 'normative' situation, in which women find themselves questioned at any stage in their life if they abstain from motherhood» (Neyer & Bernardi, 2011, 170).

This paper takes a different approach to the debate on egg freezing and motherhood. The analysis developed is not concerned with exploring the conciliation of career and motherhood. Instead, it aims at exploring the gap between the desired and imagined path to motherhood (i.e., normative motherhood) described by women having their eggs frozen and the path taken by those having become a mother (i.e., reproductive trajectory). The gap between normative motherhood and reproductive trajectory will be explored by presenting the ideal path to having a child described in interviews, the changes that this normative description experienced when the women were confronted with ontological disruptions (Franklin, 1997) (i.e., being single, ill, infertile), and the ways in which those who have had children became mothers.

My analysis brings two research findings together. On one hand, although academic literature on SEF consistently shows that women freezing their eggs wish to have a child within a committed relationship (Baldwin, 2016; Göçmen & Kılıç, 2017; Inhorn et al., 2018a), their reproductive trajectories show that this is not always what they end up doing (Baldwin et al., 2015; Hammarberg et al., 2017; Hodes-Wertz et al., 2013; Stoop et al., 2015). On the other hand, several French authors (Rozée, 2013; Rozée & Mazuy, 2012; Vialle, 2017) have observed that not becoming a mother within the norm (mostly because of singlehood) is experienced as a *failure* and that the paths taken in consequence challenge the *reproductive norm* (e.g., by having children outside of the couple) without breaking with it. Based on these findings, I propose the hypothesis that *ontological disruptions* lead

women to consider different paths towards motherhood, both medical (e.g., egg freezing, egg donation, sperm donation, surrogacy, IVF) and social (e.g., adoption, co-parenting, coupling with someone with children), and in so doing, they theoretically fragment motherhood into several parts –genetic (genes), biological (gestation), and social (mothering)– allowing them to take non-normative paths to have a child.

1.1 New challenges: rethinking motherhood from egg freezing

Reproductive medicine has enabled the disembodiment of motherhood from reproduction, not without paradoxes. In recent decades, three major shifts in the Western conceptualization of (heterosexual) reproduction and motherhood have taken place: 1) the separation of intercourse from reproduction through birth control; 2) the fragmentation of the sexual intercourse-pregnancy unit via ART; and 3) the calling into question of the fetus-mother unit via surrogacy (Mehl, 2011; Ragoné, 1997). In turn, egg freezing has enabled the separation of *reproductivity* (i.e., a disembodied potentiality of having a child with one's genes in the future) from bodily temporality; in other words, «bodies age while frozen eggs, and the reproductive potential they embody, are understood to assume a latent mode of living unaffected by the passage of time» (Van de Wiel, 2015, p. 9).

Despite this tendency of reproductive medicine towards the disembodiment of motherhood, empirical research among women using ART points to the strategic naturalizing of particular traits, substances, precedents, and behaviors (Thompson, 2001) to establish who is the real mother of a baby. As Thompson shows, biology and genetics can be mobilized to differentiate ambiguous kinship and, in the process, the meaning of biological motherhood is transformed and becomes partial. In other words, with the medical fragmentation of motherhood via reproductive medicine, either the egg donor (the person who provides the oocytes), the carrier (the person who carries the pregnancy and gives birth) or the intended mother (the person who mothers) might claim the legitimacy of motherhood. It is thus important to analyze how women make sense of new paths to becoming a mother and how this modifies women's representations of normative motherhood, conjugality, and the family, but also kinship relationships.

Egg freezing might represent a revolution for normative motherhood, but qualitative research consistently shows that SEF systematically reinforces heteronormative, White, and class privileged motherhood. Indeed, mostly used by heterosexual women wishing to *give themselves time* to find a suitable partner with whom to have children (Baldwin, 2016; Hammarberg et al., 2017; Inhorn et al., 2018b), oocyte vitrification reinforces the heterosexual, nuclear family and notions of biogenetic motherhood (Carroll & Kroløkke, 2018). Furthermore, statistics (Katler et al., 2021) and socio-demographic analyses (Baldwin et al., 2015; Inhorn et al., 2018a) show that egg freezing is mainly used by highly educated White women. Given that in most countries SEF is self-financed (Shenfield et al., 2017) and offered in private clinics (Gürtin & Tiemann, 2021), funding constitutes a restrictive barrier for egg freezing. Prices vary widely by country and by clinic. Reported costs range between 9,380 – 10,720 USD in the UK (including the whole process for egg freezing and thawing cost) (Human Fertilisation & Embryology Authority, 2022); 3,930 – 7,865 USD in Canada (considering only collection, freezing and storing eggs) (Petropanagos et al., 2015); and 6,000 – 20,000 USD, plus 500-600 USD annually in storage costs in the USA (Hoffower, 2020). In 2021, France became the only country worldwide to reimburse SEF. The scarcity of research on MEF and ESH makes it impossible to describe the general socio-demographic characteristics of users.

This paper proposes an original contribution to feminist debates about motherhood based on ethnographic research on egg freezing in the French context. First, it contributes to a growing corpus of empirical research that analyzes egg freezing and its links with motherhood. Second, it mobilizes an innovative approach by examining similarities between SEF, MEF, and ESH. Furthermore, it proposes that women who freeze their eggs for medical reasons or in exchange for an egg donation also inscribe their egg freezing procedure within a heteronormative, biogenetic ideal of motherhood, and a normalized desire for a nuclear family. Finally, it contributes to analyzing the decision-making processes of women who become a mother after egg freezing.

Three main sections compose this article. The first will be devoted to exploring the ideal conditions for becoming a mother or *normative motherhood*. I will focus in particular on what the women I interviewed defined

as the *pre-conditions* for having a child. In the second part, I will describe the *ontological disruptions* these women experienced that led them to start imagining different paths to having a child, both medical and non-medical. In particular, I show how, in their narratives, they mix both medical and social paths toward motherhood in unexpected ways in order to construct a coherent narrative. In the third part, I describe in detail the paths taken by the women I interviewed who had already become mothers and how they make sense of the *fragmentation* of motherhood that they might have experienced.

2. METHODOLOGY

This article is based on my doctoral dissertation in Social Anthropology and Ethnology, for which I employed two main research methods over a period of 20 months (from March 2018 to December 2019), in-depth semi-structured interviews and direct observation. The first one allowed me to understand how egg freezing is experienced by women undergoing this procedure. Forty-three interviews were conducted with women living in France who had undergone or were about to undergo MEF, SEF, and ESH. I also conducted direct observation in three French fertility centers, in particular in their IVF laboratories. This article draws primarily on data collected from the interviews.

At the time of my research, French legislation followed Bioethical laws of 2011, which authorized egg freezing for (only) two different types of users, women suffering from a potentially sterilizing medical condition (MEF) and egg donors without children (ESH). MEF is generally undertaken after the diagnosis of a life-threatening medical condition, typically cancer, for which treatment (i.e., chemotherapy and/or radiotherapy) may provoke a significant reduction of ovary reserve, and thus infertility. Some gynecological diseases, such as endometriosis and premature ovarian failure (PIO) are also medical reasons for egg freezing in France. According to the health professionals I met with, breast cancer and endometriosis are the main causes for oocyte vitrification among French women. In turn, given the strict interdiction of oocyte commercialization in the French context (no ART market exists), ESH was a measure devoted to encouraging and increasing the number of

Table 1.
 Characteristics of women interviewed (all reasons included) at the time of the interview

Women interviewed	N=43	
	n	%
Type of egg freezing		
MEF	17	40
SEF	16	37
ESH	10	23
Age		
< 35	24	56
≥35	19	44
Profession		
Highly qualified	29	67
Intermediate	6	14
Employee	7	16
Unemployed	1	2
Level of education		
Doctorate	3	7
Master	9	21
Bachelor	29	67
High school or equivalent	2	5
Relationship status		
In a relationship	22	51
Single	20	47
Not mentioned	1	2
Plans for a child/Children		
No plans	33	77
Current plans (including pregnancy)	5	12
Child	5	12

Note.

MEF = Medical egg freezing

SEF = Social egg freezing

ESH = Egg sharing

egg donors. In exchange for their donation, egg donors were offered egg freezing. This possibility was only available for women without children, in good health, and under 37 years old. In both cases, health insurance fully reimbursed the procedure. At the time of my study and until 2021, SEF was strictly prohibited within the French territory. It is now allowed and reimbursed for women between 29 and 37 years of age, with the exception of a yearly payment of 45 euros for egg storage that is covered by the patient (*Décret n° 2021-1243 du 28 septembre 2021*).

The characteristics of the women I interviewed are described in Table 1. They were between 23 and 44 years old, with a median age of 31.5 years, lived mostly in the Paris region, and were mostly White and heterosexual. Two were lesbians and one was looking for a male or female partner. A majority of them (n=22) were in a long-term relationship at the time of the interview, 20 were single and one did not mention her relationship status. Concerning their occupation, 29 (n=67%) worked in highly qualified positions (e.g., lecturer, psychologist, project manager, odontologist, architect, journalist, businesswoman), 6 (n=14%) had *intermediate* positions (i.e., social worker, schoolteacher), and 7 (n=16%) were *employees*.² One was unemployed. Regarding their level of education, 67% (n=29) had a bachelor's degree, 21% (n= 9) a master's degree and 7% (n= 3) a doctorate. Taking these criteria into account, they belong to rather privileged socio-professional categories. 17 had or were going to have their oocytes vitrified for MEF; 16 for SEF; and 10 for ESH. Of those who went abroad because of SEF interdiction, their main destination was Spain, followed by Belgium and in one case England. Most of the women who underwent MEF had gynecological diseases, such as endometriosis and POI, two had cancer and one Turner's syndrome. Finally,

2. In France, the National Institute of Statistics and Economic Studies (INSEE) classifies professions into eight categories to produce statistical information, three of which are represented here: professionals or highly qualified professions, intermediate professions, and employees. The first one includes intellectual, information, arts, and entertainment professionals, as well as administrative and commercial professionals who have management responsibilities. The second one refers to a group of intermediate positions between professionals and operative workers or employees, including teachers and nurses. Finally, the category employee regroups a heterogeneity of occupations, such as secretary, salesmen/saleswomen, firemen/firewomen, business administration or commercial employees.

33 did not have plans to have a child in the near future, 5 had current plans to have children (including 2 who were pregnant), and 5 had already had one or more children.

Recruitment occurred through non-medical (i.e., patient associations, social media, feminist organizations, and academic networks) and medical (i.e., health professionals) channels. In both cases, a call for volunteers informed potential participants about the study, its objectives, and the conditions of anonymity and confidentiality while inviting them to contact the researcher and propose their testimony or ask for further information. Volunteers willing to participate were contacted by phone or by email, and received further information about their right to access and rectify the information (under the law *Informatique et libertés*, January 6, 1978). All agreed to be recorded on audio. Completed interviews were transcribed verbatim, edited to erase all possible identifying information, and uploaded into Atlas.ti. I analyzed them using the grounded theory method. Emerging themes were then described and studied in detail.

3. THE REPRODUCTIVE NORM: THE IMAGINED PATH TO MOTHERHOOD

A growing number of empirical studies in the social sciences on the topic of SEF have centered on women's motivations for freezing their eggs. The data consistently shows that delaying motherhood to pursue a career is not the main objective; being single and not having *the right partner* with whom to have children has been found to be the most significant reason for women who have so-called social reasons for freezing their eggs (Hodes-Wertz et al., 2013; Waldby, 2015). Researchers have also argued that *delayed* motherhood is the consequence of complex personal and situational factors that lead women to have a child later in life (Vialle, 2018; Vialle et al., 2016). In the case of MEF and ESH, few studies have been conducted, so it is not clear whether in these cases women who undergo egg freezing have children later in life and whether other factors such as career or singlehood influence their decision to have their oocytes vitrified. In the case of MEF, it is possible that *delaying* motherhood would be the consequence of illness either because of

medical restrictions to getting pregnant (until remission) or because of the incompatibility of pregnancy with medical treatment.

In the three mentioned cases (SEF, MEF and ESH), motherhood may not be possible because of singlehood, career concerns, illness, infertility, or other factors related to their personal, contextual, and social conditions. However, what most of the interviewed women have in common is their description of the *right conditions* to have a child, which has been studied in France as the *reproductive norm*. This *norm* is understood as the *right time* to have children in terms of age (Bajos & Ferrand, 2006), but extends to other criteria such as marital status, sexual orientation (Rozée & De la Rochebrochard, 2010; Rozée & Mazuy, 2012) and health conditions. These requirements are accompanied by representations of *good* parenthood: having a partner and being in a stable relationship, planning births at the *right age* and at the *right time*, and a set of social norms that translate into a desire to *have a family* that is widely shared by the French population (Debest et al., 2014).

3.1 The *right conditions* to have a child

Women I interviewed report that having a child requires being at the *right moment* in life, but also having the right personal, social, situational, and health conditions to do so. Some of the *pre-conditions* they cited to describe this moment were: being comfortable in one's own skin; having a stable, permanent, and fulfilling job and a house; having recovered from one's illness or no longer being a victim of disabling pain. An example of the financial and material aspects that need to be fulfilled were listed by Romy: «[To have a child] we have to have two permanent jobs, to earn a good living to be able to pay for all of the baby's needs, so the financial aspect is very important. But we also need to have a two-room apartment, to have a little garden or a little terrace so that he/she has a place to take his/her first steps» (Romy, 25, in a relationship, employed in a supermarket, ESH).

For some, career, short-term contracts and financial instability were mentioned as reasons for being single and the impossibility to develop plans for motherhood. Remedios (30, single, temporary assistant professor, ESH), explains: «I regularly move for short periods of time... Now I am in Paris,

before I was in Bretagne, and soon I am moving to London, hoping to meet all the criteria for recruitment in a scientific career». Not only her career choices, but also poor working conditions in academia (low wages and short-term contracts) made it difficult for her to establish a long-term relationship and make plans to have a child. Likewise, Angelines refused to have a child when her ex-partner wanted to and later, when she was single, she froze her eggs after a diagnosis of endometriosis: «[When I was in a relationship] I was not planning to have a child right away, so I kind of put it aside. I studied a lot and I wanted to have the career that goes with it. I wanted to prove myself in the professional world [before giving birth]» (Angelines, 36, single, architect, MEF). As other scholars have shown (Vialle, 2018; Baldwin, 2017), not having met these pre-conditions is frequently associated with the impression of not feeling ready, thus with the deferral of plans to have children. The right timing for motherhood refers to the moment and the conditions considered sociably legitimate to be a mother: not too young nor too old and, more importantly, within a long-term relationship (Mazuy, 2006). Indeed, in most cases, the women I interviewed held that being in a couple was the determining condition for having a child.

3.2 Looking for the right partner, genitor, and father

Most of the women interviewed, either in a relationship or single, expressed that they wanted to have a child with a stable and permanent partner. The right partner would eventually become the genitor and co-parent of their children. A commonly expressed desire was for a partner who would be an invested father, someone willing to commit to the upbringing of the future child, as illustrated in the following extract from an interview with Clarice (31, in a relationship, primary school teacher, MEF): «[In order to have a child, I have to] live with my partner, because I want us to experience the pregnancy together. And then, of course he also has to want to have children, having a baby should be a mutual decision». This coincides with what Kylie Baldwin (2017) calls the *ideologies of parenthood*: they look not only for a *genitor*, but also for an involved and active father.

As Franklin (1997) has described, the sense of progression that goes from conjugality (being in a couple), to stability, to motherhood might be

interrupted by unexpected events, such as infertility. In the cases I describe, although for some women the sense of progression was indeed disrupted by infertility, others were profoundly affected by singlehood, illness, or the infertility problems of friends. These factors highlighted for them the non-naturalness of this progression, as Luisa's and Amparos' narratives show:

With my former partner, I tried to get pregnant and it didn't work. So, I went to see my gynecologist and he told me that I was not very fertile. Three months later, my boyfriend and I split up. At that point, I said to myself that I had to do something because I couldn't wait another 40 years to meet the man of my dreams and have my body tell me: «It's too late.» So I froze my eggs (Luisa, 40, single, company executive, SEF).

A month ago, doctors discovered a malignant tumor in my head. So, I had radiation and chemotherapy, which may affect my ovaries. So here we are, freezing my eggs. After the treatments, I and my husband can consider having children; we were going to try to have a baby this summer, but we'll have to wait a little longer (Amparo, 33, in a relationship, high school teacher, MEF).

In Luisa's case, the fact that it was difficult for her to get pregnant through sexual intercourse with her partner, and after that being single, were obstacles to her plan to have a child. In Amparo's case, it was the diagnosis of a disease and her medical treatment that prevented her from becoming pregnant when she and her partner wanted to. Undergoing chemotherapy and radiation, she was strongly advised against pregnancy by the medical staff. In both cases, a disruption in the trajectory of their lives, prevented them from becoming pregnant at the desired time. These disruptions profoundly affected the sense of life progression and denaturalized that journey: «Instead of having a continuous flow across the 'natural' and 'normal' events of the lifecourse, 'life's progression' is disrupted» (Franklin, 1997a: 144). This, in turn, led them to start considering other ways to become a mother, some of which were far from the normative motherhood ideal.

4. ONTOLOGICAL DISRUPTIONS: OTHER MOTHERHOODS ARE POSSIBLE

Singlehood, illness, infertility or increased awareness about infertility made women realize that they might not be able to have a child in the desired framework or at the desired moment. This led most of them to imagine other ways to access motherhood. These ways, diverse and multiple, combine not only simultaneous alternatives for trying to become a mother (to carry and give birth to a child using their own genetic material), but also non-medical ways. Indeed, several authors (Mathieu, 2017; Rozée & Mazuy, 2012) have shown that the *failure* to become a mother *within the norm* causes them to reformulate their representations of motherhood.

4.1 When motherhood becomes a stroke of luck

For women I met, *ontological disruptions* in their life course towards motherhood made them question having a child as a *normal* and *natural* path. When nothing comes up to prevent having a pregnancy and then giving birth, undergoing egg freezing seems incomprehensible, as illustrated by Karen: «My grandmothers don't understand anything, so I don't tell them anything anymore. They asked, 'Are you sure you need to do this?' For them, it's a crazy thing to do, because the way they see it, you have a child and then you don't talk about it anymore, but nowadays you have to think about everything» (Karen, 27, in a relationship, bank employee, MEF). For Karen's grandmothers, becoming a mother is perceived as a *normal* and *natural* process that does not (and should not) require major reflection; for Karen, the fact that reproductive processes are the object of reflection, and of medical intervention, attests to its non-naturalness and non-normalness. Or, said in terms of McMahan (1995, p. 51), where childbearing is culturally normative, women do not need to explain why they can have children, only why they *cannot*.

Contrary to those women who have a baby and «don't talk about it anymore», for women who experience disruptions in their life courses, motherhood becomes something to be achieved, sometimes, by a stroke of luck. Frequently, women talk about finding a partner as lucky, but also about having the luck to have a child, and of having the luck to become a mother

one day: «Not all of us are lucky enough to meet our Prince Charming at 25, get married and have kids right away» (Berta, 34, single, communication director, SEF). Or Romy (25, in a relationship, employee in a supermarket, ESH): «There are couples who cannot have a child. I just hope to be able to experience motherhood, and if I experience it two, three, four, five times, even better!» When they describe other possible ways to become mothers, they usually combine both medical and social paths.

4.2 Harmoniously combining *social* and *medical* paths to having a child

Because normative motherhood appears to be something that can only be achieved *through luck*, women I met often anticipate alternative paths to become a mother. These paths usually involve privileging one element over others, for example, pregnancy over genetics or mothering over pregnancy. The unexpected aspect of these women's discourse is the ease with which they combine both medical and social paths towards motherhood. Likewise, in their narratives, they describe a *fragmentation* of what before the ontological disruptions was a unit: pregnancy, genetics, and motherhood.

During the interview, Marcela (36, in a relationship, radio director, SEF), for example, said that she wanted to have a child, ideally with a long-term partner (not her current one). But, while waiting to find the right one, she tried to become pregnant via artificial insemination with a couple of homosexual friends so the three could co-parent. And, in parallel, she went to Spain to freeze her oocytes so that she could use them in the future within a couple, if needed. Other women, like Frida (28, single, project manager, MEF), imagine using their oocytes to have a child or becoming a mother via non-medical alternatives. If she cannot have a child through her own body and/or with her vitrified eggs because of her health problems (adenomyosis), she thinks about coupling with a woman who might carry and deliver a baby or with a person who already has children. For her, carrying a child is not fundamental: «Maybe I will date a girl and then if we want to have kids, she could be the one who gets pregnant. Or maybe I'll end up with someone who already has a kid. I mean, I don't know. It's not something that's vital to me, to have my own baby that I give birth to and everything».

Most of the women interviewed described multiple pathways, medical and non-medical, to motherhood that imply the possibility of having children without necessarily going through pregnancy or having a genetic bond. The feelings evoked towards these two biological components are varied. For some, such as Karen (27, in a relationship, bank employee, MEF), carrying a child is an intrinsic experience to motherhood, even if the child does not share her genes: «I would like to carry the child. I could even accept having an egg donation, and after [if I cannot become pregnant], adoption too». For others, such as Remedios (30, single, temporary assistant professor, ESH), neither pregnancy nor genetics are fundamental to the experience of motherhood, but she does not see how she could become a mother otherwise: «Pregnancy itself was never something I dreamed about, like it is for some women. It wasn't like I had a specific desire to have a child that shares my genes. Adoption could have been a possibility, but I became very critical of it. But now that adoption is off the table, it goes without saying that it's my own body that will allow me to have children».

What these testimonies highlight is, on the one hand, the coexistence of representations of both medically aided (egg freezing, egg donation) and social (adoption, co-parenting, parenting the partner's children) motherhood, which share space, within the framework of possibilities, with normative motherhood (becoming a mother through heterosexual intercourse in the context of a couple). And, on the other hand, they attest to a kind of fragmentation of the biological components of motherhood: genetic, gestational and social (Ragoné, 1997, 1998; Mehl, 2011), rendered possible both by technological advancement and by the ontological disruption of life progression. An analysis of the reproductive trajectory of those women who became mothers after egg freezing offers a detailed vision of how they give sense to the maternal bond.

5. REPRODUCTIVE TRAJECTORIES: BECOMING A MOTHER AFTER EGG FREEZING

As shown, *ontological disruptions* in the desired path to motherhood lead women to imagine different ways of becoming a mother by dissociating pregnancy, genetics, and mothering. However, only a few of the women I

met already had children at the moment of the interview. Studies conducted on the reproductive trajectory of women after egg freezing (Baldwin et al., 2015; Hammarberg et al., 2017; Hodes-Wertz et al., 2013; Stoop et al., 2015) suggest that some women who freeze eggs because of so-called social reasons become a mother within the desired framework, that is, they find a partner and have a child without medical help; others become single mothers with the aid of a third party, usually a sperm donor. Among the women I met, five had had at least one child: two via sexual intercourse with a male partner; two with a sperm donation and their frozen eggs as single mothers; and one with an egg donation and her partner's sperm.

5.1 To become a mother as imagined

Doris (23, in a relationship, home childcare assistant, ESH) and Artemisa (32, in a relationship, associate professor, ESH) had children through sexual intercourse with their long-term partners. Both had been childfree egg donors who were offered egg freezing in exchange for their egg donation. Artemisa –who reports no medical problems and has no prior history of infertility– accepted to have her ova vitrified *in case* of future infertility, but she ended up getting pregnant when she and her partner decided to try. She had decided to become an egg donor after her awareness about infertility was heightened because of friends who had difficulty conceiving. Her description of the effects of being in contact with friends' infertility problems on her representations of motherhood is not rich enough to be analyzed in detail. On the contrary, Doris's story of infertility associated with her endometriosis revealed a rich reflection on what makes a mother.

At the time of egg sharing, Doris had been trying to get pregnant for a while, but her endometriosis complicated her chances to do so. She and her partner had decided to undertake IVF in France but, shortly before starting it, she got pregnant. Before getting pregnant, she had already imagined other medicalized ways to have a child if spontaneous pregnancy did not work. Besides IVF, she considered the possibility of using surrogacy with her own oocytes in order to have «her own child». For her, sharing genetic material with her children is fundamental to motherhood. She therefore would have found it difficult to receive an egg donation or to adopt.

From her narrative, the idea emerges that genetic motherhood is more important than biological motherhood and social motherhood. Indeed, she would be the mother of a baby sharing her genes but carried and delivered by another woman (surrogacy), but she finds it more difficult to imagine becoming a mother through egg donation (someone else's genes) and adoption (no biogenetic connection). Paradoxically, while talking about her egg donation, she diminishes her genetic contribution and gives primacy to mothering:

Some people in my family told me that egg donation was really weird, because it would be like my own children walking down the street. They are not my 'own' children. I am the mother of my own daughter and that's it. A mother is not only a biological connection, it is a person who raises us and who loves us. So yes, there is a little bit of my DNA, but mixed with someone else's, raised by someone else and borne by someone else (Doris, 23, in a relationship, home childcare assistant, ESH).

In the above quotation, Doris gives primacy to *social motherhood* (a mother is «a person who raises us»). At the same time, she reaffirms the centrality of the body and genes in the maternal bond, since she is the mother of her daughter because the child is born from her genes and body and because she intends to raise and care for her. Finally, she challenges this bond by arguing that the children who could potentially be born from her egg donation will not be her own. This testimony shows how the fragmentation of motherhood into biological components (gestation, genes) imagined in this case, puts its various dimensions in tension and creates paradoxes. Doris plans to have a second child. If she cannot achieve this through sexual intercourse, she will use her frozen eggs or other ART, which may lead her to modify her relationship to motherhood.

5.2 Single motherhood by default and sperm donation

Luisa (40, single, company executive, SEF) and Leonora (44, in a relationship, company executive, SEF) used sperm donation to become single mothers. Both had children from their vitrified oocytes and a sperm donation. Single at the time, they had their eggs frozen in Spain and in England, respectively. A few years later, not having met the man who would become the father and genitor of their children, they decided to have a child with the help of medicine, without a partner. This decision is however experienced as a *default*

option. As Rozée (2013) and Vialle (2018) have argued, the impossibility to find a partner leads women to make the decision to have a child on their own at a certain age (over 35) and to reverse the order of family entry by starting with the child, with a father possibly coming later.

Indeed, Luisa recounted that having a child as a single mother was a decision she made after a breakup. She hopes, however, to be able to find a father for her son. For her, a family is composed of a mother and a father and this idea has not changed despite her reproductive trajectory:

I was once again in a relationship and, when it ended, I was 38 years old. I was in a good place in my life, in a good place emotionally, I had a good job and it kind of happened naturally. But I think that this path requires a lot of reflection, because he didn't ask for anything from anyone [she looks at her baby in his stroller next to us], he arrived in a world where he has only a mom to guide him. I hope he will have a daddy soon (Luisa, 40, single, company executive, SEF).

For both Luisa and Leonora, using a sperm donor who resembled them physically was central to their construction of motherhood. Physical likeness reduces intrusive questions about the origin of their children and is thus a way to escape stigmatization or the questioning of their family's legitimacy (Becker & Nachtigall, 2005; Rozée, 2013). In Luisa's case, it was the Spanish clinic that chose «a donor that looked like her» based on «her preferences» (i.e., desired phenotype): «I had a 20-year-old sperm donor, 6 feet tall, 184 pounds, who is blond with blue eyes». Leonora, contrary to Luisa, chose a sperm donor herself from a catalogue from an American fertility clinic based not only on physical resemblance (Caucasian), but also on familial and personal affinity (e.g., closeness of their family histories and musical tastes). This shows that genetic ties (and thus egg and sperm donations) only make sense to the extent that they are socially *coded* (Thompson, 2001, 2005).

Yet, even though the terms mobilized before and after Luisa and Leonora's solo motherhood processes are the same (mother, father, child, and family), the kinship ties between the parties are not identical. They had a child born from the genetic mix of their own oocytes and a sperm donor, who will not be the father. They want to find (Luisa) or have found (Leonora) a father. However, the father they are talking about has no genetic bonds with their children, and the child will not be born from the mix of the genetic

components of the person designated as mother and the person designated as father. Therefore, the family they aim to form or have already formed is not exactly the one described in the first part of this paper. The disruption of the life course that pushed them to look for other ways to become mothers spurred changes not only in their relationship to motherhood, but also to conjugality, fatherhood, family, and kinship.

5.3 Motherhood with the aid of an egg donation

Micaela (44, in a relationship, neurolinguistic trainer, SEF) went to Spain to freeze her eggs when she was 38 years old. A few months later, she met her current partner with whom she decided to have a child. Due to her primary ovarian insufficiency (i.e., premature reduction of ovarian reserve) and a double fallopian tube removal that she underwent at age 30, the couple tried IVF in France and made a first attempt that did not work. They then tried using vitrified oocytes in Spain, but it did not work either and a new egg retrieval was medically discouraged. She was informed by health professionals that a baby born from her own eggs may carry serious diseases, such as Down syndrome. Thus, based on the medical advice, the couple decided to use an egg donation. Micaela shared with me that even if it was not an easy decision, this option made sense considering her family history. Her aunt had had Down syndrome, so the possibility of having a child with this disease did not discourage her, but her partner refused to have a child with this condition. According to Micaela, avoiding being pushed to have an abortion was a primary factor in her decision to use an egg donation:

Mom's half-sister had Down's syndrome; she lived to be 60. I'm Catholic, somewhat practicing, but my partner isn't religious at all. He told me: «I do not want to keep a disabled child.» I said to myself: «I am 42, with a grandmother who had a daughter with Down's syndrome and a husband who is going to put me in a terrible position, because it means that I might have to make the decision to have an abortion even though I don't want to. Because I would feel completely ready to have a disabled child, but he would not.» The advantage of an egg donation is that they are young women and that there is less risk of malformation.

For Micaela, using an egg donation means not having a genetic relationship with her child. In cases like hers, this *lack* is compensated for both by the

gestational bond and physical resemblance, resulting from the *match* between the egg donor and the recipient or between the egg donor and their partner (Becker & Nachtigall, 2005; Hammond, 2018). Micaela recounted that one of her friends «keeps saying to me, ‘She [your baby] looks just like you.’» A white donor «who looks like her» was chosen by the Spanish clinic: «They take a picture. And I only know the age and blood type of the donor. They tell us that they choose a donor who looks like us». Several elements emerge from Micaela’s discourse that contribute to constructing the mother-daughter kinship ties between her and her daughter: the physical resemblance, the biological bond, and the care she gives to her daughter –interestingly, the fact that her partner is the genitor and father of her daughter was never mentioned as a determining element of her motherhood.

6. CONCLUSION

In this paper, I analyzed the gap between normative motherhood and the reproductive trajectory of French women who have frozen their eggs for either medical or social reasons, or in exchange for an egg donation. Building upon Franklin’s concept of *ontological disruptions*, I proposed that the possible shifts in women’s imagined and desired path towards motherhood are not only caused by infertility, but also by singlehood, illness, and increased awareness about infertility. Faced with the possibility of not having children as desired, women begin imagining alternative paths to becoming a mother, describing in their narratives both medical (e.g., egg freezing, IVF, surrogacy, egg donation) and non-medical (e.g., adoption, parenting the partner’s child, co-parenting) options. In their discourses, the women disassociate, combine and frequently hierarchize different elements of motherhood: genetic, biological, and social, sometimes in complex and paradoxical ways. This imagined *fragmentation* is fundamental for women taking non-normative paths towards motherhood *by default*. Although becoming a single mother with the aid of a sperm donation or a mother via egg donation modifies the kinship ties between the parties involved, it does not necessarily defy heteronormative motherhood, the nuclear family, and the naturalized desire for biogenetic motherhood.

This analysis exposes some of the new challenges that egg freezing represents to feminist debates on motherhood. Indeed, despite its disruptive potential (e.g., single motherhood, lesbian motherhood, motherhood beyond the reproductive span), this new ART is being used to reproduce heteronormative motherhood, the nuclear family, and the normalized desire for biogenetic motherhood. Moreover, it appears to reinforce the idea that women can (and want to) become mothers regardless of their particular conditions –some authors (Birenbaum-Carmeli et al., 2021; Pérez-Hernández, 2021; De Proost & Paton, 2022) have shown that some of those who have frozen their eggs chose not to have children. Interestingly, the analysis of the desired and imagined path towards motherhood that I made in this paper corresponds to what some authors (McMahon, 1995) have studied as a middle-class vision of motherhood. According to this author, the readiness presented in terms of maturational, relational, social, and economic achievements (i.e., to have a child at the right time with the right partner under the good conditions) is class-specific. Future research might consider furthering this hypothesis by comparing how women belonging to different social classes experience egg freezing regarding their motherhood project. Likewise, it would be interesting to study how non-normative motherhood is achieved using egg freezing (e.g., ROPA method³) or how the members of the LGBTIQ+ community use oocyte vitrification, and whether and how their practices challenge normative motherhood. In addition, although racial minorities rarely have access to egg freezing because of cost restrictions as well as other factors, it might be important to explore the socio-demographic characteristics of those who indeed cryopreserve their ova and which mechanisms contribute to racially stratified reproduction.

This paper has important limitations. In the first place, the particularities of the French context concerning egg freezing regulation impose major considerations on all possible comparisons. No generalizations are proposed. In the second place, this research was conducted before the authorization of

3. ROPA stands for Reception of Oocytes from the Partner. In the ROPA method, a couple formed by two women to share the process of in vitro fertilisation: one of them will be the genetic mother who provides the eggs and the other one will be the biological mother who carries the pregnancy.

social egg freezing in 2021 in France. Thus, this description might evolve in the coming years, and new studies will be needed. Finally, no intersectional approach was taken. This limits the possibility of analyzing class-specific or ethnic/racial-specific paths of becoming a mother of women interviewed.

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