The "Insurance" of Motherhood: Implications of Modern Fertility Preservation Technology for the Salience of Motherhood to Gender Identity

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ABSTRACT

This dissertation examines the social meaning and implications of fertility preservation for the salience of motherhood to gender identity in the contemporary age. As American women pursue higher education levels and establish careers, they are incentivized to delay childbearing into their 30s and 40s—the window of time in which having children can become more challenging. Egg freezing is a new fertility preservation technology that appears to give women more control over their lives by altering the timing of reproduction to facilitate motherhood at later ages. However, women undertake egg freezing in a context in which they are severely constrained by cultural understandings of womanhood that emphasize motherhood, conditions of professional work that create irreconcilable time pressures between career advancement and family formation, and a medical context that promotes health and the prevention of illness through invasive biomedical interventions.

This dissertation utilizes a mixed-method analysis to examine this tension at the crux of debates about egg freezing regarding, on the one hand, claims about women's expanding agency, and on the other, the persistent privileging of motherhood as essential to a woman's identity. I use content analysis to trace the historical development of egg freezing technology, exploring how scientific and social claims were mobilized in developing it from a treatment for women with compromised fertility in the 1980s to its more liberal use among healthy women of reproductive age in the present day. I also completed ethnographic observations at 42 marketing events and 28 interviews with commercial actors who advertise egg freezing to examine how the market for egg freezing constructs meaning around fertility, aging, and motherhood in the contemporary age. Finally, I interviewed 67 women who froze their eggs

and 40 women who are targeted for egg freezing through company-sponsored health plans to explore the most salient concerns, anxieties, and inequalities that shape their motivations and justification for pursuing the technology.

This dissertation contends that egg freezing, as it is currently practiced and advertised, upholds dominant ideologies that link motherhood and womanhood in an age when motherhood feels less certain, and the reconciliation of work and family life is less tenable. Egg freezing relies on assumptions of women as future mothers and the primary caretakers of children and equates women's value with their youth and reproductive viability. Observations and interviews reveal that the commercial egg freezing industry sells egg freezing as a responsible anti-aging measure, wellness practice, and self-investment that ensures future motherhood. Women's narratives show that egg freezing is a tool to enact (hetero)normative femininity by displaying their prioritization of the pursuit of marriage and motherhood alongside other goals. Finally, professional women use egg freezing to anticipate, strategize, and maneuver around maternity discrimination in the workplace and assume responsibility for managing normative ideologies of work and motherhood in workplace cultures and structures that penalize women for having children at the "wrong time" in their careers. I conclude that egg freezing reflects and serves to reinforce cultural definitions of hegemonic femininity in service of existing gendered power structures.

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Thank you to my family, who always believe in me and encourage me to aim high in life!

This research is dedicated to my extraordinary mom. Her example as a working mother my whole life inspired my initial interest in the tensions between work and motherhood that women still struggle to reconcile, which this dissertation explores. Her resilience has instilled in me the value of women's ambition and independence that has made all my dreams possible.

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CHAPTER ONE: INTRODUCTION

The 1978 *Washington Post* Metro section headline featured these foreboding words: "The Clock is Ticking for the Career Woman." In the accompanying article, author Richard Cohen first coined the metaphor of the “biological clock” by describing a hypothetical lunch date with the "Composite Woman.” "She's the pretty one. Dark hair. Medium height. Nicely dressed. Nice figure… The job is just wonderful. She is feeling just wonderful. It is wonderful being her age, which is something between 27 and 35." Yet something is fundamentally wrong with the Composite Woman: she wants to have a baby, but she can "hear the clock ticking.” "What there is always, though, is a feeling that the clock is ticking. A decision will have to be made. A decision that will stick forever. You hear it wherever you go." For all the social gains afforded by the women’s movement, including an ability to pursue higher education, careers, travel, and establish economic independence outside of marriage (Traister 2016), it could not change the fundamentals of what women are and what their bodies crave: the chance to become a mother.

The metaphor of a biological clock continues to capture attention in American culture. Since egg freezing first came on the scene in the US as a method to preserve women’s fertility by “stopping,” “pausing,” or extending the biological clock, it has been embraced as a mark of social progress ushering in a new era of reproductive autonomy and gender equality. According to Gina Bartasi, CEO of the first national network of fertility experts specializing in egg freezing, the technology is “the biggest breakthrough in women’s health since the birth control pill” (Alter 2015). Meanwhile, fertility clinics that promote egg freezing represent themselves as altruistic leaders of a “new wave of feminism,” one in which independent and empowered women become proactive about their fertility and take control of their biological

clock and their lives by freezing eggs (Pflum 2019). Representatives of commercial egg freezing businesses explicitly frame the technology as a “feminist issue,” with one representative I spoke with for this research contending, “I think you can draw a direct line from Gloria Steinem to today with egg freezing.”

For many, egg freezing represents feminist progress by facilitating women’s self-determination and reproductive choices. Egg freezing certainly offers a new means of high-tech reproduction that may facilitate women's entry into motherhood. It ostensibly solves the "problem" of the biological clock by extending women's reproductive lives so that they can have children into their 40s and 50s. Egg freezing potentially reconciles incongruent priorities by synchronizing the timing of women's reproductive lives with their personal, educational, and professional pursuits. More recently, egg freezing has been framed in the media as a solution to the problem of working women’s quest to balance motherhood and career amid popular appeals for women to “lean in” and “have it all” (Sandberg 2013; Slaughter 2012).

While egg freezing appears to give women more control over their lives by altering the timing of reproduction and facilitating motherhood at later ages, it has also been criticized as another attempt to control women’s reproductive autonomy (e.g., Almeling, Radin, and Richardson 2014). From a sociological perspective, women undertake egg freezing in a context in which they are severely constrained by cultural understandings of womanhood that emphasize motherhood, conditions of professional work that create irreconcilable time pressures between career advancement and family formation, and a medical context that promotes health and the prevention of illness through invasive biomedical interventions.

My dissertation examines this tension at the crux of debates about egg freezing regarding, on the one hand, claims about women's expanding agency, and on the other, the persistent privileging of motherhood as essential to a woman's identity. Debates about egg freezing are ultimately debates about motherhood and its salience for gender identity in the contemporary age. When women who have frozen eggs talk about their motivations, intentions, and justification for pursuing fertility preservation, they draw on cultural tools to explain their relationship to their bodies and their health, and the responsibilities, behaviors, and actions they view as central to demonstrating their commitment to motherhood under a motherhood mandate (Russo 1976) and ideology of intensive mothering (Hays 1996). Similarly, when medical and marketing professionals talk about and try to sell egg freezing to interested candidates, they are articulating a set of beliefs about women's identities and roles in society.

To address these concerns, this dissertation traces the historical development of egg freezing technology, examining how scientific and social claims were mobilized in developing it as a treatment for women with compromised fertility in the 1980s, to its more liberal use among healthy women of reproductive age in the present day. This dissertation also examines how the market for fertility preservation constructs meaning around fertility, aging, reproductive choices, and motherhood in the contemporary age. I also explore the most salient concerns, anxieties, and inequalities that shape women’s motivation to pursue the technology.

Women's expanding personal and professional opportunities, alongside reproductive shifts that indicate women's deferral of childbearing to later ages, rising prevalence of involuntary childlessness, and increased use of assisted reproductive

technologies (ART) across the globe, only make fertility preservation strategies a timelier issue. Fertility clinics report a sharp uptick in the number of women seeking fertility preservation since the start of the COVID-19 pandemic (Dockterman 2021). According to NYU Langone Fertility Center, there has been a 33 percent increase in the number of egg freezing cycles performed over the past year, while several Chicago-area fertility clinics are reporting 20 to 50 percent increases (Goldberg 2021), suggesting that women are increasingly considering alternative fertility options as they opt out of having children (Pflum 2021).

Technologies are fundamentally social, and their meaning is shaped by the actors and groups that use them (Pinch and Bijker 1984). I show that egg freezing encourages invasive biomedical solutions to complex social problems, even in the absence of conclusive evidence about the technology's long-term safety, efficacy, and cost-effectiveness (Hewlett 2002: Selvaratnam 2014). While egg freezing is marketed as a feminist panacea for the problem of women’s biological clocks, this marketing strategy detracts from more systemic inequalities that pit women's reproductive windows as incompatible with gender equality. Egg freezing augments the intensification of motherhood by instilling the responsibility that women invest in an "insurance policy" for their fertility. Moreover, commercial egg freezing agencies focus almost exclusively on cisgender women, which may tighten a presumed link between procreation and maternity.

In the future, egg freezing may also have ramifications for the marginalization of women's health more broadly. The growing popularity and cultural acceptance of egg freezing may increase the medicalization of women's bodies, aging, and infertility (Riska 2003). This process may also further an alarming trend in which women are expected to

prepare for motherhood to ensure optimal reproductive health outcomes, a context that is expanding to include the time before they conceive (Waggoner 2017). Reproductive health outcomes are increasingly understood as the consequence of women's personal decision-making about their bodies and health (Landsman 2008; Waggoner 2017; Wolf 2010), and recent developments in egg freezing technology and marketing may be exacerbating this trend as fertility clinics market their services to healthy women at ever younger ages.

Egg freezing also raises new questions about reproductive justice in the United States. Inequitable race and class structures constrain women's reproductive choices (Luna and Luker 2013). Fertility treatments have historically been catered to white, middle-class women by a fertility industry that presumes that heterosexual married couples are the normative users of ART (Cattapan et al. 2014; Mamo 2007). Poor women and women of color's sexuality and reproduction have historically been subject to "controlling images" that label them "hyperfertile" or "hypersexual," while childlessness and infertility among white and affluent women have been treated as abnormal and deserving medical intervention (Collins 2000; Roberts 1998; Roberts 2009). Moreover, institutional practices of the fertility industry reflect heteronormative assumptions that create disparities in access to care (Mamo 2007). For example, to qualify for sperm bank services, lesbians require an infertility diagnosis that was defined for heterosexual couples: "the failure to achieve a successful pregnancy after 12 months or more of regular unprotected [heterosexual] intercourse" (ASRM-SART Practice Committee 2008). Likewise, among states that mandate insurance coverage for fertility treatments, the benefits are not typically LGBTQ+ inclusive because they require this infertility diagnosis to access care (Kyweluk, Reinecke, and Chen 2019).

Egg freezing may be reinscribing those privileges, especially as it remains stratified in its accessibility to most American women due to its high cost and a lack of insurance coverage for infertility treatments in the United States (Cattapan et al. 2014). Suppose the popularity of egg freezing increases without accompanying efforts to expand insurance coverage for the costly procedure. In that case, the technology may reify heterosexual privilege, reproduce race and class hierarchies of reproduction and motherhood, and advance the genetically related nuclear family as the normative family structure.

At the same time, I attempt to offer an empathetic view of egg freezing throughout this dissertation by excavating women's understandings of this technology as empowering and highlighting the ways they benefit from fertility preservation. Involuntary childlessness and infertility can be devastating experiences comparable to the emotional distress brought on by a cancer diagnosis (Domar, Zuttermeister, and Friedman 1993). Egg freezing may certainly help mitigate the risk of unintended fertility problems later in life.

In addition, expanding access to fertility preservation to a broader range of individuals, including LGBTQ+ people and heterosexual women who wish to become single mothers, could help challenge bioessentialist understandings of family. Transgender men and gender non-conforming people who want to have children stand to benefit from fertility preservation before undergoing gender-affirming treatments that impact fertility, such as hormone replacement therapy with testosterone (Kyweluk, Reinecke, and Chen 2019). Egg freezing could help challenge the requirement of an infertility diagnosis for individuals to receive fertility treatments since individuals who freeze eggs do so before the onset of fertility problems. This reconceptualization would aid in challenging medical practices to be more inclusive of LGBTQ+ people who desire biological parenthood.

Finally, when autonomy, self-reliance, and independence are central values to the life a woman desires, some women extract powerful emotional rewards and a deep sense of relief from their decision to freeze eggs. As one woman I interviewed for this project shared with me: "The first birthday after I froze my eggs, I remember it was the first birthday that I was happy to turn a year older. That was the first birthday that I wasn't feeling like I was behind on life. Instead, I felt like, finally, the one thing I can control in my life, I took advantage of." Women's lives continue to be defined by motherhood or the failure to become mothers, and they face near-endless scrutiny to mother according to standards that demand the full extent of their time, energy, and resources. Amid these pressures, egg freezing offers powerful emotional rewards through a sense of control, relief, and avoidance of regret.

Background

Age and Fertility

Current medical understandings of female reproductive embodiment posit that age is the most critical factor responsible for diminishing fertility. According to the American Society for Reproductive Medicine, good health is vital for the proper function of all biological processes, but it “does not offset the natural age-related decline in fertility” that “may take place much sooner than most women expect” (2012:3).

According to the American College of Obstetricians & Gynecologists (ACOG 2014), a female fetus has between six and 7 million oocytes, or eggs, at 20 weeks of gestation. This number decreases to between one and two million at birth. Throughout a woman’s life, her number of eggs steadily declines. For example, by puberty, women have 300,000-500,000 eggs, approximately 25,000 at 37 years, and 1,000 at age 51 (ACOG 2014).

The rapid loss of eggs is attributed to a process called atresia that causes the breakdown of ovarian follicles, which diminishes the "quality" of eggs and the chromosomal health of resulting embryos (ACOG 2014). The rate of female fertility decline is believed to slightly increase at age 32 and rapidly increase after age 37 (Faddy et al. 1992). As women age, the chance of natural conception declines, and the risk of miscarriage increases significantly (Frick 2021). By age 40, the risk of miscarriage is projected to be greater than the chance of a live birth (Nybo, Andersen, Wohlfahrt, Christens, Olsen, & Melbye 2000).

It is important to note that projections about egg quantity and quality are averages. Some women will experience no problems conceiving at advanced ages, while other women may find it impossible. Most women will find it harder to conceive as they age, attempt to conceive for more extended periods, be more likely to require ART, and be more likely to have children with chromosomal abnormalities than they would at a younger age.

The medical establishment reinforces women's bodies as the primary site of personal responsibility and risk avoidance in all phases of reproduction, including preconception, conception, gestation, and birth (Almeling and Waggoner 2013), perpetuating the assumption of a social and cultural link between women and reproduction (Firestone 1970; Glenn 1994; Rich 1986). Specifically, the diagnosis and treatment of infertility overwhelmingly center on women's bodies and behaviors while overshadowing men's equal contributions to conception (Becker 2000; Barnes 2014; Katz Rothman 2000).

In the United States, approximately 10 percent of couples experience fertility problems (Chandra, Copen, and Stephen 2013). Infertility affects men and women equally; among couples seeking treatment for infertility in the US, “female factor” issues cause or contribute to 35 percent of these cases, “male factor” issues cause or contribute to 35

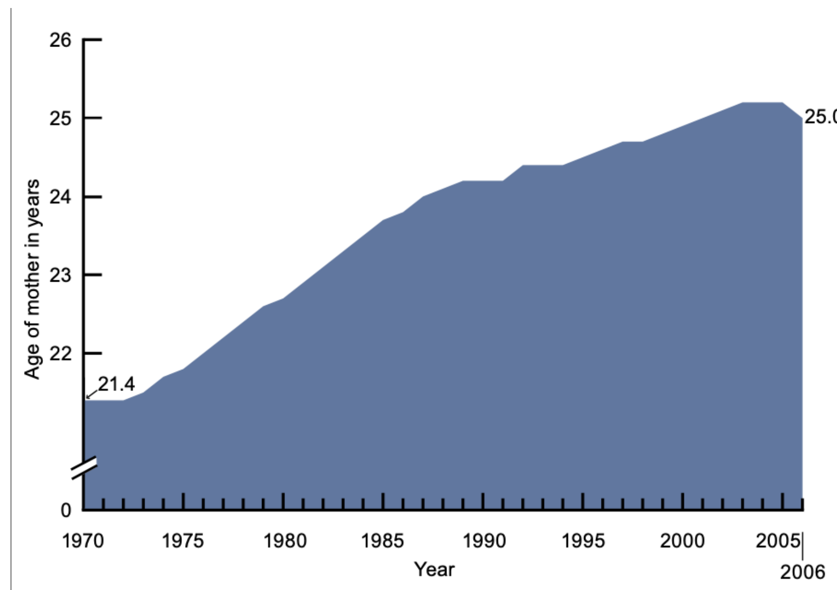
percent, and a third are unexplained by either male or female factor issues (Smith, Pfiefer, and Collins 2003). Although the declines are less stark, men's sperm count, motility, and genetic health begin to decline between age 40 and 45, much like eggs, suggesting paternal age matters for outcomes (Paul and Robaire 2013). More recently, research presented at the European Society of Reproduction and Embryology (2019) finds that IVF success rates decline significantly among men over age 51, coincidentally the same age at which women enter menopause on average. Yet men are not central figures in conversations about reproductive age and infertility, and they are noticeably absent in the discourse on fertility preservation.

With egg freezing, women bear the social burden of age-related fertility decline. Scientific constructs of advanced maternal age reflect gendered and ageist assumptions; pregnancies in women over 35 are routinely described as "geriatric pregnancies," and according to the World Health Organization's (WHO) medical classification list ICD-10, pregnant women over 35 are diagnosed with "elderly multigravida."

Relevant Demographic Shifts

Reproductive technologies have dramatically altered the timing of reproduction, causing a shift in people's perception that childbearing can happen at older ages. According to the Society for Assisted Reproductive Technology, all age groups have increased their ART utilization and the number of children conceived by in-vitro fertilization (IVF) has more than doubled between 2000 and 2016 (SART National Summary Report 2018). These developments correspond to reproductive shifts indicating that globally, women are waiting until later in life to have children. As women of all socioeconomic backgrounds prioritize education and career, the average age at which women in the United States have their first

child has been steadily climbing since 1970 (Mathews and Hamilton 2009). Today, for the first time, women in their thirties have a higher birth rate than women in their twenties (Hamilton et al. 2017).



SOURCE: CDC/NCHS, National Vital Statistics System.

Figure 1: Average Age of First-Time Mothers: United States, 1970-2006

According to the Centers for Disease Control (CDC), the average age of first-time mothers increased by 3.6 years, from 21.4 years in 1970 to 25 years in 2006 (Mathews and Hamilton 2009). This trend is continuing into the present.

Delays in childbearing apply to women across racial and ethnic groups. According to a National Center for Health Statistics policy brief prepared by Mathews and Hamilton (2016), women in all racial and ethnic groups are beginning to have children at later ages on average.

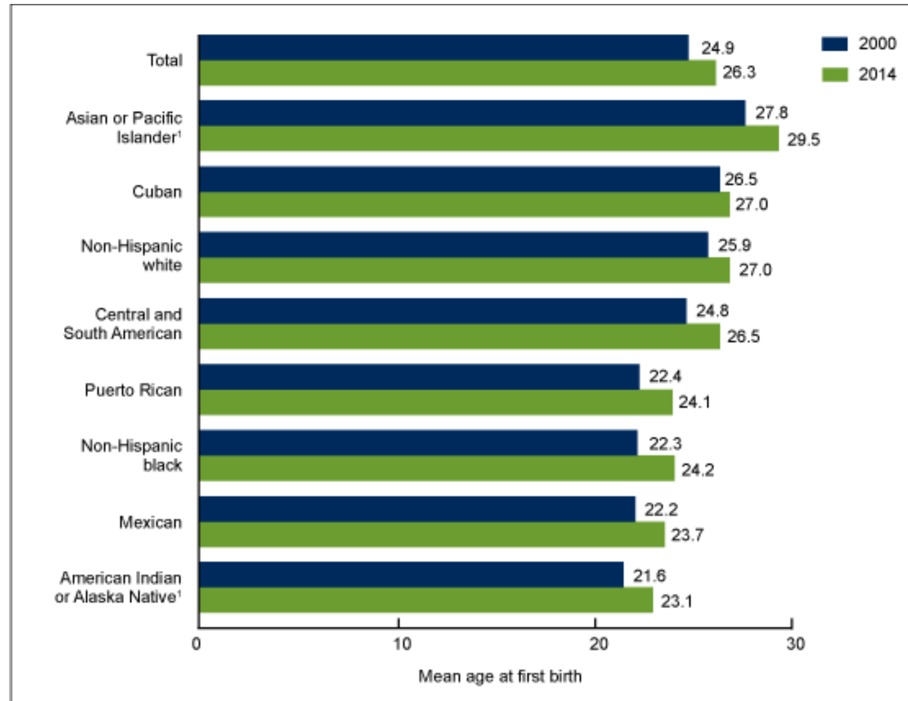


Figure 2. Average Age of First-Time Mothers, by Race and Hispanic Origin of Mother: United States, 2000 and 2014

Two groups stand out as significant in this data. First, Asian or Pacific Islander mothers had the oldest average age at first birth in 2000 (27.8 years) and 2014 (29.5 years). Second, the average age at first birth for non-Hispanic white women is older than the average for the US population. The average age at which these groups have their first child is approaching and will soon exceed age 30—the age at which scientific data maintains women's fertility begins to decline. Recent data suggest that these groups are more likely to utilize egg freezing relative to other groups. Using data from SART, researchers found that between 2014 and 2016, 66.5 percent of patients who did egg freezing were white, 9.6 percent were Asian or Pacific Islander, 7.1 percent were Black, and 4.5 percent were Hispanic (Katler et al. 2021). Egg freezing utilization increased for all groups but increased most significantly among Asian and Pacific Islander patients, who were more likely to perform several cycles and to do so later in life.

According to a National Center for Health Statistics policy brief prepared by Mathews and Hamilton (2016), the rise in the average age of first mothers in the United States is due primarily to a decline in first-time mothers under the age of 20 and significant increases in the proportion of first-time mothers aged 30-34 and 35 and over.

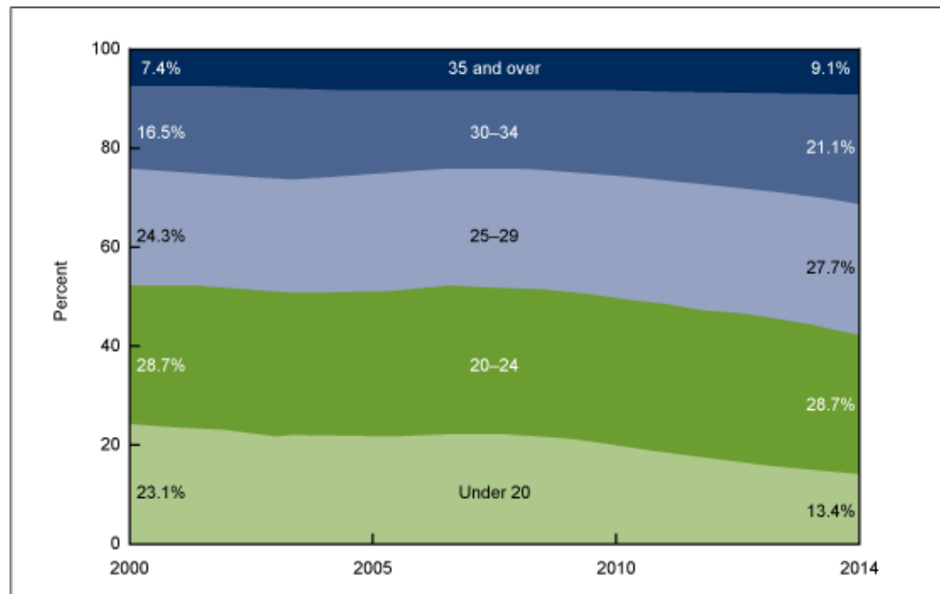


Figure 3. Percentage of First Births, by Age of Mother: United States, 2000-2014

Pregnancy rates among women in their early twenties fell approximately 18 percent from 1990 to 2008, while the percentage of women ages 40 to 44 becoming first-time mothers increased by 65 percent (Ventura et al. 2012).

Since delayed childbearing is associated with impaired fertility due to the impact of age on reproductive potential, increases in the average age at which women have their first child have led some reproductive health professionals to forecast a "looming health care crisis" (Ramsey 2017). These experts expect unprecedented numbers of women will soon experience unintended fertility problems and require ART to become pregnant (Ramsey 2017). In this context, egg freezing is emerging as a preemptive health care strategy that may

increase the success of ART use and facilitate motherhood at later ages despite women's postponement of fertility and delayed motherhood.

What is Egg Freezing?

Egg freezing, or mature oocyte cryopreservation, is a method of preserving a person's fertility in anticipation of aging-related fertility decline if they are not ready to become pregnant now but would like to get pregnant later. The technology freezes "younger" eggs that may have a higher success rate with IVF than using eggs at an advanced age. Rather than use eggs that another person has donated, egg freezing is a form of "self-donation" of eggs for future use. Thus, egg freezing allows people to have genetically related children at an age when natural conception may be more difficult.

Individual clinics report that patient demand for elective egg freezing grew tremendously after the American Society for Reproductive Medicine and Society for Assisted Reproductive Technology announced that the procedure would no longer be considered experimental in 2012 (Argyle, Harper, and Davies 2016). Egg freezing's popularity is growing in developing countries, particularly in India (Allahbadia 2016). However, there is no national data registry keeping track of the number of people who have frozen their eggs each year in the United States.

Terminology

As people without a medical condition elect to freeze their eggs to preserve their fertility, a conceptual distinction developed between egg freezing for "medical" reasons and egg freezing for "non-medical," "elective," "social," or "lifestyle" reasons (Goold and Savulescu 2009; Mertes and Pennings 2011). Medical egg freezing generally refers to people with an illness who undergo egg freezing before medical treatment or people of advanced

reproductive age who may not have biological children unless they seek technological and medical assistance (Goold and Savulescu 2009). Social egg freezing refers to all other people utilizing egg freezing for any other purpose, such as to extend the time to establish long-term partnerships (Goold and Savulescu 2009). There are some problems with this distinction in that it implies that medical uses of egg freezing are not social and that "social" uses are not also medical. While setting aside the conceptual dilemmas, this dissertation is concerned primarily with elective uses of egg freezing. When I refer to "egg freezing," I refer to the phenomenon of women using egg freezing electively in the absence of a medical indication.

Further, some argue that "fertility preservation" is a misnomer because the high failure rate of egg freezing precludes a guarantee of preserved fertility. The term "fertility preservation" may contribute to unrealistic expectations among patients. While acknowledging the issues with the technology, I use "fertility preservation" in this dissertation broadly to refer to the subfield of reproductive medicine where knowledge about reproductive age and fertility decline is being produced. I also use this term as a catch-all to encompass all the existing reproductive technologies that preserve fertility to date, including egg and embryo freezing.

As this technology is so new, many patients lack awareness about what this procedure involves, its efficacy, cost-effectiveness, and potential risks. I address all these questions in the sections below.

The Procedure

The standard protocol of egg freezing involves the same process as IVF. Instead of fertilizing and transferring eggs to the uterus as embryos after the egg retrieval, the eggs are frozen, stored, and thawed before use. Consistent with IVF, egg freezing first involves self-

injected hormonal medications in the abdomen for approximately 8-14 days to stimulate the ovaries to produce several eggs (as opposed to just one in a typical menstrual cycle). During this time, patients are monitored every other day during visits to a fertility clinic. Patients undergo blood tests to measure response to the ovarian-stimulation hormone medications and vaginal ultrasounds to monitor the development of follicles, the fluid-filled sacs in the ovary where eggs mature.

Egg retrieval is done under intravenous sedation at the fertility clinic and lasts approximately 15 minutes. During the procedure, follicular fluid containing viable eggs is extracted under ultrasound guidance using a suction device connected to a needle that passes through the vaginal wall and into a follicle where mature eggs reside. The harvested eggs are immediately frozen unfertilized in a liquid nitrogen tank and stored indefinitely for future use. When a patient returns to retrieve their eggs to attempt pregnancy via IVF, the eggs are thawed, fertilized with sperm in a lab, and transferred as embryos to be implanted in the uterus (Mayo Clinic 2021; ASRM-SART Practice Committee 2013).

Efficacy

The CDC and SART collect data regarding the pregnancy and live birth rates from more than 440 clinics that provide fertility treatment to patients in the United States. The CDC publishes their success rates in an annual ART Success Rate Report using the clinics' reports of the outcomes of IVF cycles. However, this information does not include information specifying pregnancies that resulted from using frozen eggs, thus standardized data on US fertility clinics' egg freezing success rates are limited (Mayo Clinic 2021).

The ASRM-SART Practice Committee (2013) states that the clinical pregnancy rate per frozen and thawed egg is estimated to be 4.5–12 percent if they used the more advanced

flash-freezing method using vitrification technology, and between 2-12 percent if they used an older, slower freezing method.

In a retrospective study (Goldman et al. 2017) examining the results of 520 IVF cycles and the outcomes of genetic testing on over 14,000 embryos, researchers determined that, in addition to clinic expertise, the success of egg freezing depends on two key factors: the age at which a person freezes eggs and the number of eggs extracted and frozen.

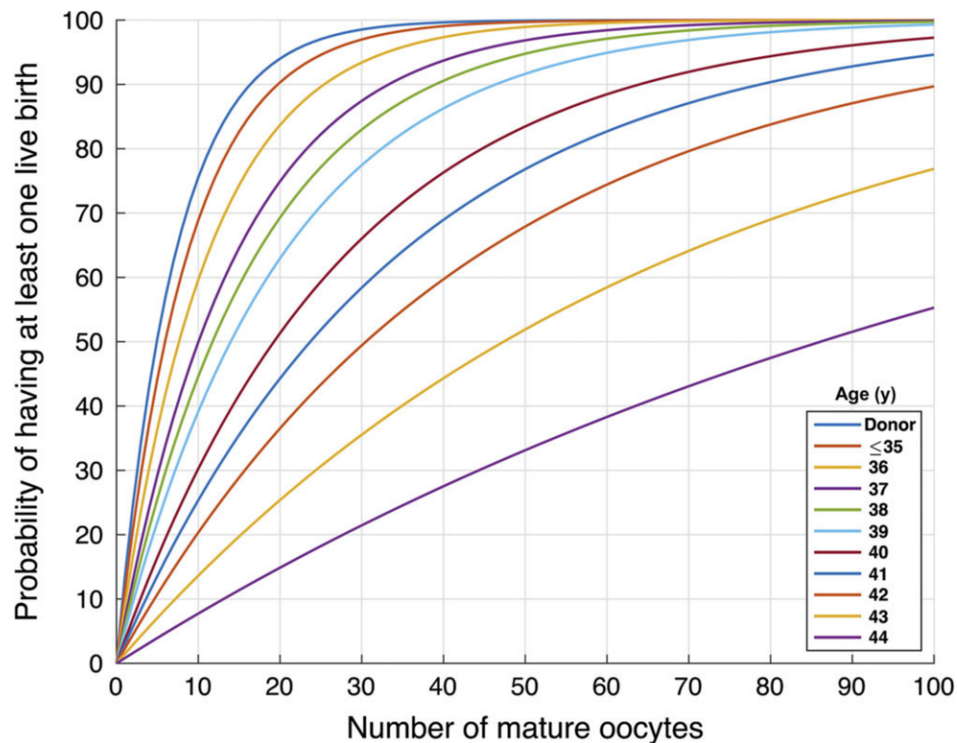


Figure 4: Live Birth Predictions by Age and Number of Eggs Retrieved

In the above model, each curve depicts the individual chances that a patient of a given age will have at least one live birth, based on the number of eggs that were retrieved and frozen (Goldman et al. 2017). Based on this data, egg freezing is predicted to be most successful when performed under the age of 35; a person who freezes ten eggs under the age of 35 will have a 70 percent chance of pregnancy using their eggs later; that chance increases to 90 percent if they freeze 20 eggs (Goldman et al. 2017).

While this data may appear reassuring, it by no means serves as a reflection of egg freezing's promise. The most optimistic predictions of egg freezing's outcomes are modeled on patients under the age of 35. However, most patients who are freezing their eggs electively do so *over* the age of 35 in their late thirties (Cobo et al. 2016; Hodes-Wertz et al. 2013). Moreover, egg freezing provides no guarantee that a patient will be able to freeze the 20 eggs typically recommended. According to one clinic, patients aged 38-40 freeze 9-10 eggs on average, and patients over 40 freeze fewer than seven (Extend Fertility 2020). Based on the above data, a 42-year-old woman would have to freeze at least 20 eggs to have just a 37 percent likelihood of at least one live birth and at least 61 eggs to have a 75 percent likelihood (Goldman et al. 2017). Thus, egg freezing projects positive outcomes that depend on an extraordinary number of eggs frozen. These studies do not convey that patients will most likely have to put their bodies through several egg freezing cycles to achieve these numbers of eggs, which comes with an array of risks I detail in the following sections.

Access and Cost

Access to this technology remains stratified due to its high cost. Even though 17 US states have passed laws that mandate insurers to cover or offer coverage for infertility treatment, egg freezing is not typically covered under these provisions (National Conference of State Legislatures 2021).

Depending on the clinic and the patient, egg freezing costs approximately $15,000-$20,000 (Fertility IQ). The egg freezing costs are broken down into three components: medical treatment, hormonal medication, and egg storage. The average price of the medical treatment, which includes egg retrieval, monitoring, and anesthesia, is $11,000. The average cost of medication, which varies depending on how aggressively the patient is stimulated, is

$5,000. Finally, the average price to store frozen eggs is $2,000, assuming five years of storage at a rate of $500 per year with the first year free (Fertility IQ). Patients are more likely to pay double these amounts because people typically elect to do more than one cycle (2.1 cycles on average) (Fertility IQ).

To increase access, some employers began to cover up to $20,000 of the costs associated with freezing eggs. In recent years, the number of employers offering egg freezing has almost tripled; according to Mercer's National Survey of Employer-Sponsored Health Plans (2018), 17 percent of employers with 20,000 or more employees covered egg freezing in 2018, up from 5 percent in 2015.

The cost-effectiveness of egg freezing is one of the most controversial aspects of the technology. Conclusions about cost-effectiveness are highly individualized because the success of the technology depends on patient characteristics, such as their age and number of eggs frozen (Chronopoulou et al. 2021). Egg freezing is more costly for people who freeze eggs later in life, as they may require more cycles to achieve the number of eggs needed to ensure a higher success rate. Although egg freezing may yield better results for a younger patient, it may ultimately require more expenses, such as paying for several more years' worth of annual storage fees (Jones, Serhal, and Ben Nagi 2018). As few as 12 percent of people ever return to use their frozen eggs to attempt pregnancy (Cobo et al. 2018). Because egg freezing is a more expensive alternative to conceiving without ART, some argue that patients are not only taking on the undue emotional and bodily risks accompanying the procedure, but also wasting money on something that they may never even use (Hirschfield-Cytron et al. 2011). Finally, the cost-effectiveness depends, in part, on the number of children a person hopes to have. Success rates project a patient's chances of achieving a single live

birth through egg freezing. The possibility of two or more live births is even slimmer, depending on the patient's characteristics, and potentially requires more egg freezing cycles.

Risks and Safety

Egg freezing carries bodily and emotional risks and involves some degree of lifestyle disruption and physical discomfort. The most critical medical risk of egg freezing is associated with the stimulation of the ovaries. Ovarian hyperstimulation syndrome is a condition in which powerful fertility drugs cause ovaries to become swollen and painful and may lead to fatigue, nausea, headaches, abdominal pain, breast tenderness, and irritability (Petropanagos et al. 2015:667). While rare, up to 2% of patients may experience more severe ovarian hyperstimulation syndrome; the most severe instances can involve ovarian torsion that requires surgery. Although rare, severe reactions to hormonal medications can be life-threatening (Petropanagos et al. 2015). According to one fertility clinic focused on egg freezing services (Extend Fertility 2017), as many as 25 percent of patients who freeze eggs report side effects from these medications. These side effects result from hormonal fluctuations and include headaches, mood swings, insomnia, hot or cold flashes, breast tenderness, and bloating. Patients may also report redness, soreness, and bruising at the injection site.

Complications during the egg retrieval associated with using an aspirating needle can also cause bleeding, infection, or damage to the bowel, bladder, or blood vessel (MayoClinic 2021). If patients return to attempt pregnancy using their frozen eggs, they will also be subject to IVF risks, including multiple pregnancy, preeclampsia, and premature delivery (Petropanagos et al. 2015).

Long-term health risks are difficult to determine because there have been no comprehensive longitudinal studies on the health effects of fertility medications on either the people who undergo IVF or the children conceived by it in the United States (Almeling, Radin, and Richardson 2014). Research on the link between fertility treatments and increased risk of breast, uterine, ovarian, and other cancers are reassuring but suffer from methodological limitations prohibiting definitive conclusions (Kroener, Daniel, and Zain 2017; Petropanagos et al. 2015).

Moreover, the US fertility industry is an unregulated and commercially driven business likened to the "Wild West" of medicine (Kowitt 2020). One consequence of the commercial focus is a lack of independent oversight. Clinic operations or failures have garnered significant media attention in recent years; two clinics, one in Cleveland and one in San Francisco, experienced devastating equipment malfunctions that destroyed several thousands of frozen eggs and embryos. Only after news of the equipment failures broke did the clinics alert the College of American Pathologists that accredits them (Weaver 2018). It is unclear if similar types of losses have occurred in the past, considering that clinics are under no obligation to report information on clinic operations or failures unless a complaint is filed against them or news media reports on one (Weaver 2018).

Finally, egg freezing poses risks to emotional health. Egg freezing may be considered a “dangerous delusion” (Lockwood 2011) that provides “false hope” for a future pregnancy (Barbey 2017; Campo-Engelstein 2018). In one US study, 49 percent of patients who underwent egg freezing between 2012 and 2016 experienced some degree of regret over the decision, with 16 percent reporting moderate to severe regret related to inadequate emotional support and information about the procedure (Greenwood et al. 2018). The

findings of this dissertation shed further light on the emotional toll of egg freezing associated with the requirement to self-inject hormones at home to uncertainty about which fertility clinic to trust with freezing eggs and others that I detail in the chapters that follow.

Situating Egg Freezing in Feminist Perspectives on Reproductive Technology

Egg freezing evokes tensions between nature and culture, reproductive and productive labor, and motherhood and work that defined early feminist discourse on reproductive technologies.

Sherry Ortner's (1972) classic essay "Is Female to Male as Nature is to Culture?" posited that motherhood and reproduction were at the source of women's universal subordination. According to this theory, women's subordination and the sexual division of labor begin with embodiment. Women's bodies and their reproductive functions, such as menstruation, pregnancy, childbirth, breastfeeding, and childrearing, associate them more closely with "nature." Meanwhile, men can transcend nature to participate in and appropriate the social roles and activities aligned with culture.

Feminist scholars went on to debate this tension between nature and culture. In her ethnography *The Woman in the Body: A Cultural Analysis of Reproduction,* Martin (2001 [1987]) showed how the dominant view of women's bodies and reproduction that casts women's reproduction in negative terms as "failed production" (2001 [1987]:45) has been defined by medical knowledge and incorporated into American culture. Negative cultural views of women's reproduction further the separation of motherhood and work as women find it difficult to reconcile reproduction and motherhood with the expectations of workplace culture.

Feminist scholars began to debate the social, political, and economic implications of reproductive technologies as a potential solution to these tensions. Early perspectives viewed reproduction as a problem that could be solved by completely removing reproduction from the female body through technology. For example, eight years before the birth of the world's first test-tube baby in 1978, Shulamith Firestone (1970) famously argued that artificial reproduction and technological developments could be harnessed to overcome women's embodiment and the biological source of their oppression. Through technologies like artificial wombs, Firestone (1970) imagined a future in which "the tyranny of reproduction" (213) could be dismantled, and the labor of childbearing and childrearing could be equally shared between men and women.

Initial feminist responses to reproductive technology in the 80s and 90s, however, were overwhelmingly critical, arguing that reproductive technologies represent a new form of control over female reproduction, reinforcing, rather than disrupting, the idea of motherhood as biological destiny and exacerbating motherhood mandates (e.g., Corea 1985; Ginsburg and Rapp 1991; Gupta 1991; Oakley 1984; Katz Rothman 1986; Russo 1976; Stanworth 1987; Strickler 1992; Terry 1989). The second phase of anthropological and sociological literature on reproductive technologies through the 90s and early 2000s drew from women's experiences with reproductive technologies, revealing a diversity of motivations and experiences with reproductive technologies (Thompson 2005). This work viewed women as having greater agency over their use of technology than previous work did, and scholars began to pay more attention to how technology contributes to stratified reproduction (Rapp 1999).

Contemporary debates about ARTs still reflect early concerns feminist scholars had about medicalization, the reproduction of unequal power relations, and the potential for technology to essentialize women as producers. However, recent literature on ARTs pivots away from moralistic declarations of technology as "good" or "bad," or as inherently liberating or oppressive, instead highlighting the ambivalence generated by technology (Franklin 2013) and the potential of reproductive technology to disrupt power relations (e.g., Markens 2007).

The development of this literature reflects the changing political landscape in which these debates are occurring, such as the displacement of liberal feminist concepts like autonomy, rights, and social justice by neoliberal feminist ideals of individualism, happiness, balance, and responsibility (Rottenberg 2016; 2014) and the loss of a collective, structural focus (Mickey 2019). As the burden of social change shifts onto individual women under neoliberalism, attempts to transform gender relations become directed not at systemic injustices but personal shortcomings and weaknesses. "This kind of hyper-individualising neoliberal feminism, which construes women not only as entrepreneurial subjects but also as individual enterprises, is clearly more easily mainstreamed and popularised since it has been defanged of most if not all of its oppositional force" (Banet-Weiser, Gill, and Rottenberg 2019:8).

We can understand the shift in feminist discourse on reproductive technologies and the increasing cultural resonance of egg freezing as consequences of a reduction in focus on systems and the mobilization of neoliberal ideas and values within feminist politics. Egg freezing is a distinctly neoliberal technology that decouples sex and gender from reproduction, where reproductive technology acts as a hyper-individualized tool of feminist

transformation through women's liberation from their bodies and reproduction through technology. Egg freezing overcomes the “problem” of female embodiment by helping align women's bodies with social transformations in gender that involve increased personal, educational, and professional opportunities and the deferral of reproduction to later ages.

This dissertation contends that egg freezing, as it is currently practiced and advertised, reinforces the cultural link between motherhood and womanhood in an age when these feel less certain, and the reconciliation of work and family life is less tenable. The chapters that follow show the ways egg freezing reifies assumptions of women as future mothers and the primary caretakers of children and upholds cultural ideas that equate women’s value with their youth, reproductive viability, and identities as future mothers. Observations and interviews reveal that the commercial egg freezing industry sells egg freezing as a responsible anti-aging measure, wellness practice, and personal investment that ensures future motherhood. Women’s narratives suggest that egg freezing is a gender strategy to enact (hetero)normative femininity by displaying their prioritization of the pursuit of motherhood alongside their personal, educational, and professional goals. Finally, professional women use egg freezing to anticipate, strategize, and maneuver around maternity discrimination in the workplace and assume responsibility for managing normative ideologies of work and motherhood in workplace cultures and structures that penalize women for having children at the "wrong time" in their careers. I conclude that egg freezing reflects and serves to reinforce cultural definitions of hegemonic femininity in service of existing gendered power structures.

The findings of this dissertation thus challenge popular framings of egg freezing as an empowering technological solution to enduring gender inequalities. Egg freezing may be

individually useful to women, but it is insufficiently radical. Egg freezing does indeed go a long way in easing women's anxieties about reproductive timing and can help women meet their reproductive goals. This technology works as a "stop-gap" measure allowing women to circumvent biological limitations so they can realize their personal, educational, and professional goals while maintaining the pursuit of marriage and motherhood as central priorities simultaneously (Inhorn 2017). Yet, these individual gains fall short of fundamentally altering the cultural, socioeconomic, emotional, and logistical challenges that make it difficult for women to integrate childbearing with their lives, which increasingly necessitate women to delay or forego motherhood altogether.

Overview of the Dissertation

The chapters that follow are organized according to three thematic concerns that characterize the most popular debates and conversations unfolding in the academic literature about egg freezing: medicalization, commercialization, and the potential for egg freezing to reframe women's reproductive choices (Baldwin 2019).

Chapter Two, "The Medicalization of Reproductive Aging," draws from a content analysis of 376 articles published in clinical journals in the field of reproductive medicine, newspapers, and popular women's and business magazines between 1980, when it was a strictly medical practice, and the present day, available as an elective option for all healthy women of reproductive age who can afford it. Whereas most studies of medicalization investigate popular and medical discourses independently, I analyze the central messages that emerge from these concurrently, showing how professional and media claims have borrowed from and reinforced each other over the years to extend egg freezing to younger, healthier populations over time. This analysis reveals that both professional and media

claims contributed to the medicalization of reproductive aging by reinforcing each other's narratives: first, by framing egg freezing as an empowering feminist tool that increases female reproductive autonomy and second, by espousing it as a responsible healthcare strategy that prevents age-related infertility.

Chapter Three, "The Commercialization of Egg Freezing," relies on 28 interviews with representatives of commercial egg freezing clinics and 42 observations of educational and marketing events dedicated to egg freezing to examine how gender idealizations and market interests intersect to shape the ways women are recruited to freeze their eggs. While scholars have begun to explore how women's engagement with egg freezing may exacerbate motherhood mandates, less is known about how representatives of the commercial egg freezing industry negotiate these tensions. Commercial egg freezing businesses disseminate scientific discourses medicalizing female reproductive aging that appear in Chapter Two by including an educational component as part of a persuasive pitch for egg freezing. Specifically, I show that commercial actors draw on anxieties about aging, declining fertility, and the postponement of motherhood to sell the technology as a responsible anti-aging measure and as a smart self-investment that increases women's social and market value. These messages privilege motherhood as essential to women's identities by taking women’s reproductive capacity as their central concern and by holding women accountable to engage with fertility technologies that ensure the possibility of biological motherhood in the future.

Chapter Four, “Egg Freezing and Compulsory Motherhood,” draws upon 67 interviews with women who use egg freezing to examine their motivations to pursue fertility preservation and their beliefs about this technology. Decisions about whether and when to have children are complicated, especially for middle-class women coming of age under new

expectations that motherhood occurs later in life after extensive education and establishing careers. Women experience an uncertainty about whether they will be able to have children within their limited reproductive timelines. I show that egg freezing sustains compulsory motherhood by expanding the sphere of responsible mothering to include women's pre-maternal selves through the establishment of *fertility insurance.*

Chapter Five, "Egg Freezing and the Establishment of Romantic Security," focuses on interviews with a subset (*n*=46) of the 67 women I interviewed for this dissertation for whom concerns about their relationship status and their desire to be partnered before having children were significant motivating factors driving their decision to freeze eggs. This chapter highlights how single women use egg freezing to manage social fears about women who are not romantically, sexually, and emotionally linked to men through marriage and increases the likelihood of establishing long-term partnerships before motherhood. In addition to this, I show that egg freezing is a gender strategy for successfully navigating gender inequalities in heterosexual culture and a marriage market that privileges men and excludes older women.

Chapter Six, "Synchronizing the Biological Clock: Managing Professional and Romantic Risk Through Company-Sponsored Egg Freezing," takes a further look into how private and commercial interests are intersecting with women's reproductive lives, this time through the inclusion of egg freezing into employer-sponsored healthcare plans. Through interviews I conducted in 2016 with a separate group of 40 child-free professional women of reproductive age who work in industries that sponsor egg freezing, I investigate how work and career concerns shape professional women's engagement with elective egg freezing. The dominant narrative established in earlier research on women's motivations for undertaking

the procedure downplays the significance of career pressures. However, this chapter finds that egg freezing manifests as an attempt to manage risks inherent to women's intentions to form families in a professional landscape where discriminatory attitudes and practices against mothers persist. Egg freezing suggests a potential reconciliation of future motherhood and professional work by adjusting women's reproductive timelines to "perfect" the timing of reproduction to synchronize with their career trajectory.

Finally, Chapter Seven summarizes my main findings, discusses their implications, and lays out the conclusions to be drawn from the study. Here, I speculate about the future of fertility preservation technologies in the US, areas in need of further research, and the significance of this issue for developing more comprehensive work-family and public health policies.

CHAPTER TWO: THE MEDICALIZATION OF REPRODUCTIVE AGING

The institution of medicine has long been theorized as a site of social control (Zola 1972) and a locus for the surveillance of women's bodies and reproduction (Riessman 1983; Riska 2003). Medicalization, the "process whereby more and more of everyday life has come under medical dominion, influence, and supervision" (Zola 1983:295), has taken hold in all "stages" of reproduction: contraception and abortion, pregnancy and birth, and infertility and assisted reproduction (see Almeling 2015 for an overview of the field). Reproductive health outcomes are frequently understood as the consequence of women's personal decision-making about their bodies and health (Landsman 2008; Wolf 2010), and scholars posit that women are increasingly expected to prepare their bodies in advance of motherhood to ensure optimal reproductive health outcomes, a process that extends medical surveillance of reproduction to the time before women even conceive (Waggoner 2017).

A new reproductive technology aimed at preserving women's fertility may be exacerbating these forces. Fertility preservation is an emerging subfield of reproductive medicine encompassing the cryopreservation of embryos, oocytes, and ovarian tissues. Egg freezing technology is the latest fertility treatment that is being aggressively marketed to healthy, ostensibly fertile women as a means of optimizing their reproductive potential.

Egg freezing is novel compared to other reproductive technologies that have previously been studied in the medicalization of infertility literature because, rather than "treating" the condition of infertility, egg freezing preserves fertility by anticipating age-related infertility in otherwise healthy women of reproductive age. Egg freezing thus takes

the treatment of age-related fertility decline, not infertility, as its primary focus. In doing so, it has rendered female reproductive age more visible, quantifiable, and amenable to medical monitoring and management. Moreover, egg freezing is a different fertility treatment in that it has evolved into a popular social trend, due in part to a lack of regulations governing the market for assisted reproductive technology in the United States (Spar 2006).

This chapter draws from a qualitative content analysis of secondary literature published in academic, clinical, and scientific journals, newspapers, and women's and business magazines to trace the social and scientific development of egg freezing technology in the United States. I supplement these data with insights from 28 interviews I conducted with professionals working in the egg freezing industry who exert influence on the process of recruiting, screening, and administering egg freezing. Through my analysis, I examine how professional and media claims have been mobilized to establish this emergent technology as a worthy and legitimate medical intervention among healthy, fertile women of reproductive age.

The discursive construction of egg freezing as an acceptable fertility preservation strategy among healthy women matters, as it can determine whether this technology will continue to become more widely adopted. The medicalization of society is a diffuse process that involves a myriad of actors. For example, physicians are increasingly subordinate to commercial and market forces that promote medical solutions to problems, including advertising, mass media, or patient advocates (Conrad and Leiter 2004). Likewise, patients are becoming more informed, agentic consumers of biotechnology who participate in medicalization by seeking out medical definitions or treatments to problems themselves (e.g., Barker 2008). Medical discourses and their widespread dissemination through mass

media may also work in concert to advance medicalization. Media claims develop and disseminate ideas about gender and health that can act as powerful socializing agents (Conrad 2007), giving medical and scientific claim-makers the cultural authority to define bodies and bodily processes (Clarke et al. 2010) and shaping how women conceive of their bodies, identities, and health. Thus, rather than independently investigating the central messages that emerge from popular and medical discourses, as is typical in the medicalization literature, I examine them concurrently to understand how they have informed and shaped each other to extend this fertility treatment to healthy women.

This chapter shows that social and scientific claims drive medicalization by borrowing from and reinforcing each other's narratives. Their most prominent narratives construct contemporary women as increasingly susceptible to age-related infertility and involuntary childlessness due to their postponement of motherhood to their late 30s and 40s. By mobilizing an understanding of women's increasing social, economic, and sexual independence as a primary contributor to delayed fertility, social and scientific claims-makers designate healthy women of reproductive age at-risk for infertility and focus on female reproductive age as a medical and social problem in need of treatment.

Through the development of egg freezing, I argue that women's reproductive aging is increasingly coming under medical jurisdiction. Egg freezing developed in response to new understandings of female reproductive aging as a medical problem in two distinct ways. First, egg freezing is presented as a feminist tool that enhances female reproductive autonomy by overcoming aging and extending women's opportunities to reproduce later in life. Through egg freezing, women may become empowered—not as agents over their reproductive desires, planning, and decision-making, but as consumers of reproductive

technology who achieve a future body and self unaffected by the effects of advancing age on their fertility. Second, egg freezing is espoused in terms of improving women's health. Experts and professionals in the field of reproductive medicine increasingly construct the process of female reproductive aging and natural fertility decline as medical problems with far-reaching consequences for society. In this context, egg freezing is transformed into a responsible, proactive healthcare strategy that can prevent reproductive aging and inevitable, untreatable infertility and involuntary childlessness. This process expands the medicalization of infertility to include the period prior to an infertility diagnosis.

Gender and Medicalization

The development of egg freezing from a last resort option in women with a medical condition to a preventive healthcare strategy in healthy women represents an expansion of the medicalization of women's bodies and female reproductive aging. Conrad and Schneider (1980) provide a valuable framework for thinking about the meaning of medicalization as a process of definition that occurs on three levels: at the conceptual level in the process of defining a social problem in medical terms, at the interactional level between physicians and patients, and the institutional level when organizations adopt medical approaches to the treatment of a problem. This chapter focuses on how egg freezing's social and scientific development contributes to medicalization at the conceptual level.

Cultural trends that emphasize the promotion of health over the prevention of disease have led to the perception that health is the domain of medical intervention and consumption. Medical services and treatments today not only "treat" conditions but also prevent disease and transform, enhance, and improve one's health, body, appearance, self, and social life (Adams, Murphy, and Clarke 2009; Clarke et al. 2003), such as cosmetic

surgery. Under this framework, “health becomes an individual goal, a social and moral responsibility, and a site for routine biomedical intervention” (Clarke et al. 2003:171). Foucault’s concept of the “technologies of self” describes the transformation of bodies and selves through technologies that help individuals “attain a certain state of happiness, purity, wisdom, perfection, or immortality” (1988:18). Expanding upon this contribution, Rose (2007) posits that “technologies of optimization” "intervene on human beings in the present with an eye to optimizing their future vitality" (82). Symptoms of a disease are no longer required to justify medical interventions.

This shift in focus from treating disease to promoting health is significant because it blurs the lines between what may be deemed a “necessary” medical treatment and what may be considered an “elective” intervention (Conrad 2007). Egg freezing constitutes a kind of technologically based transformation of self, in which women stylize their bodies to enact and realize a future, imagined self and social life, one unaffected by reproductive aging. As I show in this chapter, the evolution of egg freezing reflects an ongoing debate on whether this transformation should be considered medically necessary. Over time, the transformative potential of egg freezing to “enhance” women’s reproductive timelines has become framed as a medically necessary treatment to prevent a certain future diagnosis of infertility.

The centrality of motherhood to gender identity (Russo 1976), the increasing social value of children (Zelizer 1985), and the social and cultural link between women’s bodies and reproduction (Firestone 1970) undoubtedly genders these imperatives. Literature examining the medicalization of childbirth, menopause, premenstrual syndrome, and anorexia (Barker 1998; Bell 1990; Brumberg 1988; Figert 1995; Wertz and Wertz 1989)

reveal that women's normal life experiences are pathologized and have been more subject to medicalization processes relative to men's (Martin 1987; Riessman 1983; Riska 2003).

Infertility is one such experience that has come under the medical gaze due to advances in ART throughout the 20th century. Today, infertility is thoroughly medicalized and is now defined as a disease that is "fixable"[1] (Becker and Nachtigall 1992). Cultural definitions of gender hold women responsible for acting preemptively to secure future motherhood and ensure optimal reproductive outcomes (Waggoner 2017), and an asymmetrical perception of infertility narrowly emphasizes women's bodies and behaviors (Almeling and Waggoner 2013; Becker 2000; Greil, McQuillan, and Slauson-Blevinet 2011). For example, the Centers for Disease Control's (2016) "FastStats" on infertility all center on women's bodily experiences and treatments, even though men also experience impaired fertility. Moreover, many studies find that male-factor infertility is typically treated through medical interventions upon women's bodies (such as through IVF), instead of through less invasive interventions that focus on the male partner's body (Becker 2000; Greil, Leitko, and Porter 1988; Lorber and Bandlamudi 1993).

Egg freezing exacerbates this double standard by encouraging "anticipatory infertility" (Martin 2010), where women must orient themselves toward future fertility decline and use biomedical technologies to secure future reproductive potential before an infertility diagnosis has even been declared. The market for egg freezing is undeniably gendered, as it is essentially a market for women's reproductive capacity. Men are absent

[1] According to the Practice Committee of the ASRM (2008), infertility is "a disease defined by the failure to achieve a successful pregnancy after 12 months or more of regular unprotected intercourse. Earlier evaluation may be justified based on medical history and physical findings and is warranted after 6 months for women over age 35 years."

from the discourse on egg freezing, even while studies find that men's age also affects fertility and in vitro fertilization (IVF) success rates (European Society of Human Reproduction and Embryology 2017; Paul and Robaire 2013). Thus, the emphasis on egg freezing as a worthy medical intervention for female reproductive age continues to define infertility as primarily a women's issue.

The development of egg freezing reifies social conventions of age and gender, positing youth as preferable and healthy while incentivizing women to intervene with their healthy bodies as a kind of investment in future fertility, and by extension, future motherhood. The contemporary framing of egg freezing orients women toward future conception and projects women's subjectivities and embodiments as acutely susceptible to age-related infertility, involuntary childlessness, and the failure to fulfill the cultural norm of motherhood (Greil, Leitko, and Porter 1988). As women pursue higher levels of education and establish careers, they are incentivized to delay childbearing into their 30s and 40s—a window of time in which having children becomes increasingly difficult (Boushey 2016). Under these conditions, egg freezing has emerged as an empowering lifestyle practice and a responsible, preemptive healthcare strategy that may increase the success of ART and facilitate motherhood later in life.

Additionally, as a treatment aimed at preventing infertility, egg freezing may be characterized more precisely as "anticipatory medicalization" wherein a condition is medicalized preemptively, before the onset of a problem or disease, to improve health outcomes in the long term (Conrad and Waggoner 2017). Following the discovery of IVF, "persons now perceive that not only can the source of infertility be diagnosed, but it can be treated" (Scritchfield 1995:139). This chapter contributes to the medicalization of infertility

literature, suggesting that the development of egg freezing adds to the perception that the "source" of infertility can be located in the process of aging, thereby stretching the domain of medical intervention and prevention of infertility to women's healthy, fertile bodies and selves.

Media Representations of Egg Freezing

This research is distinct from previous studies examining the presentation of egg freezing in the media. Earlier studies have typically focused on how the media portrays egg freezing, women who pursue the procedure, and their motivations for doing so (e.g., Campo-Engelstein et al. 2018; Grandy 2019; Martin 2010; van de Wiel 2014). Jaeger (2019) compares the media coverage of sperm and egg freezing, elaborating on how constructions of male and female users of these technologies reflect gendered expectations of parenting. In contrast to these studies, I examine the discursive frameworks that produce and disseminate the ideas about gender and health implicit in the development of egg freezing technology itself, explaining how and why this technology has been extended to healthy, fertile women, even though it was first developed for women with a medical condition.

In addition, my analysis gives greater weight to professional claims about egg freezing as they appear in major journals in reproductive medicine and according to professionals that work in the egg freezing industry. Earlier research on the presentation of egg freezing in scientific literature pre-dates the announcement by the American Society for Reproductive Medicine (ASRM) and the Society for Assisted Reproductive Technology (SART) that egg freezing is no longer an experimental procedure (e.g., Martin 2010). This chapter accounts for how increased accessibility, marketing, and exposure of elective egg

freezing in the years following the announcement may be transforming debates surrounding the technology, redrawing its boundaries to include younger, healthy populations of women.

Data and Method

I performed a qualitative content analysis of clinical, scientific, and academic journals in reproductive medicine, popular women's and business magazines, and newspapers to trace how professional and media claims have helped establish egg freezing among healthy women of reproductive age in the United States.

Professional claims include statements made by experts in reproductive medicine and major professional organizations that exert influence on perceptions of egg freezing. I analyzed published literature on the topic of egg freezing in three of the most highly ranked journals in reproductive medicine: *Fertility and Sterility,* the official journal of ASRM; *Human Reproduction,* the official journal of the European Society of Human Reproduction and Embryology; and *Reproductive BioMedicine Online.*[2] I reviewed articles published between 1986 when the first birth resulting from a frozen egg was reported, and advances in human oocyte cryopreservation techniques began to accelerate and the present. In addition to clinical and empirical studies, I also chose to include articles that discuss the science, ethics, and social ramifications of egg freezing. These pieces were pivotal to the development and extension of the technology to wider audiences over time. Finally, as important gatekeepers of egg freezing, I examined how professional claims-makers have negotiated tensions about

[2] Some of the medical and scientific texts I examined were published internationally. I incorporated these texts into my analysis to the extent that they were mobilized and influential in the evolution of egg freezing in the U.S. Future research may examine how this technology is being framed in other national contexts where there is growing interest in fertility preservation strategies (e.g., Bloomberg News 2018).

whether to recommend egg freezing to broader populations of women and their commentary on its social implications.

I supplemented this data with insights garnered from 28 interviews with professionals working in the egg freezing industry. These individuals were primarily fertility specialists who provide egg freezing and marketing professionals who perform outreach to recruit women for egg freezing. As I will discuss, there was variation in the personal attitudes of these individuals toward elective egg freezing, with some feeling more tentative or conflicted and others more permissive.

For this chapter, I specifically analyzed these first-hand accounts paying attention to how representatives conceptualize terminology used to describe egg freezing according to women's different motivations and their perspective on how this nomenclature has developed over time. At the time of the interview, these individuals were actively negotiating the conceptual distinction between "medical," "social," and "planned" egg freezing that pervades debates about the technology, and some had been personally involved in establishing these designations in the past. How do these individuals construct the boundaries between different definitions of egg freezing? Which motivations for pursuing egg freezing do they view as most urgent and legitimate? How are they negotiating rising consumer demand for this medical service? I digitally recorded the conversations with interviewees' permission, and I have removed any identifying information, such as their names and names of employers.

Media claims were accessed through a selective review of online newspapers and popular women's and business magazines. First, I analyzed newspaper coverage in the *New York Times* and *Washington Post,* as these newspapers have the most extensive readership

in two geographic regions that are significant destinations for fertility services and egg freezing. I also examined articles published in U.S. women's magazines, namely *Cosmopolitan, Health,* and *Women's Health,* and in U.S. business magazines, including *Bloomberg Businessweek, Forbes, Money,* and *Fast Company.* I chose these magazines for several reasons: they have some of the highest circulation and subscription rates in the "women's magazine" and "business magazine" genres, appeal to a broad range of ages and professions, and address topical concerns relating to health, dating and relationships, sexuality, and careers. The sample included various texts, including editorials, features, letters to the editor, and opinion pieces.

To focus my analysis, I investigated media coverage according to four distinct periods and moments of change in the history of egg freezing: the time before 2012, when ASRM and SART made the joint decision to drop the experimental label on the technology; 2012 and 2013, when the technology had only recently been labeled as non-experimental; 2014, when major U.S. employers announced that they would begin to offer it as an employee benefit; and 2018, when ASRM announced that egg freezing to prevent age-related infertility is ethically permissible. These moments are essential to the development of egg freezing and its growing popularity. Through analysis of these periods across a variety of sources, I compared media frames at each point in the evolution of the technology, examining how a broad set of implicit ideas about gender, health, aging, and reproductive choices appear in the discourse, and determining whether these ideas changed over time as egg freezing became more normalized.

I consolidated my sources by creating a database of all the articles published on the topic of egg freezing. In total, I analyzed 288 texts: 128 newspaper articles, 48 women's and

business magazine articles, and 112 articles published in clinical, academic, and scientific journals. Articles were accessed through online searches using the *LexisNexis*, *ProQuest*, *ScienceDirect*, and *Web of Science* databases. I also performed additional searches in the online archives of specific newspapers and magazines. The following search terms were used: "fertility preservation," "oocyte cryopreservation," "elective oocyte cryopreservation," "egg freezing," "elective egg freezing," "social egg freezing," and "medical egg freezing." I thoroughly examined the search results, limiting articles to those that significantly addressed egg freezing and age-related fertility decline. I omitted any articles where discussions about these topics were peripheral or secondary to the article's focus.

Using an interpretive approach, I examined emergent themes as they manifested in these extant secondary texts (Charmaz 2006), systematically coding each piece to identify patterns in how egg freezing was framed in scientific discourse and as a subject of widespread and topical interest to women. I also followed the grounded theory methodology by utilizing the constant comparative method (Glaser and Strauss 1967) to compare by publication type (newspaper, magazine, journal article) and across the four distinct periods in the technology's evolution. Before I finalized the coding protocol, I tested a preliminary coding protocol with a bounded sample of 15 articles. Through interacting and familiarizing myself with these texts, I developed and refined the final coding schema with relevant categories and themes that emerged from the data. This schema aimed to capture manifest and latent content and recorded narrative examples to analyze variation within codes. Manifest content included mentions of the "biological clock," career and work-family balance, relationship status, and descriptions of aging and its impact on female fertility. I also

coded latent themes, such as discourses of egg freezing as empowering and egg freezing as a healthcare strategy.

There are some limitations to the claims that this chapter can make. Qualitative content analysis is a powerful method for tracking change over time and capturing when and how social phenomena are framed in new ways (Luker 2008). However, it cannot access the motivations and intentions of people responsible for producing texts. While the media is a crucial arena of socialization, Chapters Four, Five, and Six of this dissertation supplement these findings with interviews investigating how social meanings that are the subject of this chapter resonate with women's understandings and experiences of egg freezing.

From a "Last Resort" Fertility Treatment to a Preventive Healthcare Strategy

Today, women may utilize egg freezing for any motivation they desire. This freedom is a relatively recent phenomenon in the technology's development. Egg freezing terminology has evolved by distinguishing amongst women's different rationales for undertaking fertility preservation (e.g., egg freezing for "medical" as opposed to "social" reasons) (van de Wiel 2014). In what follows, I trace the trajectory of egg freezing terminology over time, showing how professional and media claims have negotiated and presented the suitability of egg freezing for healthy women who wish to preserve their fertility. In the first section, I discuss how, in its early years, egg freezing was reserved as a "last resort" fertility treatment, despite rapidly developing techniques that improved the technology's efficacy. In the final two sections, I explain how egg freezing was marketed to healthy women of reproductive age by framing the procedure as an empowering feminist initiative that increases female reproductive autonomy and a responsible healthcare strategy that prevents age-related infertility. While I refer to categories such as "medical,"

"social," and "planned" egg freezing as touchstones in the development of the technology, I do so not to reify their existence but to reveal their socially constructed nature.

"Medical" Egg Freezing: Advancing the Science of Oocyte Cryopreservation

While sperm freezing became widely available in the 1970s (Elizalde 2020), it was not until the 1980s that oocyte cryopreservation became available, with the first reported birth from a frozen egg occurring in Australia in 1986 (Chen 1986). Egg freezing was initially developed to make infertility treatment more efficient. As egg freezing involves some of the same medical procedures as IVF, medical and health professionals considered egg freezing a helpful strategy for harvesting and preserving excess eggs and embryos resulting from IVF procedures (Gook 2011).

Early egg freezing techniques gained priority primarily due to ethical disagreements concerning embryo freezing (Gook 2011). Religious and moral objections to the process of freezing and storing embryos (Paynter 2000), legal disputes over the ownership and custody of embryos (Argyle, Harper, and Davies 2016; Bankowski et al. 2005), and concerns regarding the exploitation of egg donors (Baldwin et al. 2014; Martin 2010) sparked greater interest and a preference for freezing eggs over embryos. For example, in 2004, Italy, under the idea that life begins at conception, passed legislation prohibiting excess embryos from being frozen, citing concerns about discarded embryos and protecting the "sanctity of life" (Boggio 2005). Research on egg freezing thus accelerated as a way of circumventing regulations that restricted embryo freezing (Martin 2010) but soon stalled as researchers failed to produce reliable success rates (Bernard and Fuller 1996).

At the turn of the century, techniques for freezing and storing oocytes became more sophisticated (Oktay 2006). Until then, the standard protocol for egg freezing involved a

slow-freezing method that, while successful for embryos, compromised the number of eggs that women could successfully freeze and eventually fertilize (Parmegiani et al. 2009). Vitrification—a more rapid form of cooling that prevents damage from the formation of ice crystals on the eggs during the freezing process—emerged as a more reliable and successful alternative to the slow-freezing technique (Baka et al. 1995). Simultaneously, a method for inseminating frozen eggs called intracytoplasmic sperm injection (ICSI) helped clinicians overcome previous difficulties in fertilizing frozen eggs that resulted from zona pellucida hardening (Kazem et al. 1995). These advancing technologies for freezing and fertilizing oocytes helped improve success rates (Noyes, Porcu, and Borini 2009) and renewed interest in fertility preservation, particularly for female cancer patients about to undergo aggressive chemotherapy and radiology (ASRM 2008).

Egg freezing by women with a medical indication and couples receiving infertility treatments became classified as "medical" egg freezing. Compared to the controversy surrounding embryo freezing, "medical" egg freezing did not garner widespread criticism and received minimal media coverage during this period. In the early 2000s, egg freezing was extended to women of advanced reproductive age—typically women in their late 30s and 40s who were nearing menopause and for whom an infertility diagnosis was imminent (ASRM 2008). In a 2004 *Washington Post* article, one physician described her philosophy for recommending egg freezing in a way that was typical for this time: "I counsel women to consider egg freezing as kind of a *last resort*" [emphasis added] (Ianzito 2004). ASRM and SART echoed this sentiment in their official 2008 report on oocyte cryopreservation, stating, "In the case of patients who are facing infertility due to chemotherapy, oocyte cryopreservation may be one of the few options available" (S244). Egg freezing was

therefore promoted primarily as a fertility treatment for women in emergency medical situations facing the immediate loss of fertility and to provide more flexibility for couples who would otherwise be unable to conceive and have biological children. Notably, however, throughout this period, maternal age and the goal of preventing natural fertility decline were not yet deemed acceptable medical justifications for recommending or marketing egg freezing (ASRM 2008).

In sum, the early years of egg freezing were characterized by a quest to advance the science of oocyte cryopreservation, and the clinical application of egg freezing was deemed appropriate only in "last resort" scenarios. While professional organizations in reproductive medicine were unwilling to recommend the procedure to women who were delaying fertility, medical professionals, researchers, and other experts began to gesture towards egg freezing for this explicit purpose. In a 2007 *Washington Post* article, David A. Grainger—the president of SART at the time—explained, "We're sitting at that tipping point between technology that is quasi-experimental and tipping over into fairly widespread use" (Stein 2007). It was only a matter of time before women who wished to preserve fertility ahead of age-related fertility decline through egg freezing would come under the jurisdiction of fertility preservation methods.

"Social" Egg Freezing: Egg Freezing as Empowerment Initiative

As egg freezing techniques advanced, "social" egg freezing entered the lexicon of clinicians (Goold and Savulescu 2009; Lockwood 2011; Mertes and Pennings 2011). In contrast to "medical" egg freezing, "social" egg freezing refers to women utilizing egg freezing in the absence of a medical indication who want to preserve their fertility for any variety of reasons, such as waiting for the right partner.

Social egg freezing began to gain cultural traction in 2012 when ASRM and SART decided that the technology should no longer be considered "experimental"—a decision later supported by the American College of Obstetricians and Gynecologists (ACOG 2014). ASRM and SART based their recommendation on findings from a comprehensive review of 80 studies and four randomized controlled trials examining the success of fresh versus frozen oocytes (Parmegiani et al. 2011), concluding that IVF and pregnancy rates from frozen oocytes were comparable to those from fresh oocytes (Linn et al. 2014). Despite this, ASRM and SART once more warned that there was "not yet sufficient data to recommend oocyte cryopreservation for the sole purpose of circumventing reproductive aging in healthy women" (2013:42) and cautioned that marketing the elective use of egg freezing "may give women false hope and encourage women to delay childbearing" (2013:41). In a 2012 PBS interview, Eric Widra, co-chair of the ASRM Committee that prepared the report, contextualized the opinion by stating that the elective use of egg freezing "comes with both personal and societal and scientific ramifications that we aren't prepared to say we understand yet" (Warner 2012).

Although major professional organizations in reproductive medicine, such as ASRM and SART, were not yet prepared to embrace egg freezing without a medical indication, medical entrepreneurs were poised to carve out a private market for this purpose. A commercial egg freezing industry devoted exclusively to "social" egg freezing took hold following the organizations' announcement, aggressively marketing and extending the procedure's reach. Commercial agencies began to host egg freezing parties, dubbed the "Tupperware party of the Millennial" (Friedler 2018), where they serve wine and cocktails as women learn about the possibilities of preserving fertility in a casual, comfortable, and

deliberately non-clinical atmosphere (Ohleiser 2014). In 2014, media coverage of egg freezing accelerated as high-profile corporations in the finance and technology industries—including Facebook, Apple, Google, Intel, and J.P. Morgan Chase—endorsed egg freezing by offering up to $20,000 to cover the procedure through company insurance plans (Bennett 2014; Rosenblum 2014).

During this time, these businesses that launched efforts to extend egg freezing to a broader population explicitly aimed their campaigns at younger women (La Ferla 2018). For example, as one of their marketing strategies, commercial agencies harnessed social media, utilizing algorithms that target women based on their age group (Caron 2019). In a 2018 *New York Times* article, the president of a major U.S. network of fertility clinics observed that egg freezing "used to resonate primarily with women in their late 30s…We are now targeting women in their 20s and early 30s." Interviews with commercial actors reflected these sentiments, who shared the belief that "the younger the better" to freeze eggs. When I asked one CEO of a network of fertility clinics about who she considered the ideal candidate for egg freezing, she responded with a target age group: "In my mind, it's 25 to 35. Right? There's that period where it's never going to be better, faster, and cheaper, which is in your 20s." The evolving discourse about social egg freezing thus began to center on the importance of age for pursuing the procedure.

The popular press frequently draws upon medical discourses regarding female fertility decline to explain why these younger ages are more opportunistic: "The ideal time for a woman to freeze her eggs is in her late teens or twenties, a time when her eggs are plentiful and hardy, but also a moment in a young woman's life when she is least likely to be obsessing about motherhood" (McLaren 2014). This discourse frames the discussion in

terms of women's embodiment—focusing on the period when quality and quantity of eggs is optimal—and in terms of women's subjectivity—highlighting when they have yet to become "obsessed" with the pursuit of motherhood.

The popular press suggests that the strategy of marketing social egg freezing to women at younger ages is shaped by a desire to "help" women "have it all" by understanding the consequences of reproductive aging before it is "too late." Media sources and commercial actors who embrace social egg freezing presume a tension between female fertility and feminist social change. First, an interview piece published in *Cosmopolitan* (Bash 2017), and second, an excerpt from an interview with a representative of a commercial egg freezing business, captures this tension between social and biological realities:

> The women's liberation movement encouraged our mothers to believe they could go to college to earn more than their "Mrs." degrees. But while this is undeniably a good thing, it also left many women so focused on their work they missed their window on getting pregnant.

> When I talk to my patients, I frequently talk about a social evolution. Some people might call it a social revolution because it's happened so quickly. The change in the process of having a family over the last 50 years has changed markedly. However, the biology of a woman's body has not changed much at all, if at all. The process of a woman adapting to the need to have good eggs when she's older to have children would require millions of years of evolution. And that obviously has not happened. So, we're dealing with a very, very rapid social change and no biological adaptation.

Social change is described as more rapid than evolutionary change, therefore framing women's bodies as an onerous burden that has yet to "catch up" with more recent societal freedoms. This characterization of the modern woman's plight appeals to an understanding of the timeline of female reproductive age as fundamentally in conflict with women's increasing social, economic, and sexual independence. In this light, egg freezing can be understood as both a symptom and a potential solution to the broader social "problem" of female reproductive aging as contemporary women seek personal and professional development while delaying fertility and motherhood.

Popular press articles compound this storyline as they also presume a tension between the timeline of female fertility and the timeline of women's personal and professional pursuits. A *New York Times* article reports that egg freezing "appeals directly to women who are afraid of running out their biological clocks [because] women today are busy obtaining advanced degrees and pursuing successful careers" (Wadyka 2004), while a *Washington Post* article notes that "peak fertility coincides with peak career-building years" (Feinberg 2017). Female fertility is described in a *Women's Health* article as "Mother Nature's cruel trick... Just as you've settled into a good place career-wise and met a guy you want to have babies with... your fertility isn't cooperating" (Crain 2016). Another article, written by an unpartnered woman concerned that she cannot afford egg freezing, states that: "If I don't find the father of my children within the next couple of years, I will hit my 'expiration date'" (Hax 2018). These excerpts are based on heteronormative assumptions and suggest that female reproductive aging, epitomized by the metaphor of a "biological clock," burdens women with its impending "expiration date." Natural fertility decline compresses women's opportunities for meeting their personal and professional goals,

making female reproductive embodiment a convenient scapegoat for persistent gender inequality.

Business magazines were the most explicit in viewing the biological clock as anathema to professional success and career advancement. These media frequently reduce the complexities of women's attempts to combine motherhood with a career successfully to their biology. For example, articles in business magazines frequently contextualize professional women's decision to freeze eggs by citing statistics regarding motherhood penalties in U.S. workplaces. A 2014 (Hossain) *Forbes* article notes that "the gender pay gap increases dramatically after having children, with women's wages dropping around 4% after each child." However, in the same article, the problem of the gender wage gap is articulated by referencing women's bodies: by offering to cover egg freezing in their health care plans, "Apple and Facebook are attempting to accommodate their female employees, and in the process, they are recognizing a huge fact about employing women—a biological clock" (Hossain 2014). While these magazines highlight inequalities, they imply that the cultural and structural problems of the workplace that make it difficult for women to combine motherhood and career are biologically rooted. Even more explicitly, a *Business Insider* (Ferro 2014) article blithely argues: "Practically, this [egg freezing] isn't about changing the system. It's about making it easier for ambitious women to exist in the world we have. And we should applaud the companies that give women this choice."

In response, the rhetoric of egg freezing has become organized around a sense of empowerment, framing the procedure as a means of facilitating women's reproductive "choices" by eliminating the concerns of biology and reproductive aging. For example, in a

2013 (Richards) *Cosmopolitan* article, the CEO of a significant egg freezing services agency states:

> The mentality of the freezer is changing. It's a different story when your back is up against the wall. But the younger women say "It's so empowering. It's liberating. It's a great backup."

Thus, egg freezing transforms from a "last resort" fertility treatment among women with a medical issue to an essential "backup" plan that may extend to any healthy woman of reproductive age before the onset of aging-related fertility problems. Moreover, as this quotation suggests, egg freezing is also reframed as an empowering tool that increases women's agency by extending women's reproductive lives into their 40s and 50s.

Women's health platforms marketing elective egg freezing have, in recent years, begun to represent themselves as altruistic leaders of this empowerment initiative—a "new wave of feminism" in which independent women become proactive about their fertility through their consumption of reproductive technology. One commercial egg freezing agency boasts the motto: "Fertility. Freedom. Finally." A representative of this platform claims that:

> Egg freezing has become like a mantra for how to be an independent woman. The people who have frozen their eggs are doing the cool new thing. It's part of the "You don't need a man and if you're single, you don't have to have kids right now" moment—a new wave of feminism (Pflum 2019).

Another representative of a fertility clinic offering egg freezing argued more than once in our conversation about egg freezing that "women's healthcare issues are feminist issues." When I asked her why she understood the decision to freeze eggs as a feminist issue, she responded as follows:

> If you sort of trace back over the last hundred years, the emancipation of women, of us finding our voices, getting rights, followed by economic expansion—what comes with all of that is our ability to make our own paycheck and our further ability to direct our lives. We used to need that paycheck from another person. And as we have been emancipated from that, suddenly, we have an opportunity to actually think about how we want to direct our lives and build a family. We can ask ourselves, what are my actual criteria for a partner if it isn't the paycheck anymore? I think those are feminist issues.

Egg freezing reflects the newly expanded options of economically independent women. However, despite their newfound emancipation, these egg freezing platforms acknowledge that young women feel that their choices are constrained by socio-cultural pressures to settle down and have children before their biological clock has "run out." In doing so, they suggest that feminist social transformation can be achieved through biomedical interventions on women's bodies, and commercial actors normalize egg freezing as "the cool new thing" that advances modern feminism. Accordingly, egg freezing promotes gender equality by helping women who undergo the procedure become "independent women," an iteration of empowerment in which women consume biotechnology and realize a future body and self impervious to reproductive aging and fertility decline.

Commercial actors who established businesses to increase access, lower costs, and destigmatize egg freezing have been the most visible champions of social egg freezing. During interviews, individuals involved in these enterprises typically described initial resistance to social egg freezing originating from members of the medical community. For example, below, a reproductive endocrinologist who considers herself a proponent of social

egg freezing then a representative of a commercial egg freezing business characterized this resistance as follows:

> I went to an NICHD conference on egg freezing technology. This was several years ago when it was really—when the mass explosion of marketing happened. And I was really surprised at the negative tone that many of these older REIs were taking around the technology at that time. Like, "Oh, we shouldn't be using—it's not a social thing. This is a *medical* technology." And "Women shouldn't be doing this electively. They should be doing this sort of either as an oncofertility or as a last choice." And I listened to all these doctors debate this for hours before finally a young female physician of my generation stood up and said, "Hey, I don't think there's anything wrong with social egg freezing. If women want to call it social egg banking, or if they want to do it to empower themselves, there's nothing wrong with that." And she left the whole room silent. I was so proud of her. Because there was such a skewed perspective in that room. It [egg freezing] is also a very powerful tool for so many women, and we can't ignore that.

> There's a bias and stereotype that pervades the medical field—thankfully, it's not as bad as it used to be—that the woman who comes to freeze her eggs [for social reasons] is this kind of type A, only wants a career type of woman. And so, doctors tend to see women who are coming to freeze their eggs as a luxury and elective practice, and they treat them somewhat differently. That, to me, is a very damaging, paternalistic approach. It's kind of seen as—it's bucketed in the same place as a nose

> job, right, or liposuction or something. And it's not that. I think whether a woman is facing an emergency, like chemotherapy or something like that, where eggs need to be retrieved right away, versus understanding that as women age, in five years, your chances of having children will have drastically reduced, I think it's really the same conversation. It's just one is right now, and one is coming up.

These proponents argue that the dominant view toward social egg freezing in the medical community has been exceedingly paternalistic by minimizing women's experiences and writing off "social" motivations for egg freezing as frivolous. The first speaker argues that a desire to empower oneself is as worthwhile as seeking it out as a last resort. The second speaker goes further, arguing that there is no meaningful distinction between the social and medical egg freezer, as both face the threat of infertility and are taking proactive action to preserve their future fertility. These individuals gesture to the ways commercial actors in the fertility industry have championed social uses of egg freezing by legitimizing the specific emotional and medical needs of the social egg freezer. These actors simultaneously draw on medicalized understandings of reproductive aging while embracing the technology's empowering and liberating potential.

The initial emphasis on advancing the science of egg freezing thus transformed into a focus on increasing the procedure's exposure through commercial advertising platforms and accessibility by offering insurance coverage to women at ever younger ages. The commercial egg freezing industry effectively moved egg freezing outside of the fertility clinic and branded it as an empowerment initiative that promotes feminist ideals. Central to this addition to a feminist agenda is the importance of taking measures through biotechnology to counter reproductive aging. These efforts to establish social egg freezing also legitimated

the social egg freezer who guards against reproductive aging before fertility issues arise. In recent years, influential professional organizations in reproductive medicine have had to contend with these vocal advocates in the fertility industry. Their most recent stance on egg freezing appears to have been greatly shaped by their framing of egg freezing.

"Planned" Oocyte Cryopreservation: Egg Freezing as Preventive Healthcare Strategy

In the November 2018 issue of *Fertility and Sterility,* the ASRM Ethics Committee issued the latest professional opinion on egg freezing, taking into consideration updated research on, and understanding of, egg freezing for "elective," "non-medical," or "social" reasons. In this report, the ethics committee departed from the stance outlined in the ASRM Practice Committee's 2013 guideline, which stated that egg freezing for the "sole purpose of circumventing reproductive aging in healthy women" (42) should not be recommended. Instead, citing the increasing number of women who are already seeking egg freezing for this purpose, as well as data suggesting improved efficacy for the procedure, the new guidelines assert that egg freezing for women who wish to prevent future age-related infertility is not only ethically permissible but may also "enhance women's reproductive autonomy and promote social equality" (1027). Moreover, to reflect their updated opinion, ASRM suggests replacing the terms "social" or "elective" egg freezing with "planned oocyte cryopreservation."

While recent, this development in the trajectory of egg freezing is remarkable, especially because ASRM has historically approached "elective" egg freezing—and its social implications—with caution, if not derision, according to representatives of the commercial egg freezing industry. In what follows, I contend that the latest endorsement of "planned" egg freezing represents a new era, as it collapses the distinction between "social" and

"medical" that has previously dominated the discourse of egg freezing. By demarcating egg freezing as a "planned" strategy for preventing reproductive aging and future diagnosis of infertility, this new terminology reframes "social" uses of the technology in terms of improving reproductive outcomes and advancing women's health.

"Planned" egg freezing pivots on an understanding of women's delayed fertility, maternal age, and age-related infertility as medical problems. This attitude is exemplified by a recent article, which states, "Like the certainty of 'death and taxes,' women face a guaranteed likelihood of infertility with advancing age" (Goldman 2018:1014). A reproductive endocrinologist I spoke with similarly stated, "There's really been a tremendous lack of research in the area of fertility before there's a diagnosis of infertility. We all essentially will—every single woman could be diagnosed with infertility at some point in her life." ASRM (2018:1023) classifies maternal age as a serious problem, even if it remains a "less-immediate development" than the imminent loss of fertility women experience upon undergoing cancer treatment. Taking a medical definition of infertility as a disease for granted, medical researchers and experts more explicitly medicalize aging—a natural process of the body—contributing to this disease.

ASRM's concern that women are delaying childbearing and lack an understanding of female reproductive embodiment and the deleterious effects of aging cement the importance of age:

> Given… societal and personal reasons for procreation later in life, a biological truth comes into play: older female age increases the risk of inability to conceive due to reduced oocyte quantity and quality, with increased chromosomal abnormalities leading to more fetal abnormalities and pregnancy losses. Fertility and offspring

> health are affected by men's age, too, although not until men are older, generally past age 40 or 50 (ASRM 2018:1023).

Here, the ASRM Ethics Committee (2018) updates their earlier assertion that egg freezing is problematic because it might “encourage women to delay childbearing” (ASRM-SART 2013:41) in favor of the view that egg freezing is acceptable to address women’s valid postponement of motherhood. ASRM also reinforces a deterministic idea of gender difference by positioning men’s bodies as the neutral normative standard against which female reproductive embodiment is constructed and understood. The “biological truth” of age and its impact on female fertility relative to male fertility perpetuates the presumed link between women’s bodies and infertility and contributes to an understanding of egg freezing as advantageous for preventing infertility.

In recent years, the popular press similarly presents egg freezing in terms of promoting women’s health. Articles typically lament that women lack concern or a realistic assessment of the impact of age on their fertility. Women’s magazines, in particular, portray women as passive and ignorant of the reality of natural fertility decline. One *Elle* article posits that “Few women know just how critical egg age really is, believing that if they are fit and healthy, getting pregnant shouldn't be an issue” (Kapp 2015). A similar article in *Cosmopolitan* shares lessons from women who “mistakenly believed they had time to wait,” cautioning against delaying motherhood (Welch 2014). In an interview with a woman who had “missed her prime fertile years,” the subject describes her experience as follows: “What struck me most… was how little I knew about my own fertility. We are told to get pap smears and mammograms, but no one talks about fertility” (Welch 2014). In other ways, the media argues that women have been fed false promises and “tricked” into believing that their

natural fertility will last forever (Welch 2014). For example, the media exalts celebrities who become pregnant in their late 40s and 50s while failing to mention that they may have required ART to become pregnant. Such discussions exploit women's ignorance about their bodies to promote egg freezing as an essential component of women's healthcare.

Together, medical and popular discourses transform healthy women into future medical patients, implying that, as a result of the aging process, women gradually approach an inevitable diagnosis of infertility, thereby "suggest[ing] a role for prevention" (Goldman 2018:1014). Experts in reproductive medicine also frame egg freezing as a useful tool to mitigate the limitations of female reproductive embodiment and avert age-related infertility (Dondorp and De Wert 2009; Goldman 2018; Pennings 2013; Stoop et al. 2014). New terms for describing egg freezing have appeared in recent years, such as "elective egg freezing for fertility preservation" (Gold et al. 2006), "egg freezing for age-related fertility decline" (Shkedi-Rafid and Hashiloni-Dolev 2011), or "oocyte cryopreservation for age-related fertility loss" (ESHRE Task Force on Ethics and Law 2012). These terms place a greater focus on preventing age-related infertility as the primary intention for pursuing the technology.

According to one scholar, who suggested that egg freezing be called anticipated gamete exhaustion (AGE) banking, the technology assuages "the exhaustion of [women's] pool of gametes through ageing" (Stoop et al. 2014:550). While ASRM did not officially adopt the "AGE banking" terminology, the organization agrees with its assessment of the importance of age, stating that women undertake egg freezing in anticipation of a medical diagnosis "as a matter of planning before a medical indication has materialized" (ASRM 2018:1023). Egg freezing is thus classified as an intervention upon the process of female reproductive aging specifically. The term "planned" egg freezing thus shifts perceptions of

the technology—what was initially considered a strictly non-medical lifestyle choice is rebranded as a medical treatment to prevent age-related infertility that may also "enhance the reproductive potential of women and the health of offspring" (2018:1024).

This distinction is important because it reflects a change in how professionals in reproductive medicine think about healthy, fertile women who wish to preserve their fertility for the future and think about egg freezing as a treatment for preserving fertility. The medical establishment doubled down on their disdain for the "social" egg freezing moniker. According to ASRM, the terminology of "social" egg freezing has been "trivializing and insufficiently respectful of the fact that the treatment is being undertaken to avert infertility that, if it arises, will in fact be a medical condition" (ASRM 2018:1023). Another scholar—cited by ASRM—remarks on the ethics of egg freezing, suggesting that "the term 'social freezing' degrade[s] the reason for freezing eggs to the level of a wish instead of a need" (Pennings 2013). ASRM and other scholars in reproductive medicine reverse their initial stance, now claiming that women who pursue egg freezing are not engaging in a frivolous or casual lifestyle choice; they are enacting a responsible, proactive healthcare strategy in response to a pressing healthcare "need." ASRM and other medical professionals I spoke with now validate women's experiences and acknowledge women who may not face an immediate threat to their fertility but who are nevertheless concerned about natural fertility decline, suggesting a more sympathetic view of "social" egg freezing than that which prevailed in earlier research (e.g., Martin 2010).

At the same time, representatives of commercial egg freezing enterprises, who have been longtime champions of "social" egg freezing, begin to incorporate a more medicalized understanding of egg freezing as well, rejecting the dichotomy between "social" and "medical

indications in favor of "planned" or "prophylactic" egg freezing. Below, two reproductive endocrinologists who work for fertility clinics backed by venture capital, the first for a standalone egg freezing business and the second for a full-service fertility clinic, describe their updated view of egg freezing terminology:

> So, I actually had a hand in writing the ASRM Ethics Committee opinion, which is where they kind of changed the official name from social egg freezing or elective egg freezing to planned oocyte cryopreservation or planned egg freezing. And in there, they describe why they thought the nomenclature was important. And I agree with what they say. It's just natural to use labels to understand the world around us. How we label the process influences our thoughts and our approaches to it. So, calling it "elective" or "social" makes it seem like it's not addressing a true medical problem. And yet, the goal here is to improve the chances of success should someone experience infertility later on in life. At least in my world, we all agree that infertility should be considered a true medical problem, and it's a true medical problem that we know a large percentage of women are going to experience. And so, anything that we can do to lend seriousness to the process helps break down that stigma that, like, this isn't something that only exists for the super-luxurious kind of one percenter.

> We have the mid-30s people who are single, who are like, "I'm single, and I feel like I need to do this now or regret this forever." And then you have people who are married, but things aren't going well, and they're like, "I should freeze my eggs because who knows how long it will be before I can have children. I have to get divorced and find a new partner." So, women in all of these situations are kind of

> under duress... It's not really elective. It's because you're feeling time pressure, and you feel like if you don't do this, this is your only chance to have a baby… So, we're making a push towards calling it prophylactic fertility preservation. It's like, this is something that you can do to prophylax against the fact that everyone is getting older. There's no way around it.

Thus, what used to be deemed a "social" motivation for egg freezing is medicalized, viewed instead as a necessary, preventive action to guard against a future diagnosis of infertility. These individuals exemplify how medicalization can be persuasive in legitimizing women's suffering and reducing the stigma women experience when they undergo the procedure. These terms expand the medicalization of infertility to include medical interventions to prevent reproductive aging. It also contributes to a new conceptualization of female reproductive aging, not as a normal life process but as a medical and social problem requiring medical treatment.

Discussion

This chapter has focused on how professional and media claims have helped establish egg freezing as an empowering tool and preventive healthcare strategy for healthy, fertile women. Egg freezing was first introduced and made available selectively—aimed primarily at women with a medical condition that might compromise their fertility. Over time, the target audience for egg freezing expanded to include a broader category of women who were previously excluded from the clinical application of egg freezing: healthy women of reproductive age. In this way, egg freezing shifted from a "last resort" infertility treatment for women in emergency situations to a more liberal practice that all women of reproductive age may pursue—regardless of health status—to prevent age-related fertility decline.

This trajectory reveals that both professional and media claims contributed to the medicalization of reproductive aging by reinforcing each other's narratives. The popular press frequently champions egg freezing by borrowing medical definitions of infertility and invoking female reproductive embodiment as a significant obstacle to realizing gender equality and exercising reproductive autonomy. These texts maintain that women perform empowered womanhood by "overcoming" their biology through the consumption of reproductive technology. In this way, the "problem" of women's bodies, rather than underlying conditions that structure women's reproductive timing and which may lead more women to pursue fertility preservation, is the most prominent subject at issue in the popular discourse of egg freezing. At the same time, powerful and influential claims-makers in reproductive medicine are beginning to adjust their attitude toward elective egg freezing by formally acknowledging women's anxieties about age-related fertility decline and gender inequality that permeate media coverage of egg freezing. By constructing maternal age as the chief contributing factor leading to infertility, they position female reproductive age as a problem that egg freezing can help prevent. In this way, the medical establishment recasts women's motivations for pursuing "social" egg freezing in explicitly medical terms.

The rebranding of "social" egg freezing as "planned oocyte cryopreservation" thus reflects a willingness and desire among medical professionals to adopt a medicalized understanding of female reproductive aging and infertility. This development may have been prompted by rising consumer demand and the concurrent emergence of a commercial egg freezing industry dedicated to extending the technology's reach. Compounding this phenomenon, commercial actors and high-profile corporations are investing aggressively in categorizing female reproductive age and natural fertility decline as medical problems by

increasing the exposure and accessibility of egg freezing to a larger population of women. Furthermore, these updated understandings expand the boundaries of medicalized infertility to include the period before an infertility diagnosis, further cement the perception that women are chiefly responsible for fertility, and maintain the presumed link between femininity and maternity.

The development of egg freezing and the medicalization of female reproductive aging will impact future patients and medical encounters alike; women will orient themselves toward the future and seek legitimization for their concerns through medicalization, and likewise, medical professionals will assess female patients with an eye to their future risks for infertility (Adams et al. 2009). These processes can have a myriad of consequences; they may escalate surveillance medicine (Armstrong 1995), conflating risk with disease, lead to unnecessary or overtreatment (Aronowitz 2009), produce patient anxieties about one's uncertain future reproductive capacity, and potentially exacerbate disparities in access to infertility treatment (Roberts 2009). Moreover, women's anxieties about aging may become more amplified in American society (Brooks 2017). As a market for egg freezing takes hold, the medicalization of reproductive aging may reinvigorate youth as essential to attributes of femininity and may encourage women to resist and seek solutions to their fears of aging through egg freezing.

In the next chapter, I examine how representatives of commercialized egg freezing enterprises mobilize gender idealizations and disseminate medicalized understandings of female reproductive aging. As I will show, playing on gendered anxieties about aging is a crucial strategy by which these businesses compel women to consider egg freezing so that they may achieve ideals of hegemonic femininity and responsible reproductive citizenship.

CHAPTER THREE: THE COMMERCIALIZATION OF EGG FREEZING

While browsing through social media, a young woman in her twenties or thirties may encounter a slew of advertisements by fertility companies inviting her to attend informational events to learn more about the possibilities of freezing her eggs. Although the subject under discussion at these events is inherently medical, the venues for these gatherings achieve a relaxed intimacy to put women at ease and encourage socializing. Women are greeted by friendly "Fertility Advisors" offering wine and cocktails. The space is warm and inviting, lit by candles and decorated with pastel colors, potted plants, and posters with upbeat, inspirational messages proclaiming the "Future is Female." Women sit on plush couches as reproductive health experts, marketing professionals, and panelists with experience freezing eggs collaborate to give presentations demystifying age-related fertility decline and the process of freezing eggs. These individuals argue that women "deserve the facts" about their bodies and stress the importance of having an "insurance policy" for fertility. Afterward, women are invited to cash in on exclusive discounts, enter a raffle to win a free egg freezing cycle, or jumpstart the egg freezing process by booking their first appointment for a "fertility consultation."

In just a few years since the experimental label was lifted on the technology in 2012, egg freezing has emerged as a trendy lifestyle practice and lucrative sector of the fertility industry. A crop of private, standalone egg freezing boutiques meets the demand for egg freezing among women under 35 while catering to convenience, efficiency, and patient comfort. In 2017, Extend Fertility, the first egg freezing-only clinic, ran a social media campaign comparing the cost of egg freezing to the price of a smoothie (Caron 2019). In

2018, Kindbody hit the streets of New York City, debuting the first "mobile fertility lab," inviting pedestrians on their way to work or out for lunch for a quick blood test to measure their fertility-related hormones. Modern Fertility, also launched in 2018, brings these fertility monitoring technologies into women's own hands, offering them an at-home fertility hormone testing kit they can mail in to learn more about their ovarian reserve, timeline to menopause, and implications for egg freezing. Simultaneously, Trellis announced they would be offering a spa-like egg freezing experience, complete with Turkish cotton bathrobes to wear during appointments, a juice bar, and an "Instagram corner" for taking selfies (Warren 2018). Carrot and Progyny heed the call for greater insurance coverage by working with employers to customize fertility benefit plans that include egg freezing, while Ovally curates discount travel packages to Madrid, Rome, and Dublin, where women vacation while they freeze eggs at a lower cost than in the United States.

Venture-funded egg freezing enterprises reflect a new wave of private equity investment into the fertility industry, driving growth in the market for egg freezing, which was recently estimated to grow 25 percent annually over the next two years (Mody and Taylor 2019). It also reflects how the assisted reproductive technology business, once focused exclusively on the infertile, is increasingly catering to women who are not necessarily infertile but want to secure their future fertility. In 2019, more than $150 million was invested in fertility startups (Craig 2020). Among those businesses focused on egg freezing specifically, Kindbody raised over $22 million since its launch in late 2018 and Extend announced a $15 million expansion in 2019 (Jaramillo 2019). Egg freezing services are expanding beyond a niche market and being brought into traditional healthcare.

Commercial egg freezing enterprises are attempting to improve the patient experience, increase access to fertility treatments by driving down costs, and raise greater awareness about age-related infertility. But social scientists, bioethicists, and feminist scholars voice concerns about the potential for exploitation that may ensue with the increased commercialization of egg freezing. Due to its low success rate, scholars posit that the high risk of disappointment, coupled with the physical and emotional toll of undergoing the procedure, makes egg freezing a technology of "cruel optimism" (Carroll and Kroløkke 2017) comparable to a "very expensive lottery ticket" (MacBride 2019). In a commentary on the topic of commercialized egg freezing specifically, Reis and Reis-Dennis (2017) argue that potentially deceptive marketing tactics may limit women's reproductive autonomy by distorting women's deliberations about whether they should freeze eggs. These scholars fear that commercialized egg freezing may diminish alternative reproductive options, such as a woman's desire to remain childfree or to adopt. In this light, increased marketing of egg freezing may inculcate new obligations to exhaust all available options in pursuit of having a biological child and potentially lead to personal blame of women who may be unable to have children (Cattapan et al. 2014).

Others voice concerns that commercialized egg freezing might compromise medical best practices. Women may be unable to give informed consent for egg freezing given a lack of longitudinal data examining the long-term effects of fertility drugs, when alcohol is served at promotional events, or where women are swayed with perks in exchange for their business (MacBride 2019; Mohapatra 2014; Pflum 2019). There is also the potential for clinical conflicts of interest when fertility clinics benefit financially from women's decision to freeze eggs (Mayes, Williams, and Lipworth 2017). Others are concerned that investors of

the boutique egg freezing clinics are only interested in immediate profits and may abandon the industry as soon as they turn a quick profit for egg freezing cycles. In such a scenario, standalone egg freezing clinics will be forced to close, and it is unclear what would happen to eggs belonging to one-time patients who have not yet returned to use them (Pflum 2019).

Until this point, the literature discussing the commercialization of egg freezing has unfolded as an ethical debate generating social commentaries, but with few empirical inquiries examining the process by which professionals representing this new crop of fertility businesses sell the technology and appeal to its potential users. A robust literature by feminist scholars considers how ARTs may disrupt or reinforce motherhood as essential to women's gender identities among those who use them. However, there have been no studies examining how medical providers and marketing professionals within the fertility industry negotiate these tensions as they present egg freezing to potential clients. This chapter contributes a needed look into the views and marketing strategies of medical and marketing professionals driving the technology's commercialization. These individuals have a hand in shaping and informing women's decision-making about the timing and possibility of motherhood and ART use.

Moreover, the ethical question regarding inconsistency between marketing promises and available evidence that the technology will deliver on those promises merits a more significant sociological inquiry, considering this market is poised to grow in the coming years. Women deserve the full scope of information available before making a serious healthcare decision, especially when agencies providing that information do so with a profit motive.

In this chapter, I ask how gender idealizations and commercial interests intersect to shape the way women are recruited for egg freezing. I define gender idealizations as constructs or imaginaries that provide templates for what the gender order is or should be. In this study, I explore how cultural schemas of normative femininity, especially as they relate to dominant discourses of motherhood under neoliberalism, shape how marketing professionals appeal to potential users of egg freezing. Commercial interests are reflected in the kinds of marketing schemes platforms mobilize to attract women to their clinics, interactions during events to "win over" audience members to the idea of using egg freezing, and through the criteria they construct for defining their target consumers.

This chapter draws on 28 interviews with a range of individuals in the fertility industry who promote and market egg freezing, observations at 42 marketing events dedicated to egg freezing, and analysis of marketing materials and pamphlets distributed by commercial egg freezing enterprises. Through these data, I examine how commercial actors appeal to women as they sell the technology, and I determine whether techniques for selling egg freezing vary depending on whether a clinic depends on profits from egg freezing cycles ("standalone egg freezing boutiques") or if a clinic offers egg freezing as one among several fertility treatments ("full-service clinic"). Therefore, the purpose of this chapter is to critically examine the most prominent strategies by which commercial actors are selling egg freezing and the degree to which gender permeates this commercial practice.

In this chapter, I show that commercial actors conjure fear of the aging process, including the aging of eggs and the aging of women, to sell egg freezing as a responsible anti-aging measure and wellness practice. In this way, I argue that broader gendered expectations to engage in responsible and acceptable anti-aging practices extend to encompass women's

reproductive aging and that anti-aging through egg freezing is becoming an essential aspect of responsible reproductive citizenship. Furthermore, standalone egg freezing boutiques were distinctive in promoting an aspirational image of contemporary women's empowerment as someone who plans for her future. These businesses present egg freezing as a savvy investment in oneself that ensures a future pregnancy and motherhood. Finally, standalone egg freezing boutiques were more likely to engage in manipulative marketing practices than full-service clinics, namely by downplaying the financial, emotional, and medical complexities of egg freezing and adjusting women's attitudes to be more receptive to this medically questionable technology.

These patterned mechanisms of marketing egg freezing reflect and serve to reinforce cultural definitions of hegemonic femininity in service of existing gendered power structures, namely by equating women's value with their youth, reproductive viability, and identities as future mothers. They furthermore suggest that an ability to construct and act upon a future imaginary is becoming an integral gender strategy among affluent, upwardly mobile women.

ART Markets and Discourses of Motherhood

Scholars express concern that egg freezing augments the expectation that women become biological mothers and fulfill a hegemonic motherhood mandate (e.g., Inhorn 2017). Yet few existing studies examine commercialized egg freezing and, to my knowledge, there have been no studies examining how medical and marketing professionals who advertise egg freezing negotiate this tension. Considering that egg freezing is becoming more available in an unregulated, commercially driven fertility industry, further research is needed to examine how the marketing of this technology may be perpetuating a hegemonic

motherhood mandate by pressuring women to freeze eggs so they can become biological mothers in the future.

Therefore, this chapter draws our attention to the way constructs of gender and reproductive bodies adhere to the marketing of egg freezing. Medical markets are gendered as they commercialize cultural assumptions about men and women and exploit gendered anxieties men and women experience to promote a particular medical service or product (Blum and Stracuzzi 2004). For example, Viagra was developed around men to redefine male sexual performance (Mamo and Fishman 2001), while Prozac was developed around women to discipline the female body (Blum and Stracuzzi 2004). Meanwhile, scholars examining the marketization of reproductive bodies and body parts explore how gender idealizations shape women's experiences with ARTs. Almeling's (2011) study comparing how egg agencies and sperm banks do business shows how gendered framings shape the structure and experience of medical markets. For example, whereas clinic staff would frame sperm donation as a "job," they encourage women who donate eggs to frame their donation as altruistic, selfless, and maternal (Almeling 2011; Curtis 2010; Haylett 2012).

I extend this line of research to egg freezing by examining how conceptualizations of gender shape the way medical entrepreneurs and other commercial actors sell this technology. The market for egg freezing is distinct from the ones for egg and sperm donation that have previously been studied in a few ways. Instead of a donation to another, egg freezing represents a donation to oneself. Egg freezing helps women realize ideals of hegemonic femininity through the achievement of motherhood in the future, instead of an ideal they can achieve in the present. Moreover, in contrast to the language of "stocks" and "gifts" that is prevalent in gendered framings of egg and sperm donation, "insurance" is the

dominant metaphor I heard commercial actors use to sell egg freezing. As I show in this chapter, "insurance" is gendered in the way it reflects a new imperative that upwardly mobile women plan for maternity by investing in themselves, intensifying and escalating expectations that women intervene on their bodies to realize motherhood.

Studies analyzing marketing messages on fertility clinic websites find that clinics market egg freezing with the intent to persuade, rather than adequately inform women (Barbey 2017; Mohammadi, Aranda, and Martínez-Martínez 2019), and mobilize discourses of hope to appeal to users (Mayes, Williams, and Lipworth 2017). However, it is unclear whether these marketing strategies, which appear on fertility clinic websites, may differ from in-person interactions during promotional events, which are the most effective ways clinics bring in new patients. One exception is Martin (2010), who performed participant observation and qualitative analysis on scientific and marketing materials to compare representations of the "medical" and "social" egg freezer during the early years of deliberations about egg freezing before it was declared non-experimental. Back then, Martin (2010) found that the medical egg freezer was viewed sympathetically as deserving of fertility preservation. In contrast, representations of social egg freezers depicted them as selfish, prioritizing career ahead of motherhood (Martin 2010).

This chapter offers a needed update to this body of scholarship, considering the recent surge in fertility companies dedicated to extending egg freezing to broader populations of women. I show that the trope of the selfish, career woman has fallen away in favor of representing the social egg freezers as aspirational and empowered feminist subjects. Echoing messages about egg freezing delivered during professional women's networking events (Mickey 2019), commercial egg freezing agencies laud women with

interests and priorities outside of motherhood, but they maintain that an insurance plan for future motherhood is necessary to become truly empowered.

Data and Method

To understand how gender idealizations and commercial interests intersect to shape the way women are recruited for egg freezing, I used an ethnographic mixed-methods approach, combining participant observation at marketing events dedicated to egg freezing and in-depth interviews with a range of actors who promote fertility preservation techniques.

For observations, I sampled eight fertility clinics and startups in New York City and San Francisco that hold public events dedicated to egg freezing; four are based in New York City, two are based in San Francisco, and two have locations in both cities. These cities represent two of the major hubs for egg freezing in the United States, and the clinics represent the most popular commercial agencies for egg freezing from each location. To my knowledge, all these clinics except one are backed by venture capitalists. However, all of them would host marketing events to attract egg freezing patients. There was variation in how commercial actors presented egg freezing during these events depending on whether they might be classified as a standalone egg freezing boutique instead of a more traditional, full-service fertility clinic. Three of the clinics sampled during my observations can be classified as standalone egg freezing clinics that rely on profits from egg freezing. This chapter employs the language of "commercial egg freezing agencies" or "commercial egg freezing enterprises" to include all the eight clinics sampled. However, I specify when I am discussing a standalone egg freezing boutique by referring to it as a "standalone clinic" or "standalone enterprise."

Marketing events are a key strategy by which commercial egg freezing agencies drum up business. Between June 2018 and April 2020, I registered for and attended 42 marketing events dedicated to egg freezing as a member of the public interested in learning more about this topic; a standalone clinic organized 23, a full-service fertility clinic held 15, two were organized independently by women who have undergone egg freezing, and two were organized by startups advocating for increased awareness about age-related female fertility decline. Some of these events were held virtually, but most held were in-person. While virtual seminars included Q&A sessions, this medium did not allow for as many opportunities for audience members to socialize with each other, and interactions between the presenters and audience members were more minimal than they were during in-person events. However, the content of the information conveyed in both types of events did not differ significantly.

Speakers at events included a range of medical entrepreneurs and marketing professionals involved in promoting elective egg freezing, including CEOs and founding physicians, reproductive endocrinologists (REI), marketing directors, nurse practitioners, physician assistants, researchers, patient hosts, self-proclaimed egg freezing advocates, advocates of at-home fertility hormone testing, and panelists who have frozen their eggs.[3] In my discussion of the findings, I refer to these individuals under a broad umbrella as "commercial actors" because they are all engaged to some extent in the marketing of egg freezing.

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[3] I include panelists in the analysis because, to my knowledge, they are part of an ensemble propagating and commercializing this technology that clinics compensated for their time.

During these events, I kept a running log of what I saw and experienced, and immediately afterward, I created detailed and more contextualized descriptions of what happened. To streamline this part of the research process, I focused on three events or interactions after each occasion that I considered relevant to my research question to further unpack and subject to "thick description" (Geertz 1973). These field notes aimed not only to describe what happened but also explain why and how it happened. I was personally invited to two events I attended, while the rest I found through advertisements to the public. In all the events I attended, I did not make my role as a researcher known to keep my presence as unobtrusive as possible. For this reason, the names of organizations, clinics, and presenters are kept anonymous.

I aimed to experience the events as the other women in attendance sitting beside me did. At the same time, I also was an outsider examining how the speakers attempted to appeal to their audiences. I took detailed notes about how the venues looked and felt, the kinds of information distributed, the content of the presentations, how presenters engaged with the audience, and the interactions between speakers and their potential consumers, especially during Q&As. What kinds of information do these clinics share, and what kinds of information do they omit? In what ways do commercial actors convey the relevance, importance, and value of egg freezing to audiences? What kind of priorities and goals do they assume from their audience members, and how do they see the technology contributing to these? While I focused on speakers, I also noted the demographics of the audience members'

age, race, gender distribution, and whether they attended alone, with friends, or with a partner.[4] I did not include any identifying information about audience members in my notes.

In addition to these observations, I interviewed 28 commercial actors who spoke at the events I attended or other representatives of the clinics who organized them who would be willing to talk to me. Most of the fertility clinics I reached out to were receptive to my request for an interview. In addition to these individuals, I also interviewed two individuals representing fertility insurance benefits providers, two individuals involved in developing technologies for tracking fertility and increasing access to at-home fertility hormone testing, and two individuals who leverage platforms for rating and reviewing fertility clinics. While these individuals do not perform and market egg freezing specifically, their work intersects with the experience of and market for egg freezing.

In line with grounded theory methods, the questions I asked during interviews emphasized the participant's definitions of terms, assumptions, expectations, situations, events, and implicit meanings. I used open-ended questions that engage how assumptions, practices, and rules about recruiting women for egg freezing are constructed. Who are these commercial egg freezing enterprises' ideal patients? How do they determine who does or does not qualify for the procedure? With the permission of interviewees, I digitally recorded the interviews and redacted any identifying information during transcription, including their names and the names of clinics or businesses.

[4] Most women who attended appeared to be in their 30s, although a wide range of ages was represented across events. On average, white women and women of color were evenly represented, including Latinx, Black, and Asian individuals, with white and Asian women being the most represented among audience members. The audience included a mix of women attending by themselves or with a friend in pairs, with a smaller number of women attending as part of a heterosexual couple or who appeared to be their mothers.

Observations provided an opportunity to explore the entwined processes of medicalizing reproductive aging and commercializing its solution through egg freezing. Meanwhile, the combination of observations and interviews helped me uncover and interrogate meaningful disjuncture between how commercial actors talk about their work and how they perform interactions with women as their potential consumers.

As these methods call for an interpretive analysis, I continually reflected on my subjectivity within the field, in light of calls for conscious reflexivity among social researchers in all phases of the research process (i.e., Bourdieu 1992). As the researcher, I bring a set of assumptions from my social position, while also being affected by the speakers' presentations (Charmaz 2006). During the research process, I was in my late twenties and experienced my thirtieth birthday, a symbolically significant age for women's fertility in broader cultural discourses and the narratives I heard during marketing events. Adding to this, as a highly educated woman without children embarking on her career, I found myself as the explicit target of the marketing messages for egg freezing I heard during observations and interviews. Thus, it is possible that these experiences and aspects of my identity led me to have stronger reactions to narratives about aging, the value of reproduction to women's identities, and concerns about reproductive timing alongside concerns about career timing during the research.

Findings

Below I dissect the most salient marketing pitches I observed and present four main findings. In the first section, I explain that all the fertility clinics sampled mobilize education as a marketing tool to cultivate fears about aging eggs and aging women. In the second section, I show that wellness and anti-aging imperatives resonate in the commercialization

of egg freezing across clinics. Drawing on the fears of aging they provoke in their presentations, egg freezing is presented as a responsible anti-aging and wellness practice. In the third section, I show that standalone egg freezing enterprises were distinct in how they would promote a vision of aspirational womanhood as someone who invests in herself and plans for her future, with egg freezing being an essential component of achieving these goals. In this iteration of empowerment, women should embrace and exhaust all options and "do what they can" to protect their fertility "just in case." In the fourth section, I explore some of the ways standalone egg freezing enterprises were more likely to engage in manipulative marketing strategies to bring in patients than full-service fertility clinics did.

Pathologizing Aging Eggs and Aging Women

Women attending events dedicated to egg freezing expect to learn about the process, cost, and risks of the procedure, but what they experience first is an educational talk about ovarian aging. Commercial actors began hosting "egg freezing parties" soon after egg freezing was no longer considered experimental in 2012 (Alter 2015). However, as the technology has become more normalized in recent years, these events have transitioned to become educational and informative "seminars" focused chiefly on teaching women about female fertility decline, suggesting a greater emphasis on education. For example, the events I attended were typically titled "Fertility 101." Others invited women to participate in a "Fertility Fireside Chat," "Fertility Bootcamp," "Fertility Soiree," and "What the F? Fertility Facts" meeting.

Commercial egg freezing businesses tread a line between marketing and education during their presentations. Speakers typically commence these meetings by making a case for why they are in this business, arguing that vital information about women's bodies is

being withheld from them by their health care providers and by society, creating a need to "empower" women with education. For example, one popular standalone clinic that holds monthly Fertility 101 events begins with a 5-question "fertility quiz." The quiz intends to expose and debunk common misconceptions they presume women have about their fertility, such as the number of eggs they are born with, the number of eggs they lose each month, and the percentage of a woman's egg supply that remains by age 35. As the answer to each question is revealed, the Fertility Advisor in charge reassures the audience: "Don't worry. We'll teach you the reality of the situation today." Meanwhile, a "Fertility Specialist" from another startup began an egg freezing event with a sentiment that was widely shared across events and speakers:

> As females, people don't educate us on our fertility, or how to get pregnant, right? There's a lot of information about how *not* to get pregnant, right? But does anyone talk to us about how to try [to get pregnant]? Does anyone talk to us about the process of ovarian aging? Which is real. No matter how well we take care of ourselves, our ovaries will age, and unfortunately, it's a certainty, and no one educates us on that.

EF businesses use education about ovarian aging as a marketing tool. The tone of this education is alarmist, portraying inevitable fertility loss as imminent unless women act fast to preserve their waning fertility. Education is offered as the tool women need to propel them into action by freezing eggs. Education is also a key mechanism by which businesses pitch their clinics to audiences. Clinics portray themselves as virtuous benefactors in the women's health space, offering women exclusive access to information that is otherwise unavailable to them. By delivering the underappreciated "facts" that women "deserve" and

"need to know" about their bodies, they come across as allies women can trust with freezing their eggs.

The speakers who deliver these educational talks are typically medical professionals to convey the authority and neutrality of their message. Their presentations focus singularly on the process of aging eggs. One PowerPoint slide proclaims in bold letters: “The age of the egg is the driving force in our chance at pregnancy," while a pamphlet distributed during a different event states: "A woman's natural fertility declines with age. And, basically, it's all about the eggs." In these presentations, the egg is the locus of reproductive aging and loss of fertility that legitimates egg freezing use.

Across events, quantitative data depicted on bar graphics, each one visually displaying the steep decline in egg count and egg quality from ages 0 to 50, are distributed through pamphlets and displayed on overhead projectors. Below is an extended example of how three REIs interpreted and explained this data to their audiences during three different virtual webinars; these explanations were typical of the in-person explanations they provided during egg freezing events:

> If you take a moment to look at this table, you'll notice that you actually have the most amount of eggs you're ever going to have, which is about 6 million, at 20 weeks gestation. So 20 weeks gestation is actually halfway through your mother's pregnancy with you… Then you're suddenly going down from 6 million to 1 million eggs by the time you hit birth… It's a bit of a downer. Sorry, guys.

> Unfortunately, as women, we're born with all the eggs we'll ever have, but we have about 2 million eggs at birth. By the time we reach our first period… we drop from 2

> million to already 300 to 400 thousand. Okay? It's that crazy drop that is so astonishing. It amazes me every day. We lose the majority of our eggs, quite unfairly, in the first decade of our lives. And from there, we're losing up to a thousand eggs a month… So it is factual, with time, we reach a point with zero eggs.
>
> Our eggs age. As they age, they deteriorate. So our egg cells decline in quality. That is why women over 35 have a higher risk of miscarriage, of a genetic abnormality. It's due to the quality of our eggs. So the longer you are on this earth, the more trips you take around the sun, the more damage is going to accumulate in those eggs. And those eggs, unfortunately, can't be replaced.

At one egg freezing event, a speaker followed these explanations of age-related decline in egg quality and quantity with a warning:

> It's just really, really important to think about your fertility and how you can protect it. This is a limited resource. This is solid gold. This is your future. This is your future family we're dealing with here.

While the impact of age upon ovarian reserve is an indisputable fact, what is striking is how commercial egg freezing enterprises exaggerate and manipulate scientific data about the female reproductive system to mobilize fear. Through an uncritical presentation of scientific data as uncontested and unbiased knowledge, egg freezing businesses conceptualize the female reproductive system as inherently pathological. The data points obscure individual realities; while a woman loses a majority of her eggs by her 20s, the loss of eggs is a healthy, physiological development that does not necessarily amount to a diagnosis of infertility, nor a guarantee of fertility. Instead, female reproductive aging is described as a process of

inevitable and irreversible decline, beginning even before birth during gestation, and accelerating with advancing age, increasing the risk of infertility, miscarriage, deficient embryos, and genetic degradation with each passing year. These messages ultimately conflate youth with "quality" and the presumption of fertility, and conversely, confuse aging with infertility. In the context of an egg freezing marketing event, such a construction of the female reproductive system engenders fear of the aging process and encroaching infertility, and it creates a sense of urgency to engage with fertility preservation technologies to counteract them.

Furthermore, by linking women's aging bodies to reproductive failure, much like how medical and scientific discourse explains women's non-fertile bodies and menstruation in terms of “failed production” (Martin 2001[1987]:45), educational talks at commercial egg freezing events reflect gendered cultural values. For example, in stressing that this phenomenon is “unfair,” “unfortunate,” and a “downer,” speakers play into negative views of women’s bodies more broadly as a kind of oppressively burdensome weakness to be overcome with technology. Moreover, these talks orient women's bodies and subjectivities toward future conception. In the above anecdote, the egg is not merely a cell; it is "solid gold," symbolizing a woman's "future," and destined to become her "future family." As the REI implies, aging does not only bring about the loss of fertility, but also the monumental loss in identity as a future mother.

Speakers extend fears regarding aging eggs to worries about aging women. These speakers stress that quality is as important as the number of eggs in a woman’s ovaries. Since there are not yet reliable measures of egg quality, a woman's chronological age must stand-

in for the quality of her eggs. One physician, who would frequently stress that “our eggs age with us,” explained this situation to an audience as follows:

> Even though we're all aging very gracefully [laughter]—the same way your skin changes, your hair changes, your body changes, as you get older, your eggs get older. So, think of it in the same way. A woman who is 28, 35, 40, her eggs are as old as she is.

In this way, speakers extend narratives of decline to include women themselves. The comparison made above draws on a negative understanding of aging women to illustrate the declining quality of their eggs.

The relationship between the quality of a woman's eggs and her chronological age was occasionally made more personal and explicit. "Young" eggs were frequently described during presentations as "better;" one egg freezing advocate explained, "A 30-year-old egg will never be better than a 20-year-old egg." In one jarring exercise, the founding physician of a standalone clinic asked a room of approximately 40 women to raise their hands once if their age "starts with 2," if their age "starts with 3," or if their age "starts with 4." As he called out each age group, he deemed women in their 20s to be in the "safe zone," compared women in their 30s to a "car crash happening in slow motion," and considered women in their 40s "hopeless," but that they should still come in for a "fertility assessment." Here, the lesson about fertility loss did not pertain to dwindling egg counts or expiring egg quality but referred to women themselves. As women scanned the room as each age group was called out, this exercise subjected women to the judgmental view of their peers, forcing a comparison of their own and each other's “quality” and value according to their chronological age. Assumptions about a woman's age and her fertility filtered into my

conversations with representatives also; at the end of one interview, an REI viewed me as an egg freezing candidate and invited me back to his clinic to freeze eggs, prefacing the invitation with, "you still look young."

These kinds of activities and statements illuminate how speakers extend the pathology of aging eggs to aging women, making it difficult for attendees to disentangle the process of decline with aging eggs from a process of decline as aging women. In this light, a woman's youthfulness is, like her eggs, a finite asset. They furthermore take a woman's apparent youthfulness for a presumption of, and even a personal desire for, future fertility.

Privately, medical and marketing professionals alluded to the tension between a woman's "regular age" and her "fertility age" that I noticed during events. One fertility nurse admitted to me:

> Age is one of the most delicate, delicate things to begin with. And that's one of the hardest parts of my job, is speaking to women about their fertility age. Your fertility age and your regular age are two completely separate things. But I have patients who think I'm being mean when I talk about it. They don't want to face it. And I get that. It's a delicate subject. But it's biology. It's science. We just have to deal with the numbers at some point. With egg freezing, the younger, the better to just go and have the assessment and the education. You have to be ready to talk about it and face it head-on.

This nurse displays some sensitivity to the fact that women attending egg freezing events struggle with confronting their "fertility age" independent of understandings about their "regular" age. Even though she maintains that these are distinct concepts, she ultimately reduces their resistance to a protest that she is being "mean." She invokes "science" and

"biology" to insist that women overcome and master their insecurities about aging. Instead of challenging the way that scientific constructs of aging and infertility unfairly link women's value to youth, she reifies those definitions by insisting they uncritically "face" and accept the "numbers" by testing their ovarian reserve and freezing eggs.

Notably, men were virtually absent in the educational component of commercial egg freezing events. None of the presentations I attended featured a scientific explanation of male fertility and the effects of paternal age on outcomes such as infertility, miscarriage, and genetic abnormalities they cite as significant for maternal age. When male fertility was the subject of discussion, it was prompted by a question from the audience, or by a direct question from me during an interview. When I asked one REI whether there is any parallel to men's fertility and the effect of age on sperm count or quality, she responded in a way that echoed responses during public events:

> So, men make new sperm every 72 days. Women are born with all the eggs we're ever going to have. So, when you talk about men's age affecting the child, we're talking about men that are 70, 80, much older, and then there's some deterioration. But whether your partner is 20, 30, 40, 50, even 60s, that has not been shown to have an effect. It's 70 and 80-year-old sperm that sometimes do. And even then, believe it or not, it's not genetic abnormalities. There's a slightly increased risk potentially of autism, but they're not even sure. And even then, with autism, nobody really knows what causes that—so even that may not be true.

This individual goes to great lengths to convey how little paternal age factors into reproductive health outcomes and fertility. Her response to my question reflects the broader narrative espoused during the educational talks given at commercial egg freezing events:

age, and interventions to protect fertility from age, are concerns and responsibilities residing with women. These events thus reinforce women's primary role in reproduction by narrowly emphasizing women's bodies, and as I discuss in the next section, egg freezing is the latest tool by which women are increasingly being encouraged to become responsible for engaging in anti-aging practices.

Disentangling Aging Eggs and Aging Women

The narrative of inevitable decline and degeneration in female fertility espoused by the clinics frequently left audiences wondering what they can do to mitigate the effects of age upon this process. One of the most common questions women would ask at the end of egg freezing events was what they could do to enhance their fertility health. For example, one representative provided a characteristic response to this question during an online informational webinar about AMH, or Anti-Müllerian hormone, which is produced by the ovaries' follicles and correlates to the number of eggs that can be extracted during a cycle:

> Unfortunately, you can't really increase the amount of AMH you have in any kind of significant, clinical way. So, I'd kind of like to switch that question on its head. And instead of talking about what you can do to increase your AMH, think about what you can do to *slow down* the decrease of your AMH.

While clinics concede that women are unable to increase the number of eggs in their ovaries and that the process of egg decline cannot be prevented, commercial egg freezing agencies lead women to believe that they can still intervene to "slow down" this process through health-conscious behaviors, including egg freezing.

Marketing events for egg freezing offer a multitude of health-conscious behaviors in conjunction with egg freezing to help women enhance their "mental and physical fertile

health." When it comes to spiritual and physical wellness, representatives and panelists suggest that by maintaining their overall health, women can maintain the health of their eggs. For example, three egg freezing clinics whose events I attended partnered with fitness companies and personal trainers to include an exercise class in spin, barre, and yoga in addition to their panels on female fertility and egg freezing, arguing that "summer is around the corner" and "it's time to get fertility fit." Leading us through a series of lunges and squats to the beat of Christina Aguilera's "Stronger," the fertility fitness coach motivates participants to work harder, exclaiming that "women are fighters" and "we always have the option to adjust our mindset" and "come out of this stronger and empowered." Meanwhile, another clinic invited a "spiritual coach" to lead a guided meditation, helping us focus on our breath while claiming, "mindfulness and meditation can be used to manage the stress and anxiety of fertility." One yoga instructor infused mindfulness into her class. Leading us through a breathing exercise, she coaxed us to "breathe in that baby, breathe in everything you hope for and wish for," and to exhale "impatience" and "any toxic thoughts preventing you from having it." An emphasis on physical and spiritual wellness is aimed at motivating women to shift their mindsets and cultivate positive thoughts to optimize their future fertility and egg freezing success.

In addition to physical and spiritual wellness, an emphasis on proper nutrition also featured prominently alongside egg freezing as part of a narrative of improving egg quality and ovarian function. One event served green tea and cold-pressed juice as a nutritionist gave a talk on the impact of nutrition on women's fertility, claiming that "food is one of those things we can control, regardless of circumstance," and before outlining key "cleansing" and "superfoods" women should incorporate into their diets. At three other events, a nutritionist

presented a selection of meal plans to choose from to help "boost fertility health;" two nutritionists encouraged a plant-based diet and "removing factors that hinder fertility, such as smoking, excessive alcohol, caffeine, processed foods, added sugar, conventional meat/dairy, environmental toxins, and stress." Meanwhile, panelists who had frozen their eggs would often talk about the kinds of dietary changes they made while undergoing it. As one panelist who quit alcohol and went vegan during the egg freezing process stated: "I just thought it would be kind of fun to really treat this—To treat my body like a temple during this time." Panelists were thus influential in conveying that optimal egg freezing outcomes result from the kinds of health behaviors and habits promoted during marketing events.

Through these activities and presentations, commercial egg freezing events suggest that looking after your spiritual wellness, physical fitness, and nutritional health are essential aspects of a successful fertility-aging paradigm. The broader cultural phenomenon of wellness has been shown to link the acquisition of wellness to female empowerment (Genz and Brabon 2009; Gill and Orgad 2015; Lazar 2006). Wellness agendas are feminized, instilling an expectation in women to maintain and "always be optimizing" their bodies and selves (Tolentino 2019). Likewise, these speakers and messages frame wellness as a feminized mechanism to create a healthy, fertile subject who will make an ideal candidate for elective egg freezing. Moreover, the inclusion of wellness within the context of an egg freezing marketing event explicitly links women's ability to enhance and extend their fertility to the taking care of their bodies and minds, inculcating new responsibilities to be looking after one's fertility by improving one's diet and mental and physical fitness.

Commercial egg freezing events also suggest a linkage between the practice of egg freezing and gendered expectations to engage in anti-aging practices. This theme was made

most explicit during an egg freezing event series I attended called "Wine, Beauty, Egg Freezing" that featured a presentation by a physician on "preventative aesthetic medicine." The doctor, wearing a white coat, gave a PowerPoint presentation on how women can enhance their beauty "by looking a little bit younger." Slides featured images of women's faces, one comparing the face of a 65-year-old woman to that of a 25-year-old woman, to point out the effects of aging, including loss of volume, collagen, and bone mass, the appearance of wrinkles, and changes in skin quality, such as when "things start to droop down a little bit." The doctor prefaced the discussion of his services by saying, "This is preventative, you guys are in a good age range for that. It's basically just preventing things from happening or slowing down the aging process." At another event, a nutritionist similarly appealed to a desire to look young by encouraging women to consume more vitamin C, stating that it is a "precursor to making collagen" and that, in addition to its benefits for fertility, “eating healthy overall is almost a shoo-in for having better skin and preventing wrinkles.”

That cosmetic enhancement is considered an appropriate topic for discussion at an egg freezing event suggests that commercial egg freezing agencies consider fears about aging faces and aging eggs parallel concerns. This surgeon's presentation featuring the decline in women's beauty with age to sell procedures such as Botox, derma filler, and various anti-aging skin care products reflects the earlier presentations on female fertility declining with age to sell egg freezing. As anti-aging surgeries and cosmetic enhancements reshape understandings of normal and acceptable aging, so, too, is commercialized egg freezing beginning to reshape perceptions of normal and acceptable reproductive aging (Brooks

2017). In this light, cosmetic enhancements and egg freezing are interchangeable tools to "prevent," "slow down," and ultimately resolve cultural anxieties about aging women.

Indeed, commercial egg freezing businesses pitch the procedure as a way to help women disentangle the process of aging eggs from the process of their aging selves. Egg freezing pauses the aging process by “locking in” their eggs' current age. Speakers would frequently explain that "you can't reverse time," but that egg freezing helps "freeze fertility in time." Although none of the speakers I interviewed or observed explicitly told women that they should freeze their eggs by any particular age, they did insist "the younger, the better." One representative's favorite mantra was: "You are never too young, or too old, to learn about your fertility." She continues, “You can be proactive” and “Let’s be opportunistic” and preserve some eggs “before these eggs are lost.”

These marketing strategies reflect the "double standard of aging" (Sontag 1972) in society, where men may be valued for capacities such as self-control and autonomy that are thought to improve with age, while women's value derives from their sexual attractiveness, beauty, and reproductive abilities, qualities that presumably diminish with age. Women face enormous pressures to take on the work of anti-aging in American culture, where individuals are saturated with images of younger women, direct-to-consumer advertising for cosmetic interventions is legal, and an industry for cosmetic procedures is booming (Brooks 2017; 2010; Smirnova 2012). Egg freezing exacerbates this double standard by holding women responsible for anticipating aging, this time for their eggs. I argue that egg freezing is being incorporated into the anti-aging industry as a new kind of extension technology; egg freezing promises an extension of reproductive viability, allowing women to reclaim their sexual and reproductive value for longer than their biological clock would typically afford them.

Furthermore, by suggesting the importance of being "proactive" and "opportunistic" about pausing egg age for the ability to have children later, egg freezing is also becoming an essential aspect of how women exercise responsible reproductive citizenship.

Standalone Egg Freezing Clinics: Planning for the Future Through Egg Freezing

Events held by full-service clinics typically focus on providing an educational component about age, fertility decline, health-conscious behaviors that may help promote fertility, and the process of freezing eggs exclusively. By contrast, standalone egg freezing clinics reach beyond medical and scientific narratives to make their presentations more personal. Specifically, standalone egg freezing clinics are distinctive in how they draw on women's anxieties about their unknown and uncertain futures, including their future relationship, career, and fertility experiences, to sell egg freezing as an insurance policy allowing women to exercise a fuller range of life options.

At one of these clinic's egg freezing events, the leader began by asking women to close their eyes and imagine their "perfect life and perfect plans." She guided the audience members through several scenarios that could alter our chances for our perfect lives and perfect plans, ones over which we have no control, and which are unable to foresee or prevent. She continued: "Maybe you go through a breakup or a divorce. Maybe you find yourself single when you don't want to be. Maybe you change careers." She tells us that in each of these scenarios, despite our best efforts and hopes, "life happens." Although getting pregnant "at home" with a long-term, committed partner "for free" is the "best option," egg freezing is another possibility we can add to our arsenal of life choices for times when "life doesn't go as you planned."

In line with the broader cultural discourse on access to ARTs, egg freezing events present narratives such as this one developed for women with the financial resources to undertake elective and preventive measures (Cattapan et al. 2014). Presentations catered to the increasing customization of life among these upwardly mobile women, who face pressure to decide from an overwhelming supply of life "options" and "choices," alongside a heightened sense of expectations around being a “successful” woman, one whose experiences include educational and professional achievement, extensive travel and self-development, romantic success and marriage, and future motherhood and family. Exercises that ask women to imagine their perfect lives prime them to think of egg freezing as a strategy for avoiding future risk and regret. They also establish that personal, romantic, and career goals should be met before reproduction can take place.

Standalone egg freezing boutiques promote the gender strategy of thinking ahead and planning for the future by "keeping your options open." They present egg freezing as a kind of insurance policy that securitizes their future life options. For example, just a few of the taglines advertising egg freezing events held by egg freezing boutiques include: “Options preserved.” “Preserve your future options.” “Own your Future.” “Take control of your future.” “Achieve your future fertility goals.” “Fertility meets freedom.” Below are two more examples of commercial actors comparing egg freezing to an insurance policy, the first during a public egg freezing event, and the second, during an interview:

> My hope for any person who freezes their eggs is that you never need those eggs. The same way as when you buy car insurance, it's not because you plan on getting into a car accident. You hope never to get into one, but in the event you do, you have insurance. Think of it that way.

> If you can afford it, I don't see any reason why everybody shouldn't freeze their eggs… because it's just giving you a backup plan, giving you a little bit of extra security. In fact, we're born with all the eggs we'll ever have. We can't turn back the clock, literally. And so, egg freezing is one way where you can effectively—people can stop the clock and, I don't know, I think a good way of saying it is, "Buy an insurance policy for your future self," right?

The idea that women's bodies pose a kind of obstacle and limitation because women are "born with all the eggs we'll ever have" is once more invoked to instill responsibility, this time for women to direct their futures through interventions and investments aimed at optimizing the future body and self (Rottenberg 2017). However, the comparison of egg freezing to an insurance policy is inherently problematic. Unlike car insurance, there is no promise that a woman will ever need to use her frozen eggs or that it will pay out if she does. Also, clinics typically do not offer money-back guarantees when a woman freezes her eggs, or if they do, they require a woman to put their bodies through additional egg freezing cycles (Pesce 2016).

Unlike full-service clinics, standalone clinics used panelists who have frozen their eggs as “influencers” to persuade women to consider egg freezing. These panelists were strategically selected to reinforce the comparison of egg freezing to an investment, a strategy that the full-service clinics do not take up. Panelists were well-spoken and compelling in their discussions about why they froze eggs, exuding confidence and charisma. Panelists were predominantly white, upper-middle-class women, with a long list of accomplishments; panels featured famous actresses, fashion models, lawyers, doctors, and well-known

business leaders. These panelists were nonetheless relatable in their experiences with dating and their concerns about fertility; often, they would use humor to explain these, putting audience members at ease and feeling reassured that they are not alone in their anxieties. For example, one panelist would frequently make a joke lamenting how she is "super single."

Remarkably, not one panelist expressed disappointment or regret with her egg freezing experience, always packaging her decision in a positive light that has enhanced her personal capital. Below are two excerpts from two panelists' talks:

> Egg freezing is reproductive freedom, in my opinion. I froze my eggs this year, and I hope to never use them. I think of it as an insurance policy guaranteeing that, you know, like I won't struggle with the heartbreak of infertility. I think it allows me to focus on my career and some other things I want to do, like travel before I settle down and have kids. Five years from now, I'm predicting that I would feel much better that I have this sort of policy.

> I started to realize that I can't predict anything. I can't predict my love life. I can't predict my career. And me being me and very driven, who knows what life is going to throw at me, and what choices I'm going to want to make in the future. [Egg freezing] lets me make every single choice in my life the exact same way that a man gets to make it every day.

These statements suggest that egg freezing equips women to make plans for their futures by decoupling reproduction from the biological clock. Panelists and their stories coalesce to promote an aspirational image of contemporary womanhood as someone who invests in

herself so she can fully self-actualize. These messages reflect a neoliberal feminist discourse exalting the postponement of childbearing to invest in the self and enhance one's social and market value (Rottenberg 2017). Through their presentations, panelists convey that women are purchasing a vision of who they aspire and strive to become someday, a woman who can strike a balance and "have it all" through an ability to postpone motherhood.

These messages still center maternity and reproduction as normative milestones in women's lives worthy of a costly and inherently questionable insurance policy. Representatives of egg freezing boutiques were more abrasive than full-service clinics in recommending the procedure as an early-life investment women make in themselves to secure future motherhood. For example, below, an REI presenting at an event held by a full-service clinic responded to a question about the ideal age to consider freezing eggs:

> So, I think that there's not a magic number that's the ideal time. Because medically speaking, if you put away eggs at a young age, you will likely be able to fertilize them later and create embryos and have a baby. The question is determining the likelihood that you'll actually utilize these eggs.

This REI went on to explain that egg freezing may not be for everyone and that, for women in their twenties, it may not make the most financial or emotional sense since they may go on to conceive and never need to use their eggs.

In contrast, two representatives of an egg freezing boutique, first an REI, then an egg freezing advocate, make similar claims during interviews about what they view as the ideal time to freeze eggs:

> Our dream would be that, you know, I don't know... in 50 years that all parents give it to their daughter when they graduate college. That would be, like, the best-case

> scenario. Typically, you know, people aren't thinking about their fertility when they're that young. So there is a balance, you know, I think when you're 21 or 22, you're like, oh yeah! You know, 30 is so far away! Which it's really not.
>
> It's really about priorities. Like instead of going on that really expensive vacation to Bali or somewhere, maybe you should start thinking about saving for an insurance plan for your future… I'd like to even encourage parents, instead of giving their kids for a graduation present a set of boobs or plastic surgery or something along those lines, why don't you put it aside for egg freezing instead of buying them a new car? Maybe having that new Gucci bag isn't as important as someday having a child. It's about priorities and shifting what we think is important.

Standalone clinics frame the procedure as a vital investment in one's future fertility that *all* women should consider and pursue as young as possible, regardless of their circumstances. These businesses ask women (and their parents) to accept gendered expectations that women become mothers and to view young women and their bodies as capital worth investing in through egg freezing. While egg freezing is an investment that allows women to develop themselves personally and professionally before motherhood, it is also an investment that reassures motherhood is on the horizon. In this way, egg freezing boutiques do not question whether women will become mothers, only when. Motherhood remains a normative part of women's lives, as women are pressed to take an active role in planning their futures, taking on the financial burden to protect their future fertility and realize future motherhood.

These boutiques drive home the importance of egg freezing as an insurance policy by instilling fear of the repercussions of not planning for the future. Below are three examples of how speakers, the first by an REI, the second by a marketing director, and the third by a panelist who froze her eggs, cultivate fear about a maternal future at peril:

> We hear so frequently, again and again, and again, the woman who comes in at 40 and says, "Oh, why didn't I know to freeze my eggs? I'm so mad I didn't know that." It's one of those issues that isn't an issue until it is one. People don't think about it until it's too late.

> So many women will not even think about their fertility until it becomes a problem. That is like not thinking about using condoms until you've had an unwanted pregnancy or STD.

> The one thing I really didn't realize going into this is how many of my much older friends or colleagues or wives of colleagues were actually going through IVF and how difficult it was for them. And this emotional trauma that is kind of hidden, especially in New York and in cities where people choose to delay pregnancy so much, it's just hidden behind closed doors… I have conversations with them about [egg freezing], and they all say, "God, I wish I knew then what I know now."

These examples serve as cautionary tales of what happens to women who lack the initiative to be proactive about their fertility. Representatives of standalone clinics suggest that even women who feel ambivalent about motherhood should prioritize their future fertility. One

CEO of a network of fertility centers that offer egg freezing explained to me during an interview:

> Let's say today, I'm 27 years old, and I'm saying I'm not having a baby. I don't think I want to have a baby, or I'm ambivalent about having a baby. If you have the wherewithal to preserve your options, I would argue you don't know what you're gonna want eight or ten years from now, you know?

In these ways, representatives of boutiques persuade women to exhaust all their available options to protect their fertility, and they sell egg freezing principally by marketing the repercussions of resisting its use. By not freezing eggs, women have chosen not to do "all they can'' to freeze their eggs, increasing the potential for shame and blame that they did not avoid fertility risk by taking part in egg freezing (Throsby 2004).

Representatives of egg freezing boutiques are careful to sidestep criticisms that their enterprises pressure women into freezing eggs and the decision to become mothers. Speakers draw on rhetoric of "choice" and "options" to stress that the women who attend marketing events "don't have to do anything," that "no one is telling you what to do," and “it’s completely up to you” and "you're the boss" over your decision and experience with egg freezing. Instead, they describe their enterprises as providing "resources to create a plan for your future that works for you based on who you are and what your goals are." In contrast to private interviews, where representatives of egg freezing boutiques would share their hopes that the technology becomes an investment all women make early in their lives as a graduation present, during public events, these representatives were careful to come across as neutral and make egg freezing seem optional. However, even though speakers present egg

freezing as an “option” or “choice,” they ultimately reify expectations that women prioritize motherhood.

Standalone Egg Freezing Clinics: Adjusting Women’s Expectations in Favor of Egg Freezing

Egg freezing is an inherently dubious, medically questionable technology with a low success rate and high price tag. Specific questions and discussions concerning the process, cost, and efficacy during events held by standalone clinics would typically occur following educational talks about female fertility and presentations by panelists who froze their eggs. These events were genuinely informational and dedicated to answering all the audience members' questions, giving women a unique opportunity to speak with medical professionals and ask questions without having to make an appointment and pay consultation fees. However, commercial actors at these events engaged in some manipulative marketing strategies with the intent to persuade women to jumpstart the egg freezing process, namely by downplaying the emotional, medical, and financial complexities of the procedure and by adjusting women's attitudes and expectations to feel optimistic, brave, and empowered by using this technology.

Even though these agencies mobilize medical discourses to describe female fertility, they simultaneously obscure egg freezing as a medical procedure to encourage women to consider undergoing it, presenting it instead as a trendy product and social practice. One marketing professional explained:

> We do our best to change the way that care is provided. Our goal is really to offer care in spaces that are comfortable and non-clinical. We sit at round tables. We try to make

> the space feel safe and comfortable and inviting. We have providers that are warm and welcoming.

Although as many as 50 or 60 women may attend their marketing events, speakers encourage women's questions and make each participant feel welcome and heard. Events offer "goodie bags" for visiting, including discounts on an initial fertility assessment and egg freezing cycle alongside free chapstick, keychains, and water bottles. Although events present these perks as if they are "no strings attached," the ability to cash in on them typically depends on participants booking their first appointment for a "fertility consultation" before leaving that night. As one representative stated: "As a treat for being here tonight, you get $100 off your fertility assessment. But you do need to make that appointment before you leave tonight to get that $100 off." Later, she added that the fertility assessment is "no strings attached" and that "it just means you're coming in to find out about your body. You are not in any way obligated to do anything further." Although the fertility consultation is presented as a brief and straightforward initial step in the process of egg freezing, it entails a blood test for fertility-related hormones, an ultrasound to look at the follicles on a woman's ovaries, and a physical exam and medical history review. This strategy of obscuring the medical aspects of egg freezing and incentivizing the first appointment through perks appeared to be successful draws, as long lines of women signing up for their consultation would form at the end of events.

Presenters assuage any anxieties women have about the process of undergoing egg freezing by downplaying women's fears. To this end, most of these events fixated on the use of needles that women use to self-inject hormones for two weeks before the egg retrieval. One standalone clinic makes it a practice of demystifying the self-injections by having a nurse

walk around the room with the needle so that each woman in the audience can get a close-up view. As I leaned in to view the needle a nurse held in front of me, she exclaimed, "They're really, really teeny-tiny needles!" and much smaller than what traditional fertility clinics use. Panelists who have frozen their eggs also emphasize how comfortable the self-injections are, stating that the needles are "literally so small." Another representative asked the audience to consider "the beating our reproductive systems take during childbirth," insisting that the needle used to pass through the vaginal wall and into the ovary to extract eggs during the retrieval is "no big deal" by comparison.

Presenters similarly qualified their explanations of the egg retrieval in ways that minimize its physical toll. One presenter stated, "It's not painful, and it's a nice process." Another panelist said, "It's really a gentle stimulation, and we don't want to overload you with hormones… We'd rather you go through a nice, gentle cycle." When describing the actual extraction, one presenter explained that it's a "minimal impact procedure," while another stated: "You come in for what's called an egg retrieval. It's a procedure, it's not a surgery," insisting "there are no incisions."

Presenters further downplay women's fears by highlighting the convenience of egg freezing. One speaker explained that "Most people I greet when it's over they're like, that's it? It's done? It's over?" and that "most people are back to work the next day" after the egg retrieval. “It's not like you're home and in bed because you feel sick.” Egg freezing could be incorporated into women's daily lives so seamlessly that others would not notice. One panelist who works as a supermodel explained that when she froze her eggs, "I happened to be doing a full day of a lingerie shoot in Miami in the middle of a cycle, and nobody knew anything." Another speaker referred to a patient of hers who was able to go through the egg

freezing process without her live-in boyfriend noticing, so "that's how good you can feel" about being able to conceal this process. Speakers appeal to audiences by explaining how few sacrifices or adjustments they would need to make to undergo it. These pitches suggest that the convenience of egg freezing outweighs any potential complications or discomfort they may feel during the process.

When speakers at events organized by standalone clinics did concede to challenges that arise with the process, they typically worked on calibrating women's expectations and adjusting their attitude to feel optimistic at all stages of egg freezing. To this end, speakers often compared egg freezing to running a race or a marathon, where small, short-term pain may be necessary for future, long-term gain. Two panelists with experience freezing eggs provide similar accounts:

> Listen, I'm not going to lie to you. I cried when I mixed my first [medications]. My hands were shaking. I was crying. I was a disaster… but it was actually not that hard… It was just my nerves. It wasn't that complicated. Was I a little black and blue? A little bit. But once you do it once, twice, three times, you're like, I got this. It's weird how… you get in this mindset, and you go. And you're like, game on. For two weeks, game on. With freezing eggs, you have a finish line. It's not going to last forever. You're gonna go into the finish line in 2 weeks and be done. Look at that short amount of time as it can press pause. It can give you an insurance policy.

> I will say that once you do it, it becomes less scary right away. So, I feel like a lot of times people say to me, "I'm worried about the needles," or "I'm worried about the retrieval," and it's really not that big of a deal. And it depends on how squeamish you

> are, but I think it's really, you have to stay in it with the end game of, "You could potentially get pregnant," and get super excited about that, and don't let the fear keep you away from it.

These panelists simultaneously insist that the process of freezing eggs is "no big deal" while encouraging women to be brave by putting on their "game face" and enduring the moments that are "scary." In doing so, speakers minimized women's pain or nerves, asking them to subordinate those fears in favor of "excitement" and hope for a future pregnancy. These messages divert the focus of discussion away from those aspects of egg freezing that women may find distressing, and which may ultimately dissuade a woman from freezing eggs.

Other panelists encouraged participants to shift their attitudes about the egg freezing process by viewing it as empowerment. Below, two panelists who froze their eggs explain how the process made them feel:

> You feel super cool, like a scientist, because you can mix these drugs, and give yourself injections. It's actually pretty empowering.

> I was definitely afraid of the needles... Once I got over it, it was really empowering. I thought it was so cool. Think about it. You're making your body do something that modern science knows how to do. And you're going to the doctor's office every other morning, and they're telling you how to adjust your dose, and how to play with your chemistry kit a little differently, and, I don't know, it's pretty cool that we can actually do that.

Standalone clinics were much more likely than more traditional, full-service clinics to omit a discussion of risks associated with egg freezing altogether. Audience members

typically had questions about risks, wanting to hear more about the effects of hormone medications they would be self-injecting, or whether this procedure might compromise their ability to get pregnant in the future. During an interview, I asked one marketing professional about the potential drawbacks or risks of egg freezing. She responded to my question as follows:

> Um… Risks, I wouldn't… I mean, there's a small, small risk of ovarian hyperstimulation, which is like so uncommon these days so that just medically is a risk. Um, the drawbacks... I mean realistically, you are bloated and moody and hungry for three weeks. I mean, you're basically on a period for three weeks but without the bleeding. So that part for sure sucks. Um, but again, I think it's about setting expectations. I would never recommend somebody doing it in the summer if they have travel plans because who wants to be in a bikini with bruises on their stomach? Nobody.

This interviewee minimizes the risks that accompany egg freezing. While rare, ovarian hyperstimulation is a serious, potentially life-threatening condition that is more likely to occur in women under 35 (Mayo Clinic 2021). Instead of any shortcoming of the technology, she points to the importance of women setting appropriate expectations.

Standalone clinics were also far less likely than full-service clinics to admit to the technology's low success rate. These clinics diminish the potential of failure by providing optimistic numbers about the number of extracted eggs that will survive the freeze. For example, these clinics would typically offer the most promising success rates in the process of egg freezing, such as citing that 85-90% of eggs retrieved can successfully freeze, but omitting the percentage of eggs that can successfully thaw, fertilize, and transfer for

pregnancy. In addition, clinics would often report success rates taken from women in their twenties or early thirties, when success rates are generally higher.

These agencies would also use the educational messages they presented about female fertility decline to defend against criticisms of the technology's low success rate. For example, one standalone clinic argues that the success or failure of egg freezing is not "generalizable" because the outcomes of egg freezing "depend on the age of the egg." This clinic advances the notion that, because every woman's fertility is unique due to health histories and the declining quality and quantity of her ovarian reserve day by day, that women have different statistical chances of success with egg freezing. While this may be true, what is notable is how this clinic ultimately deflects from having to engage in a more nuanced discussion of the likelihood of failure, and how age may impact egg freezing outcomes. For example, two clinics deflected questions about the efficacy of egg freezing by stating, "No two people are alike," the outcomes are "person-specific," and therefore "cookie-cutter" explanations about the success or failure of egg freezing are not possible. Instead, speakers adjust any doubts the audience may have about egg freezing's ability to deliver on its promises by saying, "It's not a perfect technology, but it's more likely to work than not work," a statement that is blatantly false.

Finally, while standalone boutiques typically offer egg freezing at a lower cost than more traditional, full-service fertility clinics, these businesses were more likely to obscure the price during presentations. Although these agencies provide the cost of their services on their websites and on pamphlets they distribute at the events, explicit discussions about cost typically occurred at the very end of events. At some events, this discussion was not even included as part of the overall presentation, leaving it up to audience members to ask further

questions about expenses. Agencies did not present cost as a barrier to accessing egg freezing; for example, agencies would frequently share the price of the egg retrieval, while failing to mention the cost of bloodwork and hormone medications, which can cost up to $11,000, and the cost of annual storage fees (FertilityIQ). The omission of these costs makes the price of an egg freezing cycle appear dramatically lower than what a woman would pay elsewhere.

These clinics propagate more misleading assumptions about costs by failing to situate egg freezing within the context of the IVF process. Egg freezing necessitates additional costs by requiring IVF to become pregnant; the average price of a single IVF cycle in the US is $23,000 (FertilityIQ), and patients are likely to require multiple IVF cycles to achieve pregnancy. Successful IVF patients end up spending closer to $60,000 or more (Smith et al. 2015). However, none of the standalone boutiques mentioned these costs during their marketing events. Even though cost ultimately determines access to egg freezing, speakers did not describe or treat cost as a significant obstacle for women considering the technology.

Discussion

In 2010, Martin found that educational seminars promoting egg freezing devalued women who freeze their eggs electively by reifying tropes of selfish, career women who put motherhood on the back burner to pursue careers. This chapter reveals a rapid reversal in the short span of a decade in understandings about women who freeze eggs electively. Today, women who prioritize careers at egg freezing events are praised for their ambition. Representatives of egg freezing clinics do not pity or patronize these women; they encourage them to pursue their dreams, and they pitch egg freezing as a valuable tool for helping achieve them.

This reversal reflects societal transformations, such as the fusion of neoliberal ideas with feminism that encourage women to invest in themselves (Rottenberg 2014). Presentations on egg freezing today echo a neoliberal feminist discourse that asks women to be entrepreneurial and view themselves as projects to be optimized through their responsible choices, such as the postponement of motherhood (Mickey 2019). Commercial egg freezing businesses exploit these ideas because including career women in egg freezing practice is more profitable to them than excluding them. By presenting egg freezing as a wise investment among upwardly mobile women, these actors promote reproductive technology to preserve fertility "just in case."

Commercial enterprises also monetize the gendered anxieties that they provoke during marketing events. These clinics mobilize education about female reproductive age and fertility decline as a marketing tool. This marketing strategy asks women to anticipate the aging of their bodies and themselves so that they take preventive measures, ideally by undergoing egg freezing as a kind of anti-aging and wellness practice. The medicalization of reproductive aging is also profitable for egg freezing clinics to use during presentations. Because aging is a universal process that all women will experience, fears about aging eggs and a desire to mitigate the effects of aging on fertility can ostensibly extend to all women who can afford egg freezing. Moreover, by hiding behind scientific neutrality, representatives mobilize education to be even more convincing of the need for women to intervene on age-related fertility decline.

This chapter contributes to debates about whether and how ARTs may reinforce motherhood as essential to normative constructions of femininity. Although these platforms are increasing education and awareness about fertility and are expanding accessibility to egg

freezing by driving down costs, they also ask women to become consumers of biomedical procedures as a way to embody future motherhood and guard against age-related fertility decline. These marketing strategies assume all women desire reproduction, and they take women's fulfillment of the hegemonic motherhood mandate as an essential achievement. These messages reinforce cultural expectations that women take responsibility for fertility and perpetuate gender stereotypes by emphasizing the importance of youth, motherhood, and reproduction to women's identities, which may have consequences for perpetuating the stigma of childlessness and shifting further blame for infertility onto individual women.

The next chapter considers how women themselves give meaning to egg freezing. One theme I address is the extent to which women who freeze their eggs appear to reject or absorb the cultural messages about aging and motherhood I uncovered here.

CHAPTER FOUR: EGG FREEZING AND COMPULSORY MOTHERHOOD

Fertility preservation has arrived at a remarkable moment in the history of sexual politics, demographic shifts, and intensification of motherhood in the United States. The feminist movement of the 1960s and 1970s created new opportunities that increased young women's independence and agency. The advent of birth control decoupled heterosexual sex, relationships, and marriage from reproduction (Bailey 1997), and the 1973 Supreme Court decision in *Roe v. Wade* legalizing abortion further expanded women's ability to exercise control over their personal and reproductive lives.

The second-wave feminist movement also helped upend the division of paid public sector work and unpaid domestic labor that was viewed as central to women's oppression (Friedan 1963). In 1967, President Johnson's Executive Order 11375 prohibited discrimination on the basis of sex in employment. Shortly after, Title IX was passed in 1972, introducing further protection from discrimination based on sex in educational programs that receive federal funding, which helped increase girls' access to academics and athletics. The message of these policies was straightforward: girls should be able to do what boys can do, and their assertiveness and ambition should be recognized and rewarded.

While contemporary young women have more opportunities in academics and the workforce than previous generations, they still contend with structural inequalities that profoundly shape the possibility and timing of childbearing (Cooke, Mills, and Lavender 2012). Working mothers must sort out an array of financial and logistical dilemmas. The increasing cost of housing and childcare (Warren and Warren Tyagi 2003; Williams and Boushey 2010) and the decline of the "family wage" (Coontz 1992) requires higher incomes

on average and combined incomes with a partner to afford families. Increasing expectations from work exacerbate these pressures; most Americans work more than a 40-hour workweek, are not guaranteed overtime pay, and receive fewer social supports to help them manage caregiving responsibilities (Boushey and Ansel 2016; Williams and Boushey 2010). Compounding this, mothers in the workforce face penalties in lost wages and job growth after having children, resulting in a significant pay gap between mothers and non-mothers (Miller 2017).

Motherhood is still central to contemporary constructions of femininity (Ridgeway and Correll 2004). Yet, the hyper-achievement of women necessitates their delayed fertility until they feel prepared to shoulder these costs and burdens that accompany motherhood (Cooke, Mills, and Lavender 2012). Studies finding that the birth rate is falling more rapidly in places with the greatest job growth suggest that career pressures may incentivize women to delay motherhood (Tavernise, Miller, Bui, and Gebeloff 2021). As young women wait longer to have children, biological circumstances make it more challenging to have children and become mothers without technological assistance.

What is the social meaning and implications of egg freezing for how we understand the salience of motherhood to gender identity in the context of women's expanding professional opportunities and achievements? Does the increasing availability of this technology fuel the social obligation that women become mothers and comply with ideologies of "good" mothering? Does it help women overcome these pressures?

This chapter draws upon 67 interviews with women who have pursued fertility preservation by freezing eggs. I mobilize the theories of compulsory reproduction and compulsory motherhood to examine how these dominant cultural ideologies shape how

women who freeze eggs talk about and attach meaning to the practice. I show that young women feel uncertain about their reproductive futures due to interrelated concerns about their deferral of childbearing, aging, and declining fertility. The women mediate uncertainty and manage gendered expectations of motherhood through fertility preservation. Thus, egg freezing is how these women display their commitment to motherhood and incorporate motherhood into their identities. Egg freezing sustains compulsory motherhood by expanding the sphere of responsible mothering to include women's pre-maternal selves through the establishment of *fertility insurance.* Fertility insurance refers to the belief that biogenetic family connections and motherhood are assured by undergoing biomedical interventions that preserve fertility.

ARTs and Motherhood Ideologies

Egg freezing is revealing of dominant discourses of motherhood. As motherhood is construed as fundamental to women's gender identity and status attainment (Gillespie 2000), the normalization of ART use potentially perpetuates "compulsory motherhood," or the expectation that all women eventually become mothers (Hartouni 1997). Russo (1976) referred to this imperative as the "motherhood mandate," Morell (2000) explains it as the "new pro-natalism," and Remennick (2000) calls it simply "imperative motherhood." Under compulsory motherhood, adult women are positioned as future mothers and must embody "anticipatory motherhood" by preparing their bodies for future pregnancies to ensure optimal reproductive health outcomes (Armstrong 2003; Waggoner 2015; 2017). Similarly, egg freezing orients women toward future fertility and motherhood by positioning women as pre-infertile (Martin 2010).

Advances in ART, such as IVF, have transformed an understanding of infertility into a treatable condition, increasing the expectation that people can avoid infertility and every woman can become a mother. Under the “technological imperative” of reproductive biomedicine (Rubin and Phillips 2012), unwanted childlessness becomes "less tolerable and even more regrettable" (Sandelowski 1991:33), leading women to feel "compelled to try" fertility technologies (Sandelowski 1991).

As ART utilization rates increase, women who do not have children are marked as failures at fault for not doing what they could (Becker and Natchigall 1992; Ulrich and Weatherall 2000). Some scholars suggest that women's ambivalence toward motherhood may have been more socially acceptable before the advent of ARTs (Letherby 2002). As women are expected to use technology to facilitate reproduction (Cattapan et al. 2014), or else experience "fertility shaming" (VARTA 2017), these developments ultimately stigmatize infertility and childlessness (May 1995) and privilege biogenetic family connections (Mamo 2007).

ARTs exacerbate cultural expectations of motherhood for women in the queer community as well. *In Queering Reproduction,* Mamo (2007) argues that because lesbians do not participate in heteronormative femininity through sexual relationships with men, they can seek inclusion into normativity by procreating and achieving parenthood. The availability of ARTs appropriates compulsory heterosexuality and transforms it into "compulsory reproduction"—the idea that "if you *can* achieve pregnancy, you *must* procreate" (2007:228). The pursuit of ART signals a commitment to motherhood (Throsby 2004). Thus, ARTs facilitate normative femininity through the achievement of motherhood.

Neoliberal and capitalist forces have intensified contemporary motherhood to include even more demanding and time-intensive forms of parenting (Hays 1996; Lareau 2003). The social organization of responsibility for care implicates mothers more than other actors (Apple 2006; Blum 1999, 2007; DeVault 1991; Waggoner 2013). Normative motherhood prescribes "intensive mothering," in which mothers must display sacrifice and altruism while being emotionally and physically available and devoted to their children (Hays 1996). "Scientific motherhood" holds that women should defer to the authority of science and childrearing experts to inform their mothering practices (Apple 1995). The related ethic of "total motherhood" holds that mothers should take on the totalizing project of ensuring their children's outcomes, including health outcomes, by assuming an expert status in all areas of their children's lives (Wolf 2010; Nelson 2010). The increasing social value of children over the past century intersects with transformations in motherhood, leading to the “sacralization” of “emotionally priceless” children who require their mother’s intensive parenting (Zelizer 1985). Egg freezing generates a new responsibility: they must now plan for their reproductive futures and engage with reproductive biomedicine to ensure motherhood.

Women who undertake elective egg freezing place a high value on motherhood ideologies and parenting culture. For example, egg freezing has been found to help accommodate women's ideologies of what it means to be a "good" mother at the "right" time by allowing women to establish economic stability before giving birth and share parenting responsibilities with a committed partner (Baldwin 2019, 2018, 2017). The technology also enables intensive mothering by helping women manage conflicts between presumed burdens of intensive mothering and workplace pressures that intensify work-family conflict

(Myers 2017). Women in these studies frame egg freezing as a mechanism for extending time to prepare for motherhood so that they can fulfill the high standards of intensive motherhood expected of them. In contrast to previous research that focuses on how egg freezing helps women become the "right" kind of mother at the “right” time, this chapter focuses on how egg freezing burdens women with a new expectation of shouldering the responsibility to engage in the gendered labor of establishing fertility insurance.

Research on egg freezing has focused on how the marketing of egg freezing, ovarian reserve testing, and public awareness campaigns about age-related fertility decline exacerbate an imperative that women act upon their future fertility and ensure biogenetic motherhood (Kyweluk 2020; Martin 2010; Waldby 2015). Fewer, qualitative interview-based studies based in the UK have begun to explore how women who freeze their eggs negotiate this imperative (Baldwin 2019). I extend this line of research to examine whether US women who freeze eggs do so out of a perceived social obligation to fulfill a cultural norm of motherhood.

Data and Method for Chapters Four and Five

This chapter draws upon the experiences of 67 interview participants who have frozen or who are about to freeze their eggs. These women expressed a range of motivations for seeking out egg freezing, but they all expressed a deep desire to have children. Most of these women recognized their desire to become mothers as children, while a small minority of the women recognized this desire later as young adults.

Interviews were conducted in 2018, 2019, and early 2020. I used diverse strategies for recruiting participants: attending egg freezing and fertility-related seminars and marketing events where I would meet women thinking about freezing eggs, posting a

recruitment flyer in the waiting rooms of fertility clinics (with permission), advertising in online forums and support groups for individuals going through fertility treatments, and by reaching out to individuals through social media who publicly documented their experience with egg freezing. I accessed participants through all these methods, although snowballing from participants I recruited through social media and online forums were the most successful strategies.

All but three of the women profiled in this chapter had already completed a cycle of egg freezing; these three women were planning and about to undergo egg freezing soon. Most participants had frozen their eggs within the previous two years. Some participants froze their eggs as recently as one week before the interview took place, while one had frozen her eggs as long as seven years ago. With an average age of 36 at the time of the interview (the youngest participant was 28, and the oldest was 42), this data supports the clinical research suggesting that most women who freeze their eggs are in their mid to late thirties (Hodes-Wertz et al. 2013). In addition, 15 of the women had undergone more than one cycle of egg freezing; Most women I spoke with had very recently finished their first cycle and were considering a second cycle in the near future. All of the women I spoke with could eventually afford the procedure through personal savings, company-sponsored insurance plans, and family members; however, four mentioned that cost was a significant barrier they had to overcome through savings or help from parents.

These women represent the broader demographic trends of delayed marriage and childbearing among middle- and upper-middle-class women and, particularly, among white and Asian women. Participants were cisgender women. 58 identified as heterosexual; nine identified as lesbian, bisexual, or queer. Of the 67 women, 36 identified as white, 22 as Asian

(17 identified as East Asian, three as Middle Eastern, and two as South Asian), five as Latina, and four as Black or African American.

I conducted this research in three cities that are significant destinations for fertility services in the United States: New York, San Francisco, and Washington D.C. Participants lived in these metropolitan areas; three women traveled extensively for their work and had more than one home base, as in Los Angeles and Miami. I strategically selected these cities because they are population centers with many professional women who work in a range of industries and represent the types of women who are more likely to delay marriage and childbearing into their thirties and may benefit from egg freezing.

All the women I spoke with were college-educated and financially independent. Most (n=47) women had traditional, professional-track careers in technology, law, advertising, higher education, publishing, and health care. Thirteen women were entrepreneurs who established businesses in the health and wellness space or were self-employed as personal fitness trainers. Seven women had more non-traditional career paths in the arts, such as filmmaking, modeling, acting, styling, and creative writing.

In addition to these 67 interviews, I referred to ten interviews collected in 2016 as part of a research project focused on childless, professional women of reproductive age working in industries where egg freezing is offered as an employee benefit in the San Francisco and New York metropolitan areas. These ten interviews were conducted with women who had frozen their eggs. This data is still relevant to the chapter, as it sought to understand how professional women construct and give meaning to egg freezing. These interviews explored the context of professional work environments and career goals in greater depth than the interviews I completed in 2019 and 2020. However, these interviews

also included questions about relevant personal experiences that shaped their decision to freeze eggs.

I employed a life-history analysis to understand women's most salient motivations for freezing eggs and how this technology shapes their reproductive trajectories, subsequent intimate relationships, and career opportunities. The life-history method is ideal for excavating the interrelationship between individual experiences and social constraints and examining how present-day attitudes and behaviors have been influenced by previous experiences and decisions (Gerson 1985). I began all the interviews by asking women to describe their family experiences during childhood and their early expectations for work and family while probing for their ideas about motherhood, educational attainment, and their early work experiences. Follow-up questions asked participants to reflect on whether these expectations evolved and changed over time from their childhood to the present day and, if so, how earlier experiences have shaped their current attitudes and behaviors about fertility, motherhood, and work. In addition to these questions, I asked women to describe their egg freezing decision-making process and the specifics of their experience with the procedure. Interviews typically concluded with questions that asked participants to reflect upon how the process of freezing eggs changed their future plans, including expectations for the possibility and timing of having children and the conditions under which they would return to use eggs they froze. In my analysis, I compared structural conditions and personal or psychological factors that led each woman to pursue fertility preservation. These comparisons uncovered similarities and variations in the motivations for freezing eggs among this group of women that I will describe later.

To understand how egg freezing affected women and their lives in the aftermath of egg freezing, I focused my analysis on the participants' "potential selves" that they see egg freezing as influential in helping them construct. Social psychologists Markus and Nurius (1986) put forward the concept of "possible selves" that represent cognitive schemas of "enduring goals, aspirations, motives, fears, and threats" and "provide the essential link between the self-concept and motivation" (954). In a similar vein, sociologist Arlie Hochschild (1997) created the concept of a "potential self," which represents a "set of imagined future possibilities" that individuals would enact "if we only had the time" (235). In her formulation, the potential selves that overworked Americans craft help them cope with impossible conflicts of time between work and home they experience.

During data analysis, I leveraged these conceptual tools and applied them to my analysis of women's assessments, motivations, and intentions for undertaking egg freezing. For example, what kinds of potential selves or possible futures would women enact if given the opportunity of extended reproductive time? I focused specifically on the types of potential or possible selves afforded by egg freezing that help the women cope with the uncertainties of time, aging, and declining fertility. By focusing on the "potential self," my analysis illuminated the kinds of opportunities egg freezing afforded participants.

I began coding and writing in-process memos early in the data collection phase. The process of coding interview transcripts and writing memos helped me record my thinking, hone future data collection and analysis, and uncover and organize salient themes within the data. In response to early insights, I continually modified and refined the interview questions to more fully capture emergent themes. In the final analysis stage, these themes were integrated into analytic memos and subsequently into a broader argument that makes sense

of the disparate social processes observed—bringing data and theory into dialogue, this analysis aimed to represent the perspectives of research participants accurately and highlight the cultural and structural contexts that guide those perspectives.

While the risks for disclosing the personal information that the interviews elicited were low, participants frequently did share private, personal, life-altering, and emotionally charged information. Therefore, I worked to make all participants feel comfortable by assuring participants of confidentiality and keeping the interviews informal and conversational so that they would be willing to share their experiences openly. I expect that my position as a researcher of similar age, gender, and socioeconomic status to some of my participants went a long way in creating a sense of shared social worlds that helped the women open up to me in interviews.

Findings

The research participants I profile in this chapter expressed a strong preference for biological motherhood. A minority of the interviewees expressed an interest in pursuing adoption, but only after attempting to have biological children first. Although the vast majority were open to less traditional reproductive arrangements, such as going to a sperm bank, they viewed this option as the backup to their first hope to maintain a genetic and biological connection to their child, as well as to a long-term, committed partner.[5] One participant shared a sentiment that was typical of responses when I asked how the women feel about the possibilities of using a sperm donor: "I want to procreate, mix my genes with my boyfriend's genes and have our own child. I do really want *my own* children."

[5] I discuss pressures to establish long-term partnerships ahead of motherhood in greater depth in Chapter Five.

Women also overwhelmingly shared their desire to have the "full experience" of motherhood, which they took to mean the embodied experience of pregnancy and giving birth. As one participant explained her vision of motherhood, she shared: "I want to experience everything. I want to feel the kick. I want to feel the pain of labor. I want that bonding time with my baby." A smaller group of four women appealed to a desire to maintain the genetic continuity of their families of origin. Lola (33 years), whose father passed away, saw egg freezing as satisfying her desire to "pass my DNA on… it's that primal thing. I want to continue my lineage."

Thus, the participants turned to egg freezing in hopes of realizing their vision of biological motherhood. The findings below are organized according to three themes that arose as women discussed their motivations to pursue egg freezing. The first section explores the theme of time, which permeated women's explanations for why they chose to freeze eggs. I show that women use egg freezing to manipulate time and extend the biological clock to increase their chances of becoming mothers. The second section uncovers how the women's families are influential in their decision to freeze eggs; parents are emotionally, and at times, financially invested in their daughter's fertility and maternal futures. Egg freezing is a tool by which women pacify family pressures by displaying a commitment to future motherhood. The final section explores the themes of control and regret; fears about losing control and regretting the consequences of not freezing their eggs, namely the chance to become mothers, are most at stake in the women's decisions to pursue the technology.

Throughout these sections, I highlight how this technology compels women to exhaust their available options in pursuit of biological motherhood. At times, this is a way to alleviate their fears about the possibility they may not fulfill one of their strongest and most

personal desires: to become a mother. However, it is also how women manage societal expectations that women become mothers before it is "too late" for them and avoid anticipated blame associated with aging-related infertility and childlessness.

"Running Out of Time:" Egg Freezing as Tool to Manipulate Time and Extend the Biological Clock

The decision to freeze eggs is an emotionally fraught process through which women confront time, acknowledge the aging process, and come to anticipate the possibility they may not be able to have biological children unless they establish fertility insurance. All women I interviewed have oriented themselves toward future fertility decline, a shift that typically occurred for them in their early 30s. Below, two women advance similar sentiments widely shared by the participants:

> Around the time that I was 30 or 31, I started to feel like there was a timer that had been set, and it was going to start running out soon. It was biology knocking at my door. -Loni (35 years)

> After 30, I felt like my mindset just changed. I was thinking more about fertility. Before that, it was "Oh, I don't care, I have time." After then I feel like you start to get more questions asked. Family, friends, even your gynecologist is reminding you that you don't have much time. Everybody is asking you questions. Like, "When are you going to have kids?" -Shailene (31 years)

Women did not perceive time as significant in their twenties when it felt abundant. Now, as they assess their futures, they feel they are racing against a timer toward their impending expiration date. As their time starts to "run out," they discover that friends, family, and

medical professionals assume the role of timekeeper, reminding them of their impending deadline to have children.

Participants conceive time as a precious and finite resource to be spent wisely by cultivating conditions that will lead to motherhood. Wendy (42 years) reflects on time as follows:

> I feel like I was just starting my life when I was 30. I always, always, always put my career first. Too much so. I probably didn't wake up to anything until I was 38, I would say. My mom was constantly telling me with my last boyfriends—I probably had four serious boyfriends I could have married—and the last one I was with the longest, and she was constantly telling me to marry him. And I'd be like, "I have enough time. I have enough time. Stop." But then I realized, "Wait. My time is passing."

A successful business owner, Wendy expressed how personally fulfilled she felt by her career in several parts of this interview. But here, Wendy regrets the prioritization of her career at the expense of investing in relationships that could have led to marriage and motherhood. As time begins to feel more limited in her forties, she subordinates her career to the pursuit of motherhood.

The sense shared by participants that time was "running out" compelled them to take decisive action toward realizing their goal of motherhood by freezing eggs as soon as possible. This sense of urgency was palpable among women of all age groups. For example, when I asked Mila (32 years) what initially prompted her to consider egg freezing, she stated: "I'm anxious right now because I'm in the danger zone. I'm at that age where it's either you act now, or you act later. I'm 32, and I know my eggs are optimal at this age, but very quickly after this, it starts to go downhill pretty fast." Ruby, who had just frozen her eggs at the age

of 37, advances a similar statement: "Oh my God, I'm almost 40. This is my last chance to go." Finally, Hannah (40 years) similarly responded to this question: "I was just scared that my time has passed. I just felt like my time was running out. These eggs are going to start dying pretty soon [laughs]. I just know that time is not on my side. I just felt like I needed to do something quick." Regardless of their age, the women feel as though fertility loss is imminent, creating a sense of urgency around preserving fertility or else miss out on their "last chance" at motherhood.

Women frequently turned the sense of responsibility to use time wisely and act quickly to freeze eggs on me during interviews. Several participants asked me my age during our conversations to gauge the amount of time *I* had left. When I shared that I was 29 and 30 at the time of the interviews, some women reassured me that I "still have time." In contrast, others expressed concern that my time was similarly "running out" and that I should consider egg freezing for myself soon before it would be "too late" for me. When I asked one of these women why she thought my age was an ideal time to start thinking about freezing my eggs, she responded: "I tell all my friends, even the ones that are younger like you, that they *think* they have time. But I'm like, 'You guys just wait and see.'" Regardless of whether participants coded me as "young," they shared the sense that to be a woman is to be oriented toward and ultimately ruled by time and the biological clock.

Although women feel powerless to the forces of time and age, they view technology as powerful enough to overcome them. Below, two women reflect on egg freezing as follows:

> It's like I'm not able to make my own decisions in life because, "Oh, the clock is running." That was the harsh reality, the time. Time doesn't stop for anyone. And so that was challenging, the fact that by this time, I hadn't had children and then, if I

> didn't make a time-sensitive decision, perhaps I won't have my own children. -Camila (41 years)

> Before I did it [egg freezing], I felt like a victim to time. I felt like—I don't know—like someone else was running the show. Deciding whether to do it [egg freezing] really felt like the ultimate surrender to time, which felt really bad. It felt really bad to be faced with this time-sensitive decision that alters the course of my life. -Raya (35 years)

These participants evoke how thoroughly they believe women's subjectivities are ruled by time. In these accounts, time stands in for the biological clock and women's bodies. Thus, when women describe themselves as victims of time as Camila and Raya did, they describe themselves as victims of their bodies. With their limited reproductive windows, their bodies are "running the show" and preventing them from making "their own" decisions in life. Deciding whether to freeze eggs requires they surrender to time and admit that it was in ultimate control of them. In this way, the women construct their bodies as inferior to technology.

Thus, egg freezing was how many women felt they could free themselves from the limitations of their bodies by "pausing" or "stopping" time and extending the biological clock. Jess (35 years) shared: "When I froze my eggs, it was like I was stopping time. I figured if I freeze my eggs at 29 years old, they're going to be 29 forever, as long as they just sit there, and then they'll be good to use when I'm 40 or however old I want to be when I use them to have kids." Even as time progresses and the women themselves age, egg freezing secures the

women's opportunity to have children someday. In this sense, women felt empowered by egg freezing:

> After I froze my eggs, I felt empowered, and like now, I have a choice. I feel like the time I have now is time I'm winning. I'm so present. I'm not planning something in the future. I'm not thinking about yesterday. -Divya (32 years)

Divya triumphs over her struggle with time through an ability to be "present." In this way, egg freezing resolves the women's regrets about squandered time in the past, and it resolves their fears about a childless future.

"Give Me Grandchildren:" Egg Freezing as Parental Investment in Daughters' Maternal Futures

Time and the biological clock were not just personal concerns shared by the participants; they were also collective fears that involved their families of origin. Women often spoke of parental influence on their decision to pursue egg freezing. Most women felt the inclusion of family members into their deliberations about whether to undergo the procedure was positive and supportive. However, the level of intrusiveness of their parents' involvement varied.

Women repeatedly expressed that their parents were supportive of their decision to freeze eggs because their parents wanted their daughters to have children, or as many of them put it, "give them grandchildren."

> My mother, she wants grandkids. She has four kids right now, and she doesn't have any grandkids, so she's still questioning that. When I froze my eggs, she was happy to see that one of her kids was really thinking of putting a plan together for that, so she was really supportive of me freezing my eggs. -Christina (30 years)

> I remember my dad said… I think it was about when he retired from his private practice as a doctor. And he said, "Well, I could take this money and buy myself a boat, or I could buy some grandkids. Well, we'll just call this insurance for grandkids." That was it. [laughs] -Amanda (32 years)

Like Christina's mother and Amanda's father, women's parents viewed their decision to freeze eggs approvingly as a wise investment that guarantees their daughters' fulfillment of normative, middle-class motherhood as well as their personal desire to be grandparents. Participants from more affluent backgrounds were more likely to report that their parents had subsidized the cost entirely (seven said their parents had paid or offered to pay for the procedure).

Some participants grew up in cultures that emphasized motherhood as a social requirement of daughters. These women felt an overwhelming expectation from their families to have children, and their parents took on the role of overseeing and ensuring their daughters' future fertility. Below are accounts by three women who shared how family expectations shaped their decision to freeze their eggs: Jade, a 32-year-old woman who immigrated to the US from Nigeria; Nima, a 39-year-old woman whose parents immigrated to the US from Iran; and Amira, a 34-year-old-woman whose parents immigrated to the US from Iran.

> When I got married, my grandmother, two months after, she asked me, "So, do you have news yet? Do you have news yet?" As soon as you get married, you're supposed to produce the goods, right? It's that extreme. So yes, in terms of going into my 30s, there's a lot of anxiety of saying, "I might not be able to produce children." Children

> are very important in the culture, so yeah, definitely, that's a big fear, big anxiety around that.
>
> A lot of it's cultural. I feel like me and a lot of my friends and family who have Persian mothers, they want grandchildren. They want the marriage for their daughters and sons. And they interfere a lot [laughter] in that process… Maybe it is just my family specifically, but a lot of my aunties on my Persian side of my family are very much involved in the matchmaking and getting their kids married and getting those grandchildren.
>
> It's a little cultural, especially in Middle Eastern households. There is that pressure on girls, especially, to like, find a husband. Or you get questions from your family like, who are you dating? When are you having kids? All of that. The kids that I knew from Saturday school and all the other Persian stuff that we did growing up, it's on the girls especially. I mean, that was the main focus, especially from their moms. Like when are you going to find a husband and have kids?

For these participants, daughters' fertility is incorporated into the family as a shared responsibility. By extension, the hope that egg freezing will ensure future children is shared between the women and their parents. I heard other common complaints from participants that parents expressed concern that they were too focused on travel or career. One woman admitted to me: "My parents always taught me to be career-oriented. Now they regret not telling me to have children while you're younger."

To this end, egg freezing is most beneficial to women in helping them turn down the volume on their parent's insistence that they have children and the role they had assumed in asking questions about their reproductive intentions.

> I definitely think the experience [of EF] changed things for me because, at 25, I was just always worrying… But now, it's like my parents don't ask when I'm going to have kids or when I'm going to settle down anymore. They just feel like—the conversation feels normal. Finally, I can be like, "Okay, let's talk about my work," instead of them just saying, "Well, when are you going to have kids?" So yeah. So that feels just nice to have this more chill vibe with my family. -Erica (28 years)

Families subordinate valuable aspects of their daughters' identities, such as their careers, in their hopes for grandchildren. Thus, one of the principal benefits of egg freezing is an ability to placate family members who would inappropriately nag them for answers about their intentions to have children. Egg freezing pacified their parents' concerns by displaying their commitment to future motherhood. As one woman put it, "Your grandkids are in the fridge, Mom and Dad."

A smaller group of participants struggled with their parent's involvement, who felt their input on egg freezing was intrusive. Below I discuss two examples: first, a woman hesitating to freeze her eggs due to her parent's involvement, then a woman who ultimately froze her eggs because her parents offered to subsidize the cost.

Stella (34 years) had not yet frozen her eggs but considered it after her father offered to pay for the procedure. When I asked how she felt about this offer, she responded:

> I was mortified. I said, "Dad that's so weird." I think largely because it was my dad asking and making it seem like this was the most important thing. It created a very

> negative, defensive reaction in me. I was probably offended more than anything. It was like, "you're assuming that I'm not going to find anyone or that this is the most important thing to me." I took it as a judgment, I guess.

Stella had not frozen her eggs yet because she was still wrestling with the question of how important settling down with a partner and having children was to her. She worried that the decision to freeze eggs reified the importance of these to women's identities above and beyond their other goals.

Alicia (39 years), whose parents paid for her procedure, described the experience as overwhelmingly negative and experienced severe side effects. According to her, "It was horrible. It was emotionally and physically painful and uncomfortable and awful. I would never do it again." Below, she explains how she decided to do egg freezing:

> The first time it [egg freezing] was ever brought to my attention was actually through a neighbor, a friend of my parents, who has a daughter. She's two years younger than me. I was probably in my late 20s at the time. And I just remember the neighbor saying something like, "Well" — her daughter's name is Erica—"If Erica is not married by the time she's 30… We'll make sure that she freezes her eggs." And I was like, "Huh, really? We do that?" [laughter]
>
> And then my parents brought it up with me. So, it wasn't my idea, actually. They said, "Look, here's a procedure. And we want you to keep living your life however you want to live it. If you want to do this, we'll pay for it." And so, for me, the financial aspect of it, I see that as a major hurdle… And for me, I thought, "Well, somebody else wants to

> take care of that for me. And I see the value in having a family and having insurance for that." So, I was like, "All right. Let's do it." And I just started right away.

In this part of the interview, Alicia became emotional, and I sensed her discomfort about how involved her parents were in her decision to freeze eggs. Although most of the women I spoke with feel their parents' involvement in their egg freezing experience reflects a benign wish for grandchildren, it was clear to me that Alicia felt her parents had overstepped a boundary by offering it to her. As Alicia points out, egg freezing wasn't "her idea." Egg freezing wasn't something *she* did; it was something "we did" as a family. This sense of coercion was exacerbated by the fact that she did not feel she could otherwise afford the procedure. Although Alicia sees the value in egg freezing because she hopes to have children, the emotional and physical discomfort, pain, and lifestyle disruption that she experienced with egg freezing was a burden she did not necessarily want to take on.

Finally, a small minority of women mentioned to me that their parents did not support egg freezing. However, these parents were not critical of issues like the cost or safety of egg freezing. Instead, they viewed it as a tool of procrastinating on motherhood. Pai Pai (32 years), a queer, single woman whose parents would frequently press her to have children, reacted to her decision to freeze her eggs as follows: "My parents are always on this idea of like, someday I'll magically turn straight. They wish that I'll meet some guy and want to have a baby with him. They're just like, "Oh my gosh. [Egg freezing] is such a waste. Don't do it. You need to have a baby right now." Even though Pai Pai views egg freezing as facilitating biological motherhood with a partner someday, her parents view it as a tool of delay that prevents her from establishing motherhood and a normative, heterosexual nuclear family structure. Thus, Pai Pai's parents' resistance to egg freezing still betrays an

investment in their daughter's maternal future, even if they did not think it should involve egg freezing.

"I Did Everything I Could:" Egg Freezing as Tool for Control and the Avoidance of Regret

Women express conflicting thoughts about egg freezing, seesawing between a deep belief in the promise of the technology and a more realistic assessment of its high failure rate. Most participants showed awareness of the technology's low success rate and skepticism about the promises that fertility clinics make about the technology's efficacy. As I show in this section, the perceived benefits of egg freezing were primarily emotional, thereby mitigating concerns about effectiveness.

Women frequently explained that they froze eggs to establish insurance for their fertility, but they coupled this explanation with a language of "no guarantees" about the procedure's efficacy. For example, one interviewee described egg freezing as having an "insurance policy that is only kind of partial." Another participant explained: "It gave me peace of mind somehow. But there's no guarantee, right? It's a sensible peace of mind with no guarantees." These women combine a rational understanding of egg freezing as only a "partial" guarantee with an insistence that it is a "sensible" insurance policy.

The women expressed a belief in technology and science as infallible tools for control over the potential to become mothers someday. Although they express uncertainty that egg freezing will deliver on its promise, what is notable is that a sense of control made this uncertainty feel worth the risk.

> You can't control so many things, and I think this was one thing, having children or protecting your potential future ability to have children, is now a science, something

> you kind of can control, and it was like if this is that important to me, why wouldn't I do that one thing that I feel like I have a little bit of control over? Amanda (32 years)

> I can't control if I meet someone and fall in love, but I can control if I want to have a kid, thanks to science. So that I can control. I can't control anything else. -Gwen (37 years)

> It's a feeling of control. It puts the power in your own hands. Mentally, it makes you feel in control of your life as opposed to just waiting. It's mostly the power of that feeling to take life into your own hands and then control your destiny somewhat. -Wendy (42 years)

These women aptly illustrate the belief that one has gained control through egg freezing. Regardless of whether the women will return to use eggs and if the procedure would be successful, they feel that this is a substantial enough benefit to undertake it. Despite their underlying doubts, a feeling of control is an end in itself. As one woman quipped in our interview, “even if I don’t use the eggs, it doesn’t mean it [egg freezing] wasn’t useful.” The principal benefit of egg freezing is not necessarily guaranteeing a future pregnancy but the emotional reassurance that one is in control.

In addition to a feeling of control, women reported a feeling of relief in their avoidance of future regret because of freezing eggs.

> I have this relief. I just knew I would have such regrets if I didn’t do it [egg freezing]. The fear of regret was so tangible to me and palpable that I was like, I'm obviously going to do this. I need to do this for myself. I didn't want to have any regrets about

> not having the opportunity to have my own kids. Even if one day if I never use them [the eggs], or whatever happens, I'm not going to look back at 38 and be like, "Oh my God. I can't get pregnant. Why did I not do that when I had the opportunity to do it? -Whitney (30 years)

> You pay all that money, and it may not work… But at least I did what I could. I figured it's better to at least preserve the chance than not do it. -Chloe (42 years).

The women believed they would regret not taking advantage of an opportunity to freeze eggs. Anticipated regret does not center on the potential financial losses associated with not using their banked eggs or possible failure of the procedure to result in a pregnancy. Instead, it centers on the sense of personal blame they would assume if they didn't exhaust all their options in pursuit of motherhood. Fears about future regret are primary factors motivating women and couples to pursue reproductive technologies (Franklin 1997; Throsby 2004; Baldwin 2019). Due to the availability of ARTs, refusal to engage with them holds individuals and couples responsible for the failure to have children (Throsby 2004), leading individuals to do all they can to pursue fertility treatments at any personal cost (Remennick 2000). Women I spoke with similarly hope to avoid future regret and blame instead of "leaving it to chance" by not freezing eggs. Repeatedly, the women felt satisfied by the decision to freeze eggs because it showed how they "did what they could." This finding resonates with Baldwin's (2019) UK-based study on women who freeze eggs who similarly feel empowered by the avoidance of regret. Thus, egg freezing is compelling because it imbues a sense of control over the possibility of biological motherhood and protects them from potential blame and regret associated with resisting its use.

The feeling of control and the avoidance of regret were powerful in reassuring women that motherhood was possible; the decision to freeze served as a stop-gap measure on the path to motherhood.

> I overcame the sense of defeat or the sense of loneliness or anxiety I felt about whether I'd be able to have kids by freezing eggs. I can emerge on the other side of that and still be a woman. I can still be a woman walking towards motherhood. -Daisy (37 years)

Daisy was able to freeze 18 eggs through two cycles and was preparing to undergo a third round. By investing in "fertility insurance," Daisy incorporates motherhood into her identity as a woman, even as it is essentially unrealized and deferred to the future.

This belief extended even to women who had disappointing outcomes. For example, Hannah (40 years) had frozen four eggs from a recent egg freezing cycle, an outcome she was still processing at the time of the interview and that I could tell was painful for her to discuss. She reflected on the experience as follows:

> There's four beautiful, healthy, perfect eggs. I mean, there's disappointment that I have only four eggs. Because some women get like, 30 eggs. The day I did it, I cried because it's just like, "I only have four." But now I think those four eggs are a blessing. Because I could have left with none or one. There are times when it's disappointing. Like I think now, it's fine that I have four eggs, and it's a blessing…. Because it was taking control of my future and not just putting it to fate. There's no guarantee with what I have. But like I said earlier, I just want to know I did everything I could. I did my best, and I didn't let motherhood slip away.

Like Daisy, Hannah incorporates motherhood into her identity through the practice of freezing eggs, even though her outcome was disappointing. The emotional rewards of egg freezing, namely the sense of control and the avoidance of regret, overpowered even the most painful emotions provoked by the experience. Against all odds that egg freezing will result in a future pregnancy, motherhood will not “slip away” from Hannah.

Some women I interviewed began to problematize the sense of control they had acquired through egg freezing. When I asked women about their plans for their banked eggs, it became evident that while women believe they had reconciled their fear of time and aging eggs, they were beginning to negotiate a new timeline posed by time and their aging bodies:

> The other piece of the puzzle is that yes, your eggs are 32, my eggs are from the age of 32, but the longer you wait, the harder it is on your body, too. It's not just about the eggs. Having a kid and carrying a kid as you go later into life and raising a kid, it's a lot harder. -Olivia (35 years)

> So, when I froze them at first, I froze them for three years. And then, this February, I had to freeze them for another three years. It's just kind of a funny thing, right, because I was almost 40, and I was like, "I'm going to be freezing them, and then I'll be 43." And I'm like, "Gosh. Would I even be able to carry that child by then? Would I have the energy to raise that child?" -Emma (40 years)

Olivia and Emma suggest that the timeline of female reproductive bodies is less forgiving than the timeline for storing their eggs. While women feel reassured by banking eggs, new anxiety surfaces regarding the absolute limitations of female bodies to achieve healthy pregnancies and give birth into their forties and fifties once they return to use them. In this

way, fears about aging eggs extend into fears about aging bodies. Egg freezing merely defers their concerns about time, aging, and motherhood to the future.

Discussion

The women profiled in this chapter experience a great deal of uncertainty about their maternal futures due to interrelated fears of aging and their delay in childbearing. These findings align with previous research in the UK on women's experiences with egg freezing that highlight how women feel compelled to use this technology so they can extend the biological clock and ensure biogenetic motherhood (Baldwin 2019; Baldwin et al. 2019). In addition to this expectation, I uncover how the women also feel compelled to freeze eggs to convey their commitment to motherhood to others, particularly family members invested in their maternal futures. Egg freezing reinforces compulsory motherhood as it assuages both personal and collective fear that they may never become mothers.

Egg freezing facilitates reproductive choice by helping women realize their most fervent hopes for motherhood. The desire to have children is a drive that cuts right to the core of who the women I spoke with are and who they hope to become someday. Egg freezing resonates emotionally with them because of how deeply that hope and desire for motherhood are felt.

However, egg freezing potentially exploits this dream. The women felt compelled to "do their best" in their pursuit of motherhood by putting their bodies through an invasive biomedical intervention, at times in ways that felt coercive, as it did for Alicia. For women who were disappointed in the outcomes of their egg freezing cycles, like Hannah, the experience of freezing eggs was heartbreaking. These findings serve as cautionary tales of egg freezing's implications for reproductive autonomy and the potential for assigning blame

to women who experience fertility problems, opt out of reproductive technologies, or pursue alternative paths to parenthood, such as adoption.

In the next chapter, I continue to explore how women who freeze their eggs give meaning to this practice. I focus on a subset of women who cite concerns about their relationship status and desire to establish committed partnerships ahead of motherhood as important factors motivating them to pursue fertility preservation.

CHAPTER FIVE: EGG FREEZING AND THE ESTABLISHMENT OF ROMANTIC SECURITY

Motherhood and marriage used to mark women's transition into adulthood, but social, cultural, and economic changes have lengthened the time college-educated women have for self-exploration and self-development. Women have been empowered to achieve financial independence and pursue success in spaces that men have traditionally held; today, more women than men have earned a Bachelor's degree (Fry 2019), they outnumber men in law and medical school (Cohen 2012), and before the COVID-19 pandemic, they comprised an equal share of the college-educated workforce (Butchireddygari 2019).

Women's advances of the past half-century have transformed the process of seeking out romantic unions and forming families dramatically. Although marriage has been "deinstitutionalized" and is no longer a necessary steppingstone to adulthood (Cherlin 2004), marriage continues to be an important and distinctive institution in Americans' lives (Cherlin 2009; Coontz 2006). Although marital unions provide more stability on average in households that include children, the culturally dominant justification for marriage has shifted from childbearing or establishing economic security to romantic love (Coontz 2006).

As marriage transformed from a companionate to a soul mate model, the symbolic significance of marriage has in parallel been heightened and transitioned into a personal accomplishment and "capstone" that should occur later in life, after establishing a career and financial stability (Cherlin 2009; Klinenberg 2013). As people view marriage as a contract to enter into only when both people are ready, cultural recommendations for preparedness endorse waiting to marry and avoiding commitment too early in life (Cherlin 2009). Instead, required and respected choices for determining readiness include discovering and

developing yourself, living alone first, and having more than one relationship before settling down (Giddens 1992; Illouz 1997; Swidler 2001). As more highly educated people are better equipped to realize this exalted vision of marriage, they are more likely to marry, have children within marriage, and wait until they are financially stable to have a family (Corse and Silva 2016). Thus, Americans with a college degree are waiting until later in life to get married as they first invest in their careers and establish economic stability (Wang 2018).

This chapter explores one facet of women's motivations and experiences with egg freezing: the desire among single women to give themselves more time to form romantic unions and enter marriage before having children. Regardless of class background, most Americans report that they want to get married (Wang and Parker 2014). The participants in this study likewise aspire to marriage as an essential condition for family formation, yet they feel they are at risk of being unpartnered in the future. Therefore, their status as single women was a primary source of anxiety and insecurity. In this chapter, I examine how singlehood[6] shapes the women's orientation to egg freezing and how they use this technology to respond to romantic insecurity.

Drawing on ideas such as singlism, I show that societal assumptions about single women in their thirties and forties cause women to experience difficulties establishing relationships. Egg freezing does not merely increase women's odds of finding an ideal partner by extending time to date; egg freezing is a gender strategy women use resourcefully to maneuver within a heterosexual dating culture and marriage market that privileges men

[6] Singlehood is an intersectional identity formed through different positionalities and axes of oppression (Collins 2000), and it can encompass multiple circumstances, such as widowhood, divorce, and single parenthood. In this chapter, I use "singlehood" to refer broadly to women who are not in long-term committed relationships.

and excludes older women. A gender strategy is a course of action that attempts to solve a problem using the cultural conceptions of gender available to the individual (Hochschild 1989). Egg freezing is a gender strategy that helps women be more successful in pursuing romantic relationships, namely by decreasing their desperation for a relationship, assisting them to "relax" in their dating experiences, and accentuating their maternal identities to potential mates. Thus, egg freezing facilitates an establishment of romantic security in the women's lives as they contend with traditional feminine ideals that prescribe marriage (Rich 1980) and navigate gender inequality in their pursuit of relationships.

Gender and Singlehood

Single women who pursue egg freezing offer a window into understanding the experience of a feminized single identity in heterosexual culture and the salience of marriage to women's gender identities amid considerable transformations in heterosexual intimacy and family formation.

Women's rising social status has contributed to a significant increase in the number of single Americans who live alone (Klinenberg 2013; Reynolds 2008). The most prominent residential types in the United States today are singles and childless couples, and among young urban professionals, living alone without roommates before marriage has become a normative aspect of young adulthood (Klinenberg 2013). Furthermore, the phenomenon of single living is gendered; for the first time in history, unmarried women outnumber married women, enabling women to pursue high-powered careers and exercise greater sexual freedom (Traister 2016). Singlehood has thus emerged as an acceptable lifestyle, where some people welcome living alone and feel content with their lives as single people (Trimberger 2005).

Although it may be more acceptable to delay marriage as the window for self-exploration has expanded, the stakes of not partnering remain high. An "ideology of marriage and family" prevails in American culture that establishes the supremacy of marriage as a cultural ideal (DePaulo and Morris 2006). Intimate partnerships, marriage, and parenthood are seen as necessary components of a happy, secure, and meaningful adult life (DePaulo and Morris 2006; Klinenberg 2013), and the belief that marriage should precede children remains dominant in American culture (Edin and Kefalas 2005). Cultural rules about childrearing are rooted in prevailing notions of the nuclear family (Hertz 2006). For example, the development of ARTs allows women to have biological children outside of a traditional heterosexual relationship. However, even among women who embrace an unorthodox path by becoming "single mothers by choice" through adoption and ARTs appeal to the heterosexual, married, nuclear family as the normative family structure to which they feel they fail to measure up (Hertz 2006).

The prevailing ideology of marriage and family has generated what DePaulo (2006) refers to as "singlism:" the negative stereotypes and prejudice single people face, which have material consequences, such as exclusion from health benefits, social security options, lower taxes, higher salaries, and promotions (DePaulo 2006; DePaulo and Morris 2006). In this light, singlehood is assumed to be a temporary arrangement (DePaulo 2006). Single people frequently must account for their single status, facing questions like, "Why are you single?" and "What is wrong with you?" that perceive singlehood in negative terms denoting absence, isolation, and deficiency in identity (Budgeon 2008; DePaulo 2006, Reynolds 2008).

Unpartnered women are especially stigmatized for their failure to uphold cultural beliefs about the importance of coupling and marriage, especially in their thirties, and must

urgently do all they can to "un-single themselves" by finding a suitable partner (DePaulo 2006). Other studies find more polarized conceptions of single women; singlehood may be experienced as an empowering identity, while societal expectations that women be partnered denigrate single identities (Reynolds 2008). Gender and age intersect to shape evaluations of single women as well; if women remain single past a certain age (typically age 40), their hopes of marriage fade as they enter what Reynolds (2008) calls the "twilight zone" of singlehood, suggesting that women's romantic potential is inextricably tied to their reproductive viability.

Feminist scholars theorize that women's singlehood is so disturbing and deviant because it defies gender socialization and does not conform to gendered expectations that women marry, have children, and provide care for their families. Women's single status poses a direct challenge to compulsory heterosexuality as a cultural marker of womanhood (Rich 1980). In 1980, Adrienne Rich first conceived of compulsory heterosexuality as a political institution that ensures women's sexual, emotional, and reproductive availability to and dependence upon men while preventing women from having emotional and sexual intimacy with one another. In a critical analysis of gender and singlehood, Lahad (2017) argues that representations of single women locate them inside a symbolic "heteronormative queue" (2017:24). In other words, single women are perceived as inhabiting a temporal mode of waiting, as if in line to be "picked" by men for heterosexual marriage eventually.

The women's journeys with egg freezing that I profile in this chapter reflect how they experience singlehood. Despite being socially privileged, the women I interviewed describe severe instances of mistreatment linked to their status as single women. They experience the

effects of compulsive heterosexuality, where their value and sense of self-worth are defined through their relationships with men and societal expectations that they marry. In the findings, I explore how they conform and, at times, resist traditional ideas about women's appropriate conduct through their decision to freeze eggs.

Gender and Intimate Relationships

Sociological scholarship on contemporary understandings of heterosexual romance, desire, and intimacy is revealing of how unequal gender relations endure within people's most intimate relationships. "Straight life is characterized by the inescapable influence of sexism and toxic masculinity" (Ward 2020:7). Heterosexual culture suffers from a "misogyny paradox" (Ward 2020), where men express desire, affection, and interest in women in a culture that rewards their mistreatment and hatred of women. Meanwhile, young women in their twenties and thirties must sort out a "paradox of sexual freedom" (Bell 2014), where women enjoy unprecedented sexual and social freedoms and opportunities but still confront retrograde ideas about the kind of sex and relationships they should want and expect (Bell 2014).

The self-help industry centered on heterosexual women prescribes pop-feminist solutions to navigate dating and relationships that only exacerbate the confusion. Bestselling advice books of the 21st-century such as *Marry Him* and *He's Just Not That Into You* contribute to young women's puzzling situation: women are encouraged to be ambitious in their careers but not too aggressive in their approaches to dating and relationships; they should be sexually adventurous and experimental, but not so sexually experienced and assertive as to intimidate or alienate their partners (Bell 2014). Women should be mysterious and demure in dating to attract the right mate, but independent in their approach so as not to come across

as too "forward," "needy," or attainable (Bogle 2008; Lamont 2014; 2020; Sassler and Miller 2011). Despite their insistence that women cultivate independence from relationships, they should eventually settle for "Mr. Good Enough" (Gottlieb 2010).

This new sexual paradigm reflects a stalling of progress toward gender equality and an "uneven" gender revolution (England 2010; Sassler and Miller 2011). Scholars suggest that there have been more significant gains in gender equality at work and the public sphere than in people's most personal, intimate relationships (England 2010). For example, today's college-educated young adults are more likely to explain their commitment to gender equality by focusing on their professional opportunities rather than interpersonal dynamics between men and women (Lamont 2020). Young adults value egalitarianism in relationships (Gerson 2010), yet overwhelmingly adhere to heterosexual dating scripts that privilege men's power, such as expectations that men be the ones to initiate, plan, and pay for dates, initiate sex, confirm the status of the relationship, and propose marriage (Bogle 2008; England, Shafer, and Fogarty 2008; Lamont 2020; Lamont 2014; Laner and Ventrone 2000; Sassler and Miller 2011). Some young adults actively desire a gender imbalance in their intimate relationships, as the expectation of male breadwinning still factors heavily in marriage formation and marital stability (Bertrand, Kamenica, and Pan 2015; Killewald 2016; Sayer et al. 2011), and even the most highly educated women express a desire to marry men of a higher status than themselves (Qian 2016). Thus, women's advances in educational attainment and professional success have not been sufficiently matched by efforts to address inequalities that stem from intimate desires and relationships.

Although one might expect these inequalities would not affect the kind of women I spoke with, who have economic resources and live in progressive urban environments, I

show that their experiences pursuing intimate relationships are still shaped by entrenched inequalities. Egg freezing is a tool for these women to reconcile their desires for long-term, committed partnerships with a dating culture premised on gender inequality.

Egg Freezing and Romantic Pressures

Women's relationship status and single women's concerns about partnering are among the most salient motivating factors shaping women's decision to freeze (Baldwin et al. 2019; Baldwin 2019; Inhorn, Birenbaum, Carmeli, Birger, et al. 2018; Inhorn, Birenbaum Carmeli, Westphal, et al. 2018; Waldby 2015). A patient study conducted by NYU in 2013, around the time egg freezing was first becoming commercially available, found that 80% of the respondents reported that the *primary* reason they had not yet started a family and were freezing eggs was that they were single (Hodes-Wertz et al. 2013). Following these early findings, small, interview-based studies examining women's motivations to freeze eggs in more depth supported the notion that women were "freezing for love" (Carroll and Kroløkke 2017). In particular, fear about "wasting time" to establish relationships before having children was central to women's processes of justification (Baldwin et al. 2019; Baldwin 2019; Waldby 2015). Egg freezing was how these women extend time to date so they can avoid "panic partnering" (Baldwin et al. 2019; Baldwin 2019). Egg freezing is also how women attempt to "disentangle" the trajectory of romantic pursuits from the course of having children in hopes of eventually marrying before they have children (Brown and Patrick 2018). Egg freezing is a mechanism by which women "bracket" their plans to have children so that they can more authentically pursue relationships without the added pressure of dating solely as a means to have children (Brown and Patrick 2018).

While this literature identifies romantic pressures as salient to the decision to freeze eggs, it has not focused on how single women use this technology to navigate gender inequalities embedded in courtship practices and cultural understandings of singlehood.[7] In addition, this research focuses more on women's motivations for pursuing egg freezing, placing less emphasis on the aftermath of the procedure. By focusing on single women specifically, I excavate how women use this technology to alter their subsequent dating and relationship experiences. Egg freezing provides benefits to single women beyond those documented in earlier literature on women's motivations for egg freezing, such as to "buy time" to extend the dating process or to avoid "panic partnering" (Baldwin 2019; Baldwin et al. 2019). Egg freezing is a gender strategy that increases the likelihood of establishing long-term partnerships before motherhood by helping women reshape themselves as potential mates, decreasing their desperation for a relationship, and accentuating their maternal identities.

Data

This chapter draws upon a subset of interviews completed for this dissertation with 46 women who identified concerns about their relationship status and their ability to be partnered in the future as significant motivating factors for freezing their eggs. I include additional information about the participants of this study and a discussion of my methods in the "Data and Methods" section of Chapter Four.

[7] Recently, single women have been protesting a ban on egg freezing in China, where they contend with cultural stereotypes of single women as "leftover women," or *sheng nu,* a derogatory term popularized by the Chinese government to describe unmarried women in their late twenties and thirties (Lewis 2020). These demonstrations suggest a link between stigmatizing cultural understandings of feminized singlehood and the utility of egg freezing that has not yet been fully explored in the sociological research on egg freezing.

For the dissertation project, I interviewed women who expressed a range of motivations for seeking out egg freezing and who were at different stages of the process of undergoing egg freezing. Thus, I was able to test my findings from interviews with single women against interviews with women who froze eggs in the context of long-term committed relationships and those who did not report concerns about relationships as a critical motivating factor.

The vast majority of these 46 women were single at the time of the interview; some froze eggs while they were single but had recently partnered by the time of the interview. I included these women in my analysis if anxieties and uncertainties about relationships were the primary motivating factors that caused them to consider and eventually freeze eggs. I also included them if they expressed that egg freezing was beneficial in the context of present uncertainties or anxieties about their current relationship, such as if they were considering the possibility that their relationship may soon result in a breakup.

All the women profiled in this chapter identified as heterosexual except for three, who identified as bisexual. Of these 46 women, 27 identified as white, 13 as Asian, five as Latina, and one as Black. All of the women I spoke with were college-educated and financially independent. About half (*n*=30) of the women had traditional, professional-track careers in technology, law, advertising, publishing, and health care. Ten women were entrepreneurs who established businesses in the health and wellness space, as stylists, or as personal fitness trainers. Six women had more non-traditional career paths in the arts, such as filmmaking, modeling, acting, and creative writing.

Findings

Below, I discuss the most salient themes raised by the 46 interviewees who identified concerns about their pursuit of romantic partners and marriage as important factors shaping their decision to freeze eggs. While the circumstances that led to their single status varied, all of the women expressed a strong desire to be partnered at the time of the interview.

In the first section, I explain that participants perceive themselves as targets of social reproach based on their single status, a factor that prompted them to consider and eventually decide to freeze eggs. In the second section, I detail the most prominent obstacles experienced by women I spoke with as they attempt to establish relationships that contribute to a deep sense of romantic insecurity and uncertainty. These women feel their prospects for being partnered prior to having children are dimming, as they face exclusion from a dating and marriage market that privileges men and women's youth. In the final section, I explain how the women use egg freezing to establish security about their romantic fates as single women in their thirties and early forties. Ultimately, the women construct marriage and future motherhood as essential credentials for womanhood.

Gender, Age, and the Threat of Spinsterhood

Participants viewed marriage as a necessary condition for motherhood, making the possibility of motherhood feel dependent on the fate of romantic attachments. Their conformity to dominant ideologies that prescribe marriage before childbearing made the women's status as unpartnered a primary source of anxiety and insecurity, shaping their orientation to egg freezing and engagement with the technology. As Julia, an interviewee who froze her eggs at the age of 33, states: "I want to have a kid, but I would rather do it with a partner, and I want to be in love. I want someone who loves me. I want to give myself more time for that." Hannah, who froze her eggs at the age of 39, similarly expressed: "I'm still

hoping to meet the right person. And I want that child to be "us." I want to be able to look at my child and be like, they have my eyes or my personality, or my husband's nose or hair." Julia and Hannah preface their desire for a family as one contingent upon establishing a stable, committed, long-term partnership bonded by love and companionship. The ability to share in the experience of having and raising children with a partner was also central to their vision of motherhood.

Women's feelings about being single were shaped by ideas about what they perceive as the appropriate timing for entering long-term committed relationships and having a family. As women primarily in their thirties, participants inhabit a liminal space between their professional development and their intentions to marry and have children. They believed their twenties was a time for self-exploration rather than commitment. Below, two women describe and reflect upon their twenties in a way that was typical of the participants' experiences:

> My college boyfriend and I ended up going in separate directions for our careers, which was what I was told, at the time, I was supposed to do. It was like, "You don't marry the person you dated in college. That's silly. You go to graduate school." I went to law school. So, then relationships weren't something I thought about much. It was like, "Obviously, I'll just meet someone eventually, and then we'll have kids. That's what you do." And then the person that I dated after that, I dated for many years, for six years. We were going to have kids—that was assumed; it was talked about—but I wanted to finish my graduate work first. So I put my career ahead of those plans. And I think in many ways, that undermined the relationship and is, in part, why it didn't make it. Because he wanted kids, and I was like, "Just wait. Hang on a few years." So

> that was like—that kind of just sucked up and wasted most of my twenties and early thirties. -Priya (40 years).

> Part of me feels like I should have focused more on connection these past 10 years and a little less on career and performance and these things that I thought were successes. It's like, maybe I focused too much on the wrong things, and now this is where I am. All my friends are married and having children, and I'm here sticking myself with needles. This really isn't where I thought I would be at this point in my life. -Samantha (34 years)

Like Priya and Samantha, many women I spoke with did not expect to be single at their age, having assumed that they would be married by that point. Many felt they had lost a crucial window of opportunity to establish long-term committed relationships by focusing on a career through their twenties. The women typically described their twenties positively, having fulfilling, long-term relationships with men who also shared their desire to have children. As highly educated, middle- and upper-middle-class women, the participants had received clear directives regarding the value of putting relationships on the backburner to pursue educational attainment and professional success. Upon reaching an age that feels suitable for marriage, typically after establishing themselves professionally, the women reassess their commitments to professional development as "lost" or "wasted time" that may have more wisely been spent focused on coupling. In their thirties and as they approach their forties, their personal and professional achievements become the scapegoat for their single status, undermining their ability to achieve romantic success.

Participants would confront and attempt to resist the marginalization of single women they experience by freezing eggs. The women maintained that egg freezing is beneficial because it helps unpartnered women attenuate the stigma they feel as single women by extending the process of dating and increasing the likelihood that they will find a suitable partner. As Natasha, age 30, shared with me, "[EF] is almost exclusively—this is single women who don't have a partner and want one and want to give themselves some more time for it. Like there's a whole bunch of stigma around that—around being a single woman."

Despite their many accomplishments in their personal, educational, and professional pursuits, the participants feel inadequate as women because they are saddled with a stigma associated with singlehood:

> I have just been relentlessly judged for not being married, for any relationship that has not worked out for me. People in my family have made indications that it was my fault... They're coming from a perspective of, "If you're 39, and you're not married, and you don't have kids, you did something wrong. -Gillian (39 years)

> Being at my age and never married with kids is a no-no. Of course, people are going to think something's wrong with you. Being single, I just feel like people just think, "What's wrong with you?" So, I have to battle that. Because in society, it looks better to have a couple of kids and be divorced than to be single. Because then it looks like you've at least been there, done that, as opposed to holding out for it and never getting it… It's like, "Okay. At least she got married." -Wendy (42 years)

Gillian and Wendy shed light on the ways women feel judged for being single, and at times internalize a sense of personal failure associated with being unpartnered—as though single

women have failed to marry due to a personal flaw or character defect. This sense of failure was so powerful that it led women like Wendy to believe that the stigma of singlehood far exceeds the stigma associated with divorce. Therefore, some women feel the expectation that women marry is so strong that it is better at least to have "been there, done that."

Although the women saw egg freezing as a meaningful way to enact reproductive responsibility in hopes of enhancing their future romantic prospects (Carroll and Kroløkke 2018), they also reflected upon their decision to freeze as a potential point of shame. Vivian, age 37, explained that her decision to freeze exemplified "that embarrassment or ridicule of like, 'You're still single. You're still looking. You're desperate.'" Beth, 40 years, stated: "By freezing, I was a little bit of a social outcast. It was like I was saying I failed. Like, 'Oh, you couldn't get married at the right age and have a baby.'" Women longed for partnership eventually, but they felt the effort they were putting forth to realize a relationship through freezing eggs invoked stereotypes of themselves as incomplete and desperate women. In this way, some women felt a sense of humiliation in their decision to freeze eggs, believing the decision reflected personal failure and "desperation" for a relationship. These women were much less likely than other participants to have shared their experiences with friends, family members, or on their social media.

Women explained that even their medical care opened them up to the ridicule and embarrassment of being single and pursuing fertility preservation. The experience of freezing eggs with their fertility clinics often exacerbated romantic insecurities and heightened their self-consciousness about being single. For example, three women described what they felt was the most challenging aspect of the egg freezing process for them as follows:

> Once you go to do [EF], it's difficult because, when you're there, you're filling out forms, and you're by yourself. You kind of wish you had a partner to go through it with. And then doing all the shots... Those thoughts go through your mind, like, "Why didn't it work out with the last boyfriend?" Or even the receptionist at the clinic will joke, "You should have taken your last boyfriend's sperm." -Ruthie (38 years)

> That feeling of being in a fertility center when you're the only single woman, not holding someone's hand, not having any support system, and you're sitting there, and you're watching all these couples, and you're just like—What the heck? What is my life right now? There's a whole other missing support system for that single woman. -Camila (41 years)

> I remember sitting at my fertility clinic, and all the paperwork talked about your partner, and I'm sitting there with tears rolling down my face, ugly crying because I'm like, "I don't have a partner." Here I am, a single woman trying to do this really hard, scary thing that I never thought I'd have to do. -Daisy (37 years)

It is notable that participants frequently recounted the emotional toll of this procedure more than the physical symptoms they endured, suffering that centered on their status as single women. The care these women received at their fertility clinics reinforced a double standard between single and partnered women that increased the humiliation some women felt about freezing eggs. In contrast to marketing messages proclaiming single women's empowerment through the procedure, these women found several aspects of the egg freezing process, such

as sharing waiting rooms with couples undergoing fertility treatments, exacerbated a sense of isolation and distress about their relationship circumstances.

Women who did not feel that the decision to freeze eggs was personally stigmatizing still suggested to me that there is a societal stigma attached to egg freezing. Amira, age 34, reflected on what she perceives as a double standard between society's views of egg freezing versus embryo freezing:

> Egg freezing especially, I feel like society does this judging where it's like, 'You're probably freezing your eggs because your clock is ticking, you're getting old, you're single, and it's like you're this spinster. There's this judgment of single women who are freezing their eggs, like, "Why are you still single?" And I think that's a societal thing because, as a society, we put pressure on this timeline for women. You get engaged, you get married, you have kids. And if you don't adhere to that timeline, it's unheard of. So, I think we judge with eggs a lot more.

Although Amira has not internalized the negative perceptions of egg freezers she articulates, she believes society is more critical of egg freezers than embryo freezers because egg freezing is more strongly associated with single women's failure to achieve marriage and motherhood. By contrast, embryo freezers are believed to have succeeded in partnering with the person with whom they will have children. Just as egg freezing requires an understanding of the female body as being in the process of aging and decreased functioning, the women's accounts suggest that it also requires an understanding of themselves as nearing an impending expiration date when they will be rendered "old spinsters."

Cultural expectations that women's entire lives be focused on heterosexual marriage and the fulfillment of motherhood led many women I spoke with to express fears of

becoming "spinsters." Before the advent of reproductive technologies, the women's deferral of marriage and reproduction into their late thirties and early forties may indeed have rendered them spinsters. The single women I spoke with embraced egg freezing as a way to rescue themselves from the threat of spinsterhood, suggesting that this trope continues to powerfully resonate in American culture despite the social gains afforded by the women's movement (Coontz 2006; Berend 2000). Spinster reflects continuing social fears about women who are not romantically, sexually, and emotionally linked to men, perhaps because their social gains threaten expectations of women's dependence or commitment to marriage and family. Like the "old maid," spinster is a form of social backlash embedded in ageist, sexist, and heteronormative assumptions that instills fear and compliance with traditional ideas about women's appropriate conduct (Lahad 2017).

Gender, Age, and Exclusion in the Pursuit of a Partner

The women overwhelmingly explained that they had not yet found a suitable partner because they were experiencing problems in their pursuit of a relationship. Below, I detail these obstacles, such as a refusal to settle, a "thin" market for men seeking long-term commitment, exclusion of older women by men in the marriage market, and dating scripts that give men power over defining relationships.

As the pressure to marry and have families increases at the turn of their twenties and into their thirties, and as the fertility decline of their mid to late thirties looms, the women feel compelled to settle down as soon as possible, but they were adamant in their refusal to "settle" for a less than ideal match. Below, Marilisa, age 41, showcases how the women's refusal to settle was a great source of stress leading them to consider egg freezing:

> I just don't want to settle. After [EF], I've kind of been looking back on my life and thinking, "How did I get here?" type stuff… You think, "Oh, god. Are you supposed to settle?" You hold onto not settling, but you can't help but feel like, "Are you supposed to settle just for kids?" It made me think, "Ugh. Is that what you're supposed to do?" [Settling] is so not me. But I mean, those thoughts cross your mind because you see so many women—I can name a lot of my friends who either didn't get married and have a kid now or who are divorced already and have a kid. And then you think, "Oh, is that what people do these days? Just get it done before it's too late and then divorce? I've been holding on for the real deal, but I don't even know if it exists anymore.

Marilisa's internal conflict stems from a struggle between what she wants, to delay marriage and children until she has found a life-long partner, and what she feels she must do, "get it done" before it is "too late" for her to have children. Like most of the women I spoke with, Marilisa finds settling for the sake of having children intolerable, and she demonstrates the value of holding high standards for relationships, but she feels unsupported by a culture that insists she compromise on her ideals for the sake of partnering. Even Marilisa, who takes a firm stance against settling, succumbs to a moment of self-doubt and self-criticism about her choices. Women's failure to successfully partner is often blamed on women, and urban, highly educated, and economically self-sufficient single women, in particular, are often criticized for being "too selective" or "too picky" in their search for a mate (Lahad 2013). Similarly, the women I spoke with hoped not to settle, but they would question the extent to which they should feel entitled to be selective about who they should marry at all.

Participants hoped to date and eventually be in relationships with partners similar in age to them but were disappointed by what felt like a short supply of candidates. For

example, women in their thirties and forties reported a myriad of unexpected challenges and disappointments in dating that made it difficult for them to find partners who were similar in age to them:

> I just kind of had a lot of really disappointing relationship experiences in my thirties, I think in part because I was older. I had gotten older. And so, the people who really wanted kids were probably already doing that, and therefore filtering out that type of person on the dating apps. The people in my age group either didn't want kids, were unsure, or were still grappling with childhood trauma or whatever they were dealing with. And I ended up in just some weird relationships that did not resonate with my experience in my early twenties. -Ruby (40 years)

By their thirties, women find it difficult to date men who similarly have prioritized their personal and professional development through their twenties and are ready to settle down in their thirties. Instead, they find that the supply of men available to date who are of a similar age either do not share their hopes of getting married and having children or were being "filtered out" because they had already settled down.

Moreover, women frequently complained that men similar in age who were available to date were unwilling to make commitments such as marriage and children. Alicia, 39 years, described a recent date as follows:

> One guy I talked to recently, he was like, "Just so you know, I'm divorced. I have kids. I don't see them that much. I absolutely do not want any more kids. And I don't even think I want to be married again. I would like a life partner." That was our first conversation. So that was him being like, "You need to fit into my box, or we're done." And I've encountered that a lot of times with men who are my age or a little older.

> They have their career established. They have their lifestyle. They've been there, done that. They're looking for somebody to plug into what they want to fit into their picture frame, or they're moving on.

When I asked Alicia how she would prefer conversations about expectations for marriage and children in dating to proceed, she responded:

> I would like to have an open-minded conversation with somebody, at least. And if we get to the point where we agree that [marriage and children] are not for us, that's fine, but we've at least gotten to know each other, and it's not on the first date. I think it's almost like, you want to make the decision together instead of someone directing me and telling me what to do.

Alicia's story reflects what I repeatedly heard as women described their dating experiences. Women in their thirties or forties who have not yet married and had children feel excluded from the dating market by men who do not want the same kind of commitment. This problem stems from a dating context in which men dictate the terms of dating and relationships, and they exercise power to "choose" the appropriate person for them who they can best "plug into" their terms for a relationship. Women described the dating process as a process of being "picked;" as one woman put it, she "has" to freeze her eggs because she hasn't been "chosen." What is notable about Alicia's account is that she was one of the very few women I spoke with who was open to the possibility of dating someone long-term who did not want to have children if she felt they were a good match. Even she felt frustrated with the sense that men were excluding her from the possibility of a relationship based on presumed expectations of commitment they were unwilling to make.

The criteria for exclusion from dating also stemmed from a dating and marriage market geared to men's preferences for younger women. Participants frequently alluded to older men's advantage in the dating market, who not only dictate the terms of relationships but evaluate women according to their age and exclude women over the age of 30.

> From what I experience, they [men] all seem to think that they can just have girls 20 years younger at all times. You know what I mean? Even if they're 60, I feel like they think that. -Robin (38 years)

> It seems like all the thirty- and forty-something men are dating twenty-five-year-olds… It's like when you get older, your male peers are not going to be dating someone your age. -Caroline (31 years)

Participants of a wide range of ages were attempting to navigate an age-stratified dating market that explicitly excludes older women, which they typically defined as being over the age of either 30 or 35. One participant explained men's exclusion of women over 30 on dating apps as follows:

> As I got into my mid-upper thirties, there was a point at which you could see what guys' desired age range was. They would indicate what they were looking for. I just started noticing that the guys that said they wanted kids were more likely to select lower age ranges. So, they were thinking, "I do want kids, and I can't deal with someone who's 38. She's too old for that." And so, they would exclude me from their searches because they were looking for women who wanted kids and wanted younger eggs, maybe. I don't know. I don't know if it was younger eggs. Maybe it was wanting the time to be able to let the relationship develop before having to make that decision

> about children, which I totally understand. Maybe it was their fear of kind of wasting the time of someone who had so little time left… It could be any of those things. But yeah. That was something I noticed about—just kind of something I didn't anticipate happening that maybe would have factored into my decision to find the money to freeze my eggs sooner. -Gillian (39 years)

Dating apps provide a valve for eliminating and excluding women above an explicit age threshold from searches. Gillian rationalizes that because older women have older eggs and therefore less time than younger women for a relationship to develop organically, it is understandable that men would exclude them. Through the presumed loss of youth, beauty, sexual desirability, and reproductive viability rooted in sexist and ageist ideologies implying that women's market value declines with age, women feel disqualified as sexual subjects. As a result, interviewees believed they had low "odds" in the dating pool. Specifically, several women offered me various statistics about gender ratios among college-educated people in their city, their marriage patterns, and its implications for women single into their thirties.

The sense of exclusion women described in a dating market they see as tilted towards men's preferences for women under 30 was overwhelming. Yet, they remained hopeful for a relationship and persisted in their search for a partner. When I asked participants how they navigate the gender and age dynamics of dating, they articulated a bind. They feel their age necessitates early conversations about their reproductive intentions to avoid "wasting" any more time to have a family. Two women provide similar accounts suggesting the importance of aligning reproductive goals with partners:

> I don't want to waste my time on someone who is a hard "No. I don't want any more children." I respect that. So, I wouldn't give you my energy and then start to have feelings for somebody who doesn't want this when I do. -Shailene (31 years)

> I had conversations with my last boyfriend from very early on. I'm like, "I really want to be a mom. I'm not going to date you and waste my time." And he was like, "Okay, this looks like a heavy conversation…" Because I was like, "Yo, you want to be a dad? Because if you don't want to be a dad, I'm not going to spend my time with you!" - Daisy (37 years)

While the women feel compelled to stop "wasting time" by aligning their reproductive goals with a potential partner, they also believe that early discussions with dates about fertility are off-limits and that they should delay conversations about family building as long as possible. As one woman suggested to me, "you don't want to be too aggressive about it." Another woman explained that she had been unsuccessful with dating before freezing her eggs because she was "radiating fear" by talking about her desire for having children with potential mates. Another interviewee elaborates more fully on this theme as follows:

> I think the cloud of fertility over my head started really affecting my decision-making in relationships when I was in my mid-thirties because I started getting this kind of nervousness about it. I recall literally turning away really good, nice guys in my mid-thirties because they said they didn't want kids or because they said they weren't sure, many of whom now have children, by the way. So, I think I was trying to push this agenda and be direct to not waste time, but I think I ended up driving away some

> people who would have gotten there with me, but it was such an aggressive approach on my part that it scared them off. -Linda (39 years)

The women I spoke with express a great deal of fear about whether they will be able to get what they want, as well as worries about coming across as "aggressive" by rushing men into a time-sensitive decision about commitment. They engage in a great deal of emotional labor to downplay their fear in front of dates, believing that the aggressiveness of a fear-based dating approach will "scare men off." As a result, women feel an immense lack of control over their desire for a committed partnership and marriage. In the next section, I show how the women came to view egg freezing as a useful strategy for managing these anxieties and getting what they want.

Egg Freezing and the Establishment of Romantic Security

Sensing that the odds of partnering are stacked against them, women draw on egg freezing to establish romantic security. As I will discuss, women experience romantic security through egg freezing in a few ways. These include the ability to "relax" and take pressure off their pursuit of relationships, enhance their attractiveness to potential mates by decreasing their "desperation" for a mate, accentuate their maternal identities, and become more selective about potential mates.

Participants view egg freezing as transformative principally by helping them *relax* and help take the pressure off the pursuit of a relationship. Participants who froze their eggs describe a deep sense of relief they feel for having gone through the procedure. When I asked Astrid, age 34, how egg freezing changed her, she explained its powerful emotional benefits as follows:

> The greatest benefit I found when I froze my eggs was, it took the pressure off of me from husband-hunting. When I did my egg freezing, I was like, Okay. I have time. I've got time. It reverses a little bit of that pressure that you start feeling in your early thirties.

Astrid feels more secure about her ability to find a partner because she froze eggs. By extending time to date, women sense they have taken the pressure off their search for a mate, increasing the likelihood of a future partner and, by extension, the possibility of motherhood and family. Olivia, age 35, similarly shared with me:

> This is giving me a little bit of breathing room to be like, "Hey, it's still okay. Don't rush to find a partner, even if you are gonna like, use your eggs and have a baby on your own, that's still okay." As women, I really want us to feel that—feel like we're normal, even if our "normal" doesn't look like a good majority of what it traditionally has looked like.

Not only does Olivia feel secure that she can now relax in her pursuit of a partner because she froze her eggs, but the technology also helps her feel more confident in her decision to delay motherhood. The younger in age women engage with egg freezing, the longer they imagine these benefits extend into their lives. Logan, age 32, explained that she was able to "relax" in the process of dating throughout her twenties because, from an early age, she planned to "gift" herself egg freezing for her thirtieth birthday.

The ability to relax was particularly advantageous in the marriage market because it helped participants reshape themselves as potential mates by *decreasing their desperation* about finding a partner. The women I spoke with subscribed to the belief that desperation is among the worst qualities a woman could convey in dating. However, in the following three

accounts, participants present themselves in a more favorable light after egg freezing as women who no longer feel afraid or desperate:

> It definitely took a big weight off my shoulders. I feel like I have more time and I don't feel like really itching to find someone. I know other girls my age, and I can tell… They're just so desperate to get married and have kids. -Danielle (35 years)

> I don't feel this pressure to find someone. That's not my top priority. Whereas I feel like my friends this age, that is their top priority. Their jobs definitely come second. They're no longer chasing a career; they're chasing a man. It's funny how that works because now it's the opposite for me. I'm in no rush. They're like, "How do you get all these guys?" I'm like, "It's because they could smell how desperate you are." -Amanda (32 years)

> If you were to line us [women] up, I would think I'm the most attractive in the bunch because I'm not thinking I need to get pregnant tomorrow. I'm not looking at my clock and being like, "let's get married and do this." I have a safety net. -Destiny (29 years)

In these accounts, the women disassociate themselves from other women who embody desperation, contrasting their newfound independence from dating with their peers who are currently seeking relationships. By repeatedly emphasizing the "desperation" of these other women, particularly those panic-stricken over their ticking biological clocks, women who froze their eggs assert a virtuous feminine identity as rational, independent, and empowered women unencumbered by a biological clock. Thus, egg freezing felt like a badge of honor and a personal asset that increases their value in the marriage market. By having a "safety net"

through egg freezing, participants feel better equipped to navigate the gender and age dynamics inherent in dating by redefining themselves as more independent and casual in their dating approach.

Through egg freezing, women construct a gendered identity as independent and relaxed women that garners men's approval. Sofia (33 years) provides one account of the way women utilize egg freezing to assume a gender identity they believe will appeal to men:

> When you see women hit 30, they are *so* consumed with finding a man and settling down to have kids. It's all they can think about, and it's because this internal clock is just driving them insane. For me, I didn't have that because I froze my eggs... which made a lot of my guy friends or guys I'd date always say, "You're not a crazy girl!" Like it made me become more like a "guys" girl. They're like, "We can *talk* to you, you get it." Yeah, so I think that's something that people don't think about. Instead of being clingy and it's always on your mind, like, when is he going to ask me out? Or when am I going to meet somebody? Or why isn't that guy looking at me? *Relax.*

Sofia finds men's approval both essential and rewarding, and she more explicitly links the virtue of relaxing in dating to what men value. Egg freezing is thus a gender strategy for gaining men's approval by becoming more like a "guy's" girl. In this sense, egg freezing solves the "problem" of desperation in women by helping them adopt a dating style that reflects men's desires for relaxed women who won't rush them into a commitment. However, this strategy ultimately requires the women to conceal their true desires to find a long-term partner with whom to have children.

The perceived value of subordinating conversations about fertility and motherhood in dating also reflects the broader cultural devaluation of women and motherhood in society.

By removing reproduction from the dating equation, egg freezing helps women in their thirties and forties sidestep cultural stereotypes of them as “desperate,” “clingy,” “crazy,” and “baby-crazy.” Although egg freezing helps women appear less threatening to men, this approach also comes at a cost; catering to men's preferences for behavior in dating plays into the gender imbalance that makes this gender strategy feel necessary.

While egg freezing helped women assume a new identity as relaxed women by extending their reproductive timelines, it also enabled them to assume an identity as a potential mother they thought would appeal to dates. For example, one participant noted that a recent date suggested that she was “over the hump.” When I asked how she responded to this, she expressed that because she had frozen her eggs, she was able to say: "Not really. Women can always carry [pregnancies]. I have my eggs.” In another example, Gwen (37 years) shared a story with me about a recent date who disapproved of her decision to share her egg freezing experience on her social media by suggesting that she should keep it to herself. Although Gwen was defensive about her decision to freeze eggs and document it on Instagram, she also validated his fears by reassuring him as follows:

> You're intimidated by it. This makes you intimidated, thinking like I'm doing this, which means I want a baby right away. It actually does not. It means I want a baby *in the future,* and I want to ensure that I have a baby *in the future*… It means I would like the option to have a kid one day and that when that time comes, I’ll be able to.

Even women who did not feel dates were critical of egg freezing emphasized the benefit of their decision to freeze similarly:

> When men hear that I have frozen my eggs, I think that that gives them a sense of real relief that, "Okay. I know she wants kids. I know she will be able to have kids. But it

> doesn't have to happen today or tomorrow. And we can just enjoy getting to know each other, instead of this rat race of, 'We've got to get pregnant.'" I think guys think it's cool. -Vivian (37 years)

Egg freezing does more than extend women's timelines for dating; egg freezing works simultaneously to secure the women's potential selves as future mothers and realize their present selves as relaxed women. In this light, reproductive viability and women's potential for motherhood are essential aspects of what makes single women desirable in the dating market. Therefore, discussions about egg freezing during dates were a way for women I spoke with to accentuate their maternal identities while easing men's fears about a rushed timeline. In this way, the women hoped men would view egg freezing as a savvy personal investment.

While the women engaged with egg freezing to construct a gender identity catered to men's dating and relationship preferences, there were a few exceptions to this finding. Twelve women I spoke with described the benefits of egg freezing in ways that empowered them to become more active, rather than passive, in their dating approach. For these women, egg freezing helped them become more selective, and in the process, to better honor their personal preferences and desires for a relationship.

> I don't need to rush into marrying some jerk just because I'm desperate to get married and have kids. Now, I can actually find my husband, the person that I'm supposed to be with, and not be pressured into anything less than what I deserve. -Astrid (34 years)

Even though Astrid contrasts herself to insufferably "desperate" women to establish her increased independence, egg freezing helped her better honor her preferences for a partner

and raise her standards for getting into a relationship. Two more women reflect on the transformation in their dating approach as follows:

> [EF] changed the way that I date. Before, I was very like—there was always a little bit of desperation in my dating practices. I would go on dates thinking this guy could be the one. Like this could be my future husband. And now I go on a date, and I'm like, "How will this guy impress me?" I'm like, "He's got to prove to me that he's right." But before, I would like, spend hours trying to look great. I would be like, "I have to convince him that I can be his future wife." Now it's okay when I go on that date, and I'm not compatible with him, which I know faster than I used to because of this whole experience. Instead of being like really disappointed afterward, I come home. I put on a movie. I get into my pajamas. And I feel good about myself. -Camila (41 years)

> At my age, I have to be very upfront about where I am at in my life and what I want. And I used to shy away from that. But I think egg freezing is helping me find a partner who's in the same place as me and wants what I want. I feel like I've shifted in my perspective on dating from being like, "I need to make him like me! Am I right for you?" to instead thinking to myself, "Are *you* right for *me?"* -Gloria (37 years)

Through the experience of freezing eggs, these women have become more equal participants in dating. Egg freezing helped transform the process of dating from one in which they hope to be "chosen" by men to one in which they feel they are in a place of decision-making power to assess and "choose" the right partner for themselves. They restructure their dating approach to focus less on men's desires and standards and more on mutual compatibility. By more authentically evaluating dates according to their desire to find a partner who shares

their hopes for commitment and expectations about the timeline for having families, they are empowered to rewrite dating scripts where men retain control over dating and relationship progression.

Discussion

This chapter contributes new insights into why single women pursue egg freezing and how they benefit from the decision. First, I show that egg freezing provides powerful emotional benefits to help women cope with societal stigmas associated with being an unmarried woman without children in her thirties and forties. Egg freezing provides a powerful sense of control over romantic fates that feel deeply uncertain—a corrective to the women's failure to couple in their twenties and thirties. Second, I establish that egg freezing is a gender strategy, allowing single women to "relax" in their pursuit of a suitable partner, decrease their "desperation" for a partner, and display their maternal identities, thereby enhancing their attractiveness and endowing them with a perceived advantage in the marriage market. Women were resourceful, deploying these strategies according to person and context. Women were selective with whom they shared their decision to do egg freezing. When they did decide to disclose that experience, they used egg freezing strategically to overcome the problems they were experiencing in dating.

Although women perceive egg freezing as helping them maneuver around gender inequalities in dating and societal stigmas attached to singlehood, these benefits come at a cost. Egg freezing falls short of making feminist progress as women use it to ultimately tend to men's feelings and entitlements and earn approval according to what men value. For example, in dating contexts, the women may earn approval by accentuating their maternal identities, but also potential condemnation and devaluation by coming across as too

"aggressive" or "baby-crazy" in their hopes to become mothers. Thus, egg freezing perpetuates double standards in which women must realize the cultural expectation of motherhood (Russo 1976) but without "threatening" men through expectations of commitment. Egg freezing provides some reassurance that women will be able to realize their deepest desires for marriage and motherhood, but only by subordinating or concealing those priorities in their dating experiences to get there.

Finally, egg freezing adheres well to a culture that narrows women's possibilities to marriage and motherhood. Although the women would imply that egg freezing contributes to their sense of independence by decreasing their desperation for a relationship, participants ultimately used egg freezing to prioritize relationships and uphold marriage's symbolic significance in their lives. Through egg freezing, unpartnered women mitigate the risk of becoming tragic "spinsters" by temporarily extending the dating process to find a suitable partner. In this way, unpartnered participants draw on egg freezing to honor marriage and traditional family life and establish the ultimate stability and security in their lives through relationships and the pursuit of marriage.

The next chapter continues to consider how romantic pressures factor in women's engagement with egg freezing but focuses on professional women working in cities and industries where egg freezing is increasingly being offered as an employee benefit. I will examine how professional timelines and normative expectations of work commitment further exacerbate women's anxieties around romantic partnering and limit their ability to pursue and invest in long-term partnerships, leading them to pursue egg freezing.

CHAPTER SIX: SYNCHRONIZING THE BIOLOGICAL CLOCK: MANAGING PROFESSIONAL AND ROMANTIC RISK THROUGH COMPANY-SPONSORED EGG FREEZING

In 2014, high-profile corporations in the finance and technology industries announced that they would provide insurance coverage for elective egg freezing (Bennett 2014). At the time, the media celebrated the inclusion of this technology into company-sponsored health plans for empowering professional women to "have it all" by postponing motherhood in favor of their professional pursuits (e.g., Rosenblum 2014).

Women's increased participation in the workforce, combined with expectations of delayed fertility (Mathews and Hamilton 2016), and compounded by a lack of governmental policies to support women and families in the United States (Gerstel and McGonagle 1999), create irreconcilable time pressures between career advancement and family formation—a tension that company-sponsored egg freezing (CSEF) is perceived as having the potential to address. Women represented the majority of the college-educated workforce in 2019 (Butchireddygari 2019), but they remain outnumbered by men in large, competitive companies at the forefront of offering egg freezing as an employee benefit (Datta 2017; Grant 2016). These companies represent fields and industries, particularly technology and finance, which are notoriously male-oriented and promote a gendered ideology of work that demands nearly unlimited work hours, emotional energy, and physical stamina (Cooper 2000). Through CSEF, these employers aim to attract and retain women and enhance employee loyalty (Datta 2017; Geisser 2018).

Social scientists, feminist and legal scholars, bioethicists, and others have voiced concerns regarding the implications of egg freezing as a workplace benefit for reproductive

autonomy and gender equality in the workplace. These scholars overwhelmingly consider CSEF to be a shortsighted response to gender inequality that perpetuates unfair assumptions about women's commitment to work based on their status as mothers (Baylis 2015; Bricknell 2014; Datta 2017; Geisser 2018; Grant 2016). CSEF may "disempower" women by placing sole responsibility on women to make the difficult choice between family and career (Baylis 2015). In the absence of structural support systems of the type that might facilitate women to combine children and careers, such as paid parental leave and childcare, CSEF merely "defers the pressures of today to tomorrow" (Almeling, Radin, and Richardson 2014). CSEF may furthermore imply that, in order to convey their work commitment, women should delay childbearing and freeze their eggs to avoid a perceived "maternity risk" (Bricknell 2016; Mertes 2015).

Research investigating the consequences of offering CSEF remains limited, and to my knowledge, there have been no studies examining professional women's perceptions, intentions, and experiences with CSEF. In this chapter, I draw on 40 interviews with child-free, professional women of reproductive age who work in cities and industries where egg freezing is increasingly being offered as an employee benefit to investigate how work and career concerns shape professional women's engagement with elective egg freezing.

This chapter extends the existing scholarship on women's motivations for pursuing egg freezing by bringing into focus the perspectives of professional women who are explicitly targeted for the consumption of egg freezing through company-sponsored health plans. Counter to previous findings and discussions in the literature on women's motivations for egg freezing that downplay the significance of career, I find that women's reproductive trajectories and engagement with egg freezing are profoundly shaped by their intentions to

form families within professional work environments. Women do not necessarily undertake egg freezing in order to postpone motherhood so that they may achieve more in their careers. Instead, I find that professional women are embedded in a professional landscape where persistent discriminatory attitudes and practices against mothers incentivize their delayed childbearing. Professional women feel it is necessary to convey their work commitment and establish career security before having children in order to avoid career penalties. Furthermore, work and career pressures limit professional women's ability to invest in and make time for long-term partnerships, which they view as necessary prior to motherhood. In this context, the women I interviewed are optimistic about fertility preservation as an additional measure they can take to safeguard their future options. CSEF thus suggests a potential reconciliation of future motherhood and professional work by adjusting women's reproductive timelines to "perfect" the timing of reproduction to synchronize with career trajectory.

Risk and Elective Egg Freezing

A growing literature examining women's assessments, motivations, and intentions for elective egg freezing has detailed the myriad ways women draw upon a discourse of risk as they engage with the technology. Temporal risks feature prominently in women's accounts as they describe egg freezing as a way to cope with unknown and uncertain futures (Romain 2012). Women struggle to reconcile multiple temporalities they experience between the timelines of their "biological clocks," romantic partnerships, the pursuit of higher education, and career (Martin 2017; Waldby 2015). By "anticipating infertility" (Martin 2010), egg freezing manages embodied risks related to the timeline of declining fertility with advancing age and the potential failure to reproduce without assisted

reproductive technology (Baldwin et al. 2019; Myers 2017). In this vein, Brown and Patrick (2018) illuminate the way women use egg freezing to successfully "disentangle" the timeline of having children and the timeline of establishing romantic partnerships such that they could pursue the latter free from pressure imposed by their ticking biological clocks.

One of the most prominent narratives in this scholarship contends that the most significant driving factor motivating women's engagement with egg freezing is single women's desire to give themselves more time to achieve traditional, heterosexual relationships before having children (Baldwin et al. 2019; Brown and Patrick 2018; Carroll and Kroløkke 2017; Inhorn et al. 2018; Pritchard et al. 2017). Women desire egalitarian partnerships with men who will be engaged fathers, and they do not want to compromise on their preferences by "settling" for a less than an ideal match (Baldwin et al. 2019; Inhorn et al. 2018). Through egg freezing, women skirt pressures to "date down" (Inhorn et al. 2018) or engage in "panic partnering" (Baldwin et al. 2019); this is argued to be particularly important for highly educated women living in large cities in which there is a "deficit" of equally educated men (Inhorn et al. 2018; Inhorn 2017). Women who find themselves in a relationship with a partner who is either not ready or does not share their desire to have children someday also stand to benefit from egg freezing. These women use egg freezing in the interim as a way to safeguard the possibility of future motherhood (Inhorn et al. 2018; Pritchard et al. 2017).

In highlighting the importance of relationships, this literature has typically aimed to debunk the popular notion that women are utilizing egg freezing to deliberately postpone motherhood in favor of professional achievement, concluding that career is not a significant factor driving women's engagement. This scholarship offers an incomplete assessment of

how work and career pressures shape women's perceptions and experiences with the technology because it has not specifically examined the types of professional women who are the target of CSEF. While professional women appear in earlier studies of egg freezing, these studies do not explicitly include career status as criteria for inclusion, and therefore they draw from a cross-section of women. By focusing on professional women within their work contexts, this chapter presents findings suggesting that work and career concerns compel professional women to engage in egg freezing as a form of strategic reproductive maneuvering, particularly during what they consider to be critical stages in their professional development. The professional women profiled in this chapter did not emphasize egg freezing primarily as a tool for managing risks of older motherhood, nor for realizing intensive mothering ideologies (e.g., Baldwin 2017; Myers 2017), but rather as a necessary strategy by which they manipulate the timing of reproduction to avoid professional risks associated with motherhood. In this light, their delayed childbearing and engagement with egg freezing does not reflect a strong personal preference to postpone motherhood, nor does it reflect a personal desire to advance their careers at the expense of forming families. Instead, their postponement of motherhood stems from a social context in which women's choices about the ideal timing for childbearing are constrained by cultural, relational, and structural factors (Baldwin 2018; Budds et al. 2013; Cooke, Mills, and Lavender 2012; Cooke, Mills, and Lavender 2010; Koert and Daniluk 2017).

Finally, this chapter contributes to understandings of egg freezing as a tool for reconciling social and biological forms of time. Consistent with previous research, unpartnered women in this study wish to give themselves more time to establish relationships before having children through egg freezing (Brown and Patrick 2018).

However, earlier studies highlighting this concern have not focused on professional women within their work contexts specifically. While these scholars acknowledge that "participants' careers might have indirectly hampered their romantic relationships" (Brown and Patrick 2018:979), and while others have considered how career affects relationships among women in the military or Foreign Service who are serving long-term deployments overseas (Inhorn et al. 2018), this scholarship does not attend to the sacrifices professional-class women make in their relationships due to work and career pressures. I extend the literature by showing that professional timelines and normative expectations of work commitment are important factors exacerbating women's anxieties around romantic partnering and limiting their ability to pursue and invest in long-term partnerships.

Risk and Work-Family Conflict

The scholarship on work-family conflict examines how women, within structural constraints, must assess opportunities and weigh risks concerning how to reconcile normative ideologies about work and motherhood (Blair-Loy 2003; Damaske 2011; Gerson 1985, 2010; Stone 2007). Normative understandings of the "ideal worker" presume that workers either have no family and childcare responsibilities or assume the presence of a partner or paid worker in the home to take care of domestic and childcare duties (Williams 2000). In professional work environments, women must display a commitment to their employers through complete devotion (Blair-Loy 2003), yet they confront double standards and may suffer career repercussions due to cultural beliefs about motherhood (Correll, Benard, and Paik 2007). Cultural beliefs about motherhood have material consequences; mothers in high-commitment and high-status jobs are more likely to be rated less competent and committed to paid work than non-mothers, regardless of qualifications and background

experiences, while fathers do not experience comparable discrimination in hiring and salary decisions (Correll, Benard and Paik 2007). Moreover, the timing of motherhood can be especially risky. For example, studies have found that college-educated, professional women are rewarded in their earnings, wages, and work hours for each year they delay reproduction (Miller 2011).

At home, working mothers continue to experience a gendered time crunch due to the persistence of their unpaid "second shift" of housework and childcare (Hochschild and Machung 2003). In addition, they contend with a cultural construction of motherhood that is ever more demanding of women's emotions, resources, and time (Hays 1996; Lareau 2003; Nelson 2010). Women are expected to be "perfect mothers" (Warner 2005) and are held responsible for producing "perfect babies" (Landsman 2009), pressures that extend even to women's pre-maternal bodies and selves (Waggoner 2017).

Against this backdrop, working parents in the United States must rely on individual solutions and strategies for arranging their reproductive labor to meet the expectations of work. I extend previous research on egg freezing as a neoliberal technology (Baldwin 2018; Carroll and Kroløkke 2017; Myers 2017) by showing that, through CSEF, professional women's bodies and reproductive timelines become a locus of control and the site upon which women manage the tension between motherhood and work. CSEF accommodates neoliberal citizenship by encouraging risk management through the display of individual responsibility and rationality (Foucault 1991; Rose 1999). In our neoliberal era, the feminist subject is "oriented towards optimizing her resources through incessant calculation, personal initiative and innovation" (Rottenberg 2014:422). Professional women harness egg freezing as a technology of self-investment that transforms and enhances the healthy body,

self, and social life towards desired ends (Adams, Murphy and Clarke 2009; Clarke et al. 2003; Foucault 1988; Rose 1999; Rottenberg 2014). For the women in this study, CSEF offers professional women who contend with work cultures that presume mothers will cease to be "good workers" an opportunity to meet normative notions of work by shifting their reproductive timelines.

Data and Methods

This chapter draws upon 40 in-depth interviews I conducted in 2016 with professional women of reproductive age who work in cities and industries at the forefront of providing insurance coverage for egg freezing technology. Out of 40 women interviewed, 22 participants were eligible for egg freezing benefits at work, while 18 participants were either ineligible or were unaware at the time of the interview whether egg freezing is covered in their healthcare plans. Regardless of their eligibility status, participants shared similar anxieties about how to reconcile professional, romantic, and reproductive timelines. In particular, eligible and non-eligible participants alike were subject to workplace demands that put their biological fertility out of sync with the timeline of their career trajectories, and therefore the interviewees represent the types of professional women more broadly who are being targeted for CSEF as a way to reconcile motherhood and career.

Following grounded theory methods, I relied on theoretical sampling to recruit participants (Charmaz 2014). I recruited through professional networking groups, listservs, and events in the technology and finance industries in the New York, San Francisco, and Washington D.C. metropolitan areas, and through online forums oriented to women thinking about using reproductive technologies. Women were qualified to participate if they worked in a professional capacity; I excluded women who work as support staff (e.g., secretarial,

administrative, or clerical assistants). I narrowed the sample to women who do not already have children, as these women may be more likely to be presently negotiating their future fertility in relation to their careers and be more likely to engage with egg freezing. Moreover, because egg freezing purports to preserve fertility for the future regardless of a woman's present orientation to motherhood, I sought to obtain a diversity of perspectives on motherhood. To this end, recruitment materials underscored that women undecided about motherhood in the future were welcome to participate.

I designed the interview schedule to be flexible in order to explore research questions in light of a participant's particular experience. The interviews were semi-structured conversations focused on women's narratives about changing work and family expectations over time, aspects of their careers and work lives, dating and relationship experiences, and perspectives on or experiences with egg freezing. For many women, fertility and family planning are deeply personal and private views that engage their core values and senses of self-worth. Due to the sensitive nature of the information disclosed during interviews, I strived to establish a sense of trust between the participant and myself by assuring confidentiality. In order to protect the identity of participants in my discussion of findings, I have assigned pseudonyms and redacted any identifying information. My position as a researcher of similar age and gender as participants may have helped create a sense of mutual understanding and shared social worlds that facilitated open and frank discussion of the research topic.

During analysis, I applied the framework provided by Pugh (2013) to examine participants' presentations of self, application of cultural schemas, and emotions. In particular, I focused on contradictory accounts that participants offered me as they

attempted to "present themselves in the most admirable light" (Pugh 2013:50). Examining these points of dissonance illuminated the anxieties and pressures participants feel in their social and cultural contexts that shape, and at times, constrain their actions. In line with grounded theory methods, I performed an iterative process of coding the data, searching for social processes, meanings, and actions. I used sensitizing concepts, paying particular attention to anticipated risks, anxieties, and uncertainties accompanying motherhood in the context of professional careers to organize large amounts of data into broad conceptual categories for theory building (Charmaz 2014).

The average age of participants in the final sample is 31, ranging from ages 26 to 44. While there was some variation with regard to race and ethnicity, participants occupy a relatively privileged status based on their class and sexuality. The women I interviewed were typically raised in two-parent, married households. As professional-class women, they have already achieved extensive levels of education, established careers, and are economically self-sufficient. The racial makeup of the sample is majority white (n=24), followed by Asian (n=9), Latina (n=5), and Black or African American (n=2). Respondents overwhelmingly privilege traditional family arrangements, namely marriage prior to childbearing, and desire heterosexual partnerships. Technology was the dominant industry represented, and the primary occupations sampled were software engineers and a range of middle to upper-level management positions. Work environments were described as male-dominated, competitive, fast-paced, and demanding, requiring long hours and consistent face-time.

The sample included both women who have frozen their eggs and women who have not. Since recruitment materials mentioned that women considering reproductive technologies more broadly were welcome to participate, there was some variation in

whether participants would consider undertaking egg freezing. Out of 40 women interviewed, 10 women had frozen their eggs or were in the process of researching clinics and making preparations to undertake egg freezing in the near future. An additional 16 women were considering egg freezing more preliminarily. The remaining 14 women said they would not consider undertaking egg freezing; two of these women were in the process of undergoing IVF, and one was using donor eggs to conceive at the time of the interview. The vast majority of interviewees desired motherhood; 38 women expressed at least some interest in motherhood. Of these, 29 were deeply invested in their desire to become mothers someday, while nine expressed interest but ambivalence about the possibility. Only two women said that they were not interested in becoming mothers.

Findings

Egg freezing manifests as an attempt to manage risks inherent to participants' intentions to form families and maintain professional careers simultaneously. In the first section, I discuss the participants' fear that motherhood will jeopardize their professional successes. Women are apprehensive that inopportune timing of reproduction may lead to maternity discrimination, which they view as an inherent part of the professional landscape. In the second section, I explain how participants construct women's reproductive timelines, and not their employers, as the culprit of work-family conflict and motherhood penalties. In this context, they view egg freezing favorably as a strategy for avoiding maternity discrimination by shifting women's reproductive timelines to synchronize with career trajectories. In the final section, I elaborate on the process by which a subset of my sample that is unpartnered comes to engage with egg freezing to reconcile conflicting professional, romantic, and reproductive timelines. I show that educational and professional career

trajectories limit the time and level of investment that participants can devote to pursuing long-term partnerships.

Anticipating Maternity Discrimination

Participants in this study were extremely committed to professional achievement, and work was central to their identity. In describing their typical workdays, it was clear that participants reflect Blair-Loy's (2003) "career devoted" women who extract emotional and psychological benefits from work and spend the vast majority of their days in their offices. Thoroughly embedded into their high-pressure work environments, participants have internalized the norm that workers should be entirely devoted to their companies through their near-constant presence and productivity on the job. In imagining how they will negotiate tradeoffs between work and family someday, fears about the potential costs of motherhood to career advancement loomed large for participants. This was true for women who work in a range of industries and work environments, from start-ups in which the future success of the company is uncertain, to more established, large companies with generous work-family benefits. It was clear that participants were invested in their careers and wanted to remain invested after having children. Still, they anticipated penalties associated with their desire to become mothers and were apprehensive that they would be forced to sacrifice either family or career when they have children. For example, Sydney, a 32-year-old sales director for an information technology consulting company, told me:

> Your career takes a hit as soon as you have kids. As soon as women have kids—because in my industry, it's all male-dominated—all of a sudden you have this stigma that you can no longer travel [for work], that you're not going to work as hard, that you're going to have childcare issues or things like that. Your career stops.

In another example, Fiona, age 35, a marketing director at a tech company, described her tactful approach to inquiring about work-family policies during the interview for her current job—a technique that required impression management so as not to raise alarm bells:

> I prefaced the question [about their work-family policies] by saying to them, "this isn't going to happen for a while." I couched it as, if anything, "this tells me about where your values are as a company." That's how I presented it, as opposed to, "Hey, I want to get pregnant right now."

Sylvia, age 44, a CEO of a tech start-up with extensive work experience at some of the top tech companies in the US, was in the process of using donor eggs to conceive at the time of the interview. She engaged in a similar strategy of impression management:

> Right now, I'm going out for outside venture funding, so they cannot find out I'm doing this. I wouldn't fund me if the CEO was right now going through fertility treatment. To literally be like, "Can you give me three million dollars? Oh, and I'm pregnant." No way.

These three accounts point to how motherhood for high-powered professional women can feel like a risky venture with potentially high costs to career advancement. These women frequently implied that their desire for and the possibility of becoming mothers in the future would undercut their legitimacy and authority at work. Even prior to motherhood, they expend a great deal of energy and emotional work conveying to their colleagues, bosses, and potential funders that they are committed to their jobs. In this context, future motherhood requires careful maneuvering, strategizing, and advance scheduling to convincingly convey work devotion in order to avoid potential discrimination. Moreover, as Fiona and Sylvia

suggest, penalties associated with motherhood can occur prior to childbearing, as even potential motherhood may connote a lack of work devotion.

The timing of reproduction was crucial to participants' understanding of how they might become mothers without compromising their careers. As the average age of my sample was 31 at the time of the interview, participants were at a critical time in both their reproductive and working lives. For them, these risks feel even more immediate, as they believe establishing a positive reputation and orchestrating ideal conditions at work is pivotal to determining the "right time" to become a mother. For example, participants in their 20s and early 30s explained how they were managing the timing of reproduction around their careers. Rebecca, age 29, a software engineer and director at a major tech company, described the "ideal" time to have children in a way that was typical of interviewees' responses:

> There is a certain level of seniority I want to reach, and a certain level of stability in my career that I want to reach, and a certain amount of money that I want to make sure I am making, before having a family. I choose to find a point where I'm senior enough that I feel very secure in my role. I know that I can leave the office for a few months and come back, and no one will have taken my job because they can't replace me.

Rebecca belabors a vision of the "perfect" timing for reproduction as the moment that will least interfere with pivotal moments in her career. She works to construct a self that she imagines will be valuable enough to her company that she can take time off to have children without anticipated penalties. In this way, interviewees saw it as essential to establish a positive reputation at work before motherhood in order to minimize the perceived negative

impact of motherhood on their careers. Then, and only then, would they feel confident about having children. Likewise, older women in my sample generally credited their professional success to the fact that they had not (yet) had children, and therefore had not been hindered in their advancement by the competing demands of motherhood and work.

Participants nevertheless accept the cultural norms of their high-powered work environments that make motherhood so incompatible with their careers. When I asked Jade, age 32, an electrical engineer, about how she expects to integrate motherhood and career, she explained that she did not intend to take maternity leave, and justified that decision by explaining:

> To be realistic, you can't go out of the game. Industry changes too much. Competition moves at lightning speed. I feel like it's so weird because we all want longer maternity leave, but I am telling you, if you are trying to be at the top of your game, top of your career, it doesn't make sense for you to take leave.

Jade describes the inherent qualities of her professional work environment and industry as inconsistent with the availability of leave benefits offered by employers. As someone who adheres to and complies with what is required to perform "at the top of your game," Jade highlights what she perceives to be a lack of choices available for professional women if they want to become mothers and maintain their time-intensive careers, even in the presence of maternity leave policies. Dynamic work that is fast-paced and hands-on requires her constant presence on the job. If professional women wish to be "in the game," they can't expect to devote time to motherhood without also expecting to experience career setback.

Sylvia, who as previously stated was in the process of trying to conceive with donor eggs, offered her perspective as a CEO who makes decisions about the types of concessions she believes employees who wish to become parents deserve:

> I don't think families and start-ups are compatible. I don't want to hire women who are about to get pregnant. I'm too small a company. I can't afford someone to get pregnant. No. This is totally illegal, and I'm breaking laws saying this, but there's no room for it. I don't think there's a good solution. When people talk about, "Oh, the Europeans, you get a year off..." I'm like, I would never hire a woman who is about to have kids. That's me as the owner, me as the boss. If there's any risk of me having to pay her and her being off for a year, I'm not holding her job. Are you kidding me? A year's a lifetime! I don't have any solutions, but I don't think they're compatible. I think it's impossible. I think I'm setting myself up for something impossible. I'm setting myself up as a potential mother to fail.

Sylvia distinguishes between her identities as a “boss” and a “potential mother.” As the boss, Sylvia subscribes to the belief that workers should always be available and productive, and she carries out the types of professional penalties that participants fear they will suffer as mothers or as women who may be perceived as becoming mothers soon. As a potential mother, however, she is beginning to realize how an unfair system to which she contributes as a boss and to which she feels personally loyal can only lead to “failure.” Sylvia’s admission that her discriminatory attitudes and practices are “setting herself up for failure” highlights the “impossible” situation in which professional women find themselves and which they are attempting to navigate successfully.

In addition to the women's internalization of bias against mothers, company cultures undercut existing work-family policies that might otherwise help them smooth the transition into parenthood. In contrast to women working in start-ups, women who work for large companies that offer egg freezing are likely entitled to a plethora of work-family benefits that may seem to help smooth over these concerns. While these interviewees praised their employers for the support parents receive, they often had different assessments of this standard as it pertains to new parents. Their discussion of how they expect to negotiate the tradeoffs between work and motherhood someday were usually accompanied by anecdotes conveying a latent bias and stigma at work toward men and women who make use of work-family policies upon having children. As I discussed work-family policies with Cora, age 34, a senior sales engineer at a top tech company, she revealed the experience of a colleague in a separate division who recently had a child.

> A guy I work with is on 12 weeks of paternity leave, and people are really shaming him and talking about it internally. I, personally, don't really see anything wrong with that. I think it's a very exciting time in your life and we're very fortunate to work with a company where you're so supported.

Cora's comments are contradictory; although she believes herself to be well supported in terms of generous benefits, she is embedded in a workplace culture that undermines the accessibility of those benefits by turning them into penalties. In this way, even women who are eligible for "family-friendly" policies feel limited in their ability to balance a career with family due to company cultures that stigmatize taking advantage of them.

I found that the discrepancy between workplace policies and workplace practices that Cora identifies renders women highly dependent upon direct supervisors' attitudes

about family leave and parenthood. When I asked how Cora imagines she will negotiate the tradeoffs between work and motherhood in her work environment, she explained to me:

> I have a boss—I think that this is very, very key in a job in any company—If you have a boss, like a direct leader, who understands or is in support of your similar values, then it really helps. I have a boss that's a father of 4 kids, and they're everything to him. So I think when it's time for me to have kids, then I'll be very, very supported.

Respondents suggest that their ability to make use of work-family policies is highly contingent upon advocates in positions of power, such as bosses or other individual leaders in the company, who might legitimate leave-taking and protect them from penalties if they do make use of available policies. Therefore, participants like Cora are exceptional in their circumstances; these interviewees would frequently stress to me how "lucky" and "fortunate" they are to work for individuals they perceive as valuing motherhood and family. However, the emphasis on their personal good fortune suggests that not all employees in their position have the advantage of a generous and understanding employer who can overwrite motherhood penalties.

Avoiding Maternity Discrimination by Synchronizing the Biological Clock

The women in this study embraced CSEF as a form of individual risk management that expands their choices within a professional landscape that is resistant to motherhood. As participants are skeptical that they will be able to integrate work and family in their current work environments without facing career penalties, participants overwhelmingly viewed egg freezing favorably, and they expressed a great deal of optimism about the technology becoming more accessible through company-sponsored health plans. In our conversations, interviewees typically embraced egg freezing as a work-family policy that

symbolizes employers' admirable efforts to support mothers and families, describing companies that offer it as "progressive," "forward-thinking," and "pro-woman." At the time of our interview, Nina, a 35-year-old software engineer, was in the process of searching for a new job. She reported that "[c]ompanies that are mentioning things like egg freezing, it does raise them higher on your radar. I'm thinking to myself, Okay, at least they're paying attention to women, period."

Women's narratives convey how they have internalized responsibility for curtailing professional risks associated with motherhood and for creating the conditions in their personal and professional lives they believe will be optimal for motherhood. In assuming that responsibility, participants have pinned the source of maternity discrimination and work-family conflict they anticipate on their own bodies, making the possibility of shifting their reproductive timelines through egg freezing a reasonable and sensible "solution." Participants understand women's reproductive timelines as inherently problematic for professional success. They expressed the view that men's and women's reproductive timelines radically differ, leading to unequal opportunities in the workplace. The women in this study construct women's reproduction as fundamentally incompatible with professional goals, and by extension, as a kind of disadvantage in the workplace. When I asked Isabel, age 33, for her opinion on egg freezing, she explained her unwavering support of the technology by stating:

> Before, the roles were very traditional in that the woman stayed home, and she was a homemaker, and kids were part of that deal. Now women are working and educated and having careers... [such] that we aren't ready for children until... sometimes I hear women aren't ready for children until they hit 40, and then tragically that's too late.

> The day that men's fertility starts declining at 35 come back and talk to me because I feel like the news doesn't talk about [CSEF] that way. It's all on our shoulders, and literally, we [women] have to make all the responsible choices. Otherwise, we miss out.

Isabel's stance on egg freezing betrays her frustration about what she perceives as a real gender inequity between the choices available to men and women based on their respective reproductive timelines. Women's reproductive life cycles compel them to make "responsible" choices they might not have chosen under other circumstances out of fear that they will "miss out," either on professional rewards if they have children, or on the possibility of motherhood if they maintain a singular focus on professional achievement.

In contrast to their understanding of women's reproductive timelines, participants constructed men's reproductive timelines as advantageous. Chloe, age 42, stated: "It's not fair for girls. Maybe the timing isn't right. Men can have babies at any age. You just have to have that one good sperm, and they make new sperm every day, so it's kind of up to us women to take control." Chloe suggests that men's timelines are expansive and untethered to a particular "deadline" posed by advancing age and declining fertility. As such, men can make more autonomous choices about reproduction, while women are compelled to "take control." Through egg freezing, women's reproductive timelines become more elastic, enabling them to assert greater control over the possibility and timing of reproduction. In this way, egg freezing allows women to assume the relationship to work and family they believe men enjoy—i.e., one that ostensibly facilitates autonomous decision-making and grants freedom from concerns about reproduction and childcare.

Egg freezing is a neoliberal technology that encourages individual risk management by shifting women's reproductive timelines. By focusing on women's reproductive timelines as the primary obstacle professional women face in their attempts to reconcile motherhood and career, participants identify women's bodies, and not employers, as the culprit of work-family conflict, and therefore the site upon which they might intervene to reconcile conflict. For example, Danielle, a 35-year-old CEO of a start-up with extensive prior experience working in a large tech company, provides a discussion of her egg freezing experience alongside her view of CSEF:

> I don't think [CSEF] is at all pushing people to focus on your career so you should focus on [motherhood] later. At the same time, I do think that if you want to have kids, there is a huge difference between people that have kids at this critical stage in our lives, that is early 30s, and those who continue with their career and not have kids. They end up going a lot higher. They advance. Than having kids and then coming back to work? Usually, you plateau there.

Although Danielle argues that a desire to advance her career was not the primary motivating factor shaping her decision to freeze her eggs, she acknowledges that there are career penalties for having children too early in one's professional development. Therefore her ability to have children at a later time because of egg freezing is beneficial to her career in the long run. Rather than framing this tension as discrimination inflicted by employers, Danielle believes it results from employees' personal decision-making about when to have children. In this context, egg freezing facilitates more strategic reproductive timing. Participants construct egg freezing as a corrective antidote to women's reproductive timelines that pose professional risks at this "critical stage" in both their careers and in their

reproductive years. Through CSEF, participants see it as possible to spend the time they believe it would take to establish career security and convey their work commitment before becoming mothers, at which point their fertility may have already been compromised due to advancing age. Egg freezing does not reflect women's personal desire to pursue professional success at the expense of motherhood; it is a necessary strategy by which women avoid professional risks associated with motherhood by adjusting the timing of reproduction to better synchronize with career trajectories and goals.

Notably, only four participants in the sample were critical of the idea that CSEF represents a solution to their fears about motherhood potentially compromising their careers. Alexandria, a 33-year-old CEO of a major tech non-profit, and Fiona, a 35-year-old marketing director at a tech company, expressed a similar view:

> Part of me says [CSEF] is fantastic. Family planning opportunities should be available to anybody as part of raising the level of equity of women in the workforce. Part of me also says that is such bullshit. This is coming from the whole "Lean In" mentality of how women should participate in the workforce. What we really need is a complete reform of the way that we actually support family planning from the get-go so that you're not 35 and worrying about this. You're actually aware as you're pursuing your career that your employer or society as a whole makes space for you to pursue both a family and a career as you're in that early phase of life.

> Rather than [my company] say, "You can delay becoming a mom with egg freezing," I would rather them say, "You can be a mom, and still contribute to this company meaningfully. It's not one or the other. We recognize that you can be both because

> men are both. They're fathers and CEOs." Why can't it be the same for women as well? Why can't you be an executive and a mother?

Like the majority of participants in this study, Alexandria and Fiona want to be involved in their children's lives and motherhood despite their belief that having children and maintaining a professional career is a zero-sum game. But in contrast to the other interviewees, these two women argue that the source of conflict stems from normative cultural beliefs about work and motherhood propagated by employers, and not inherently from their reproductive timelines. Fiona implies that men can more seamlessly combine their identities as fathers and executives in her work environment because they can outsource reproductive labor to their partners, while women contend with the persisting belief that mothers should be primary caretakers. According to Alexandria, CSEF addresses this tension by removing reproduction from the workplace. Egg freezing helps women better "lean in" to their careers by standardizing the female reproductive body so that they can assume the positionality of the "ideal," productive, and efficient worker.

Reconciling Professional, Romantic, and Reproductive Timelines

Women in my sample aspired to long-term, stable partnerships, which they consider a prerequisite for family formation. Among the subset of my interviewees who are not partnered to someone with whom they hope to have children, their relationship status was a primary source of anxiety, shaping their orientation to CSEF and potential engagement with the technology. This anxiety was significant regardless of whether or not the women froze their eggs, although women who had done so reported that their use of this technology helped alleviate these concerns somewhat—a finding consistent with previous research (Baldwin et al. 2019; Brown and Patrick 2018; Inhorn et al. 2018). Below, I specify the factors

affecting how professional women come to view egg freezing as a useful tool for managing romantic risk.

About half (n=21) of my sample was unpartnered at the time of the interview. These women represent demographic trends of delayed marriage and childbearing among upper-middle-class women, and, in particular, among white and Asian women. To the women themselves, their deferral of marriage and reproduction, however, felt less like a deliberate choice than a result of social pressures escalating through their 20s and culminating in their 30s. Participants typically had long-term relationships in their 20s, a time of their lives characterized by a quest to achieve economic and social independence. When I asked Carrie, age 31, to describe her 20s to me, she explained:

> It was more about getting my degree, finding a job where I can earn lots of money and be free… I studied really hard, and then I just started building a life here and started working. Career has always been on the first burner. I didn't want that traditional suburban family thing that a lot of my friends at home have.

Carrie conveys a prioritization of self-development and self-reliance during her 20s. However, as the average age of my sample was 31 at the time of the interview, participants were at a crossroads of social pressures relating to normative markers of responsible adulthood that occur in the late 20s and early 30s, prompting interviewees to restructure their priorities to focus on the pursuit of romantic partners and motherhood.

> I feel this pressure. Your whole life is like, "Don't get pregnant, don't get pregnant, don't get pregnant." Then all of a sudden, you turn 30, and it's like, "Wait. Why *aren't* you pregnant?" (Amanda, age 32)

> My friends and I all grew up in Asian families where having a career was very important. I think our families are also very confused. When we were growing up, it was all, "No dating. You're going to get a good score on your SATs or whatever. Get into a good college. Get a good job," and then all of a sudden, you hit 25, and some switch flips. Now they're like, "Oh, where is the boyfriend?" I'm like, "Technically, dating was unacceptable until now. Where do you expect the boyfriend to come from?" (Sabrina, age 27)

These accounts point to a kind of internal contradiction that culminates in the women's late 20s and early 30s. Having spent the majority of their 20s and early 30s in educational and career phases, they experience competing pressures to succeed at work and to succeed in finding a partner and forming families simultaneously. The internal contradiction they experience is exacerbated further by a tension between the pressure to avoid childbearing "too young," and the pressure to pursue childbearing before one is "too old." Christina, age 31, describes this tension: "In my 20s I had friends having kids too early, and there was shame around that because they were like, how can I be so smart and make a mistake like that? Now that I'm 31, it's like everyone is asking me, when are you having [children]?" As Sabrina notes, cultural scripts for young adulthood are being reshaped to emphasize women's social and economic independence while maintaining the centrality of marriage and traditional family arrangements in their lives. As professional women, the script for "success" to which participants have subscribed throughout their 20s, one emphasizing their educational and professional pursuits, becomes incoherent under the sudden pressure to partner and become a mother in their 30s.

Although unpartnered participants expressed a desire to find a partner while maintaining their careers simultaneously, they frequently alluded to career as an important factor hindering their ability to form stable, long-term partnerships at this point in their lives. When I asked Danielle about what she considers to be the "ideal" time to have a family, she replied: "Having my business is almost like being a little selfish. The [work] hours are just... I can't even have a start-up and keep a boyfriend, let alone have a child." In another example, Sydney expressed her view on having children outside of a long-term partnership:

> Sydney: I don't think I would do it. For me, my job and my career, those usually ruin relationships for me. I need to figure that whole thing out. I think especially to be successful in a career, you need to probably have support at home.
>
> Interviewer: In what ways do you find that work ruins your relationships?
>
> Sydney: Just because I always put my career first. I always work late. It just makes it hard. My career always becomes number one to me. It's just more or less finding time.

Sydney alludes to her desire to have "support" in the form of a long-term partnership at home before having children, but she is uncertain whether she will be able to obtain it while prioritizing work. Like many of the unpartnered women with time-intensive careers, Danielle and Sydney struggle with "finding time" to establish a relationship, a pressure compounded by the sense that their biological clocks are also "running out of time" (Baldwin et al. 2019).

Women in this study bear responsibility for managing these tensions and for meeting a suitable partner to have children with, but unlike their pursuit of personal, educational, and professional goals thus far, the romantic fates of participants in their 30s feel uncertain

and uncontrollable. Lisa, age 30, for example, explains her view of relationships in a way that was typical of interviewees' experiences:

> Dating is probably my least successful venture… I always assumed I'd be successful at relationships because if I just worked really hard at something, I've been good at it. That was my mentality. But it's not really like that with relationships. It's like the one thing I can't "work" at.

Participants in this study view romantic success as a prized credential they can work towards. Like Lisa, they apply an ethic of hard work, typically reserved for their careers, to their relationships as a way to achieve romantic success. As women who occupy privileged class positions, their ethic of hard work and dedication in pursuit of goals have tended to yield them educational and occupational success, setting them up for expectations of control. While professional life is seen as a relatively controllable domain offering tangible rewards in exchange for hard work, many interviewees describe the pursuit of romantic partnerships as far more precarious. Participants' anxiety about "ending up alone" was greatly intensified by the perceived mismatch between effort and outcome that Lisa describes. As Olivia, age 35, explains, "It just might not happen for me. Some women are going to end up alone, and it's not really that they're deficient, it just happens." As highly-educated, class-privileged women, the women I interviewed are accustomed to giving their all in pursuit of their goals. Thus, unpartnered participants' disappointment in their relationship status and their anxiety about the possibility of marriage was further exacerbated by a feeling of powerlessness over the disconnect between their romantic futures and their own efforts or worthiness.

Women in this study feel limited in their ability to invest in long-term relationships by a professional timeline that demands they prioritize educational and professional goals. As the pressure to marry and have children escalates through their 20s and early 30s, they feel an immense lack of control about their ability to "succeed" at establishing relationships within such a compressed time frame, given the looming threat of declining fertility in their mid to late 30s. Through egg freezing, interviews expressed to me how they feel they may be better equipped to reconcile conflicting professional, romantic, and reproductive timelines.

Discussion

Professional women's perceived work commitment and ambition continue to be unfairly questioned on the basis of their reproductive choices by organizations and by women themselves who have internalized the "ideal worker" norm. This chapter has addressed gaps in the literature on women's motivations, perceptions, and experiences of elective egg freezing by focusing on professional women who are the target of company-sponsored egg freezing. The findings presented in this chapter contradict the narrative established in earlier research on egg freezing that career is not a significant factor leading women to pursue egg freezing. I find that participants, confronted with conflicting cultural messages about motherhood and work and rampant maternity discrimination, feel they must take charge and avoid professional penalties that may incur should they become mothers at the "wrong" time in their careers. In this context, they believe that egg freezing offers women a modicum of control over the timing of future motherhood to ensure that it occurs at the best possible moment. Additionally, this chapter extends current knowledge about how women draw on egg freezing to manage romantic risk. I find that professional-

class women are hindered in their pursuit of relationships by a professional timeline that demands the majority of their time and focus through their 20s and early 30s.

Company-sponsored egg freezing manifests as a smokescreen for unsupportive workplaces. Although CSEF assuages women's anxieties, CSEF also accommodates and upholds the discursive separation between motherhood and work that prompts those anxieties by realigning professional women's bodies to be compatible with normative understandings of the "ideal worker" (Williams 2000). These findings resonate with Baylis' (2015) argument that CSEF individualizes the complex problem of work-family conflict and maternity discrimination while privatizing its solution by synchronizing women's reproduction to conform to the cultural and structural dictates of their careers. The decision to extend this technology by employers may reflect a desire to recruit and retain women in fields and industries that are stubbornly male-dominated. Furthermore, as CSEF has garnered considerable attention in the popular press, companies may be offering the benefit to shape public perception of themselves as benevolent, progressive, and pioneering leaders addressing work-family conflict through trendy benefits and cutting-edge technology, a facade that disguises the underlying conditions of work that necessitate them.

It is notable that women in this study who are eligible for CSEF endorsed and signaled their appreciation of their employers' generosity, despite acknowledging that company policies fall short of helping workers integrate family and career. In fact, none of these interviewees condemned their employers or considered leaving their jobs to seek a system in which they could successfully build a career and a family at the same time, instead of having to establish an intense level of career security before having children. As high-achieving women who are oriented to control and the value of hard work in pursuit of goals,

they take ownership over curtailing professional risks, and they opt for solutions that empower them to exercise responsibility and exert influence on their circumstances. Moreover, the women may prefer privatized solutions, such as egg freezing, that they can enact outside the purview of their workplaces and unencumbered by stigmas associated with other parental supports, such as maternity leave.

Finally, CSEF may have implications for women who are not necessarily considering egg freezing and for working parents more broadly by further accommodating neoliberal citizenship (Baldwin et al. 2019; Carroll and Kroløkke 2017). Women in this study who are already eligible for generous work-family benefits, such as paid maternity leave, find these policies inadequate for combining motherhood and career. That they consider a biomedical intervention on their reproductive timelines practical for achieving their ideal work-family arrangements reveals just how resistant the interviewees' workplaces are to motherhood and family, even in the presence of "family-friendly" initiatives. CSEF exploits this precarious situation in which working parents find themselves due to a lack of governmental work-family policies in the United States and due to company cultures that undercut work-family policies where they exist. In this context, participants embraced CSEF for facilitating their personal "choices" and preferences for work-family arrangements. While CSEF appears to help professional women meet the demands of the system, it does little to redefine employers' expectations of workers at the outset and may arguably exacerbate them. Moreover, it may further shift the burden of harmonizing work and family entirely onto women, as women may eventually be expected to synchronize reproduction with careers, with or without the help of egg freezing, in response to the threat of maternity discrimination. Without more substantial work-family policies in the United States, and

without more meaningful attempts to legitimate policies by protecting employers who make use of them where they are offered, the “choices” that are most visible for young people who are thinking about how to manage their reproductive and career trajectories will continue to prove inadequate.

CHAPTER SEVEN: CONCLUSION

This dissertation has examined the social meaning and implications of fertility preservation for the salience of motherhood to gender identity in the contemporary age. I contribute insights to three of the most significant debates that prevail in the literature on egg freezing: the medicalization of women's bodies, the commercialization of biomedical solutions to social problems, and the potential for egg freezing to reframe women's reproductive choices (Baldwin 2019).

Chapter One traced the trajectory of this technology, showing how social and scientific discourses have reinforced each other to extend egg freezing to younger, healthy populations by medicalizing reproductive aging. This process established egg freezing as an empowerment initiative and preventive healthcare strategy. Meanwhile, Chapter Two focused on the commercialization of this practice. Commercial egg freezing enterprises disseminate scientific discourses on female reproductive aging to sell the procedure as a reliable anti-aging measure and wellness practice. The commercialization of egg freezing also sells egg freezing as an "insurance policy" for aspirational women, reflecting shifts in feminist discourse that emphasize women's empowerment through self-investments that optimize their futures (Rottenberg 2016; 2014).

Chapters Three through Six turned to the experiences of women who engage with or use egg freezing. What unites the women across these chapters is the sense of uncertainty and "hard choices" (Gerson 1985) they must make about how to sequence maternity, education, and career. Egg freezing responds to personal and social fears about aging

women, "spinsters" who may never marry, and women's delays in reproduction that may result in their failure to have biological children.

Women mobilize egg freezing to negotiate motherhood in divergent ways. Chapters Four and Five show how women use egg freezing to incorporate motherhood into their identities and emphasize their commitment to motherhood to others, such as family members and potential mates. However, women also at times strategically mobilize egg freezing to subordinate motherhood to their identities. For example, in Chapter Five, the women use egg freezing as a gender strategy to become less threatening to men who prefer younger and more "relaxed" women who won't pressure them into a commitment. As I also show in Chapter Six, women in professional work environments feel they must avoid motherhood until they have secured their positions in their companies or otherwise be stereotyped as uncommitted to their jobs.

These differing strategies show that women utilize egg freezing to bring their subjectivities and bodies in alignment with cultural expectations that require motherhood and marriage and reward women's youth and reproductive viability. Simultaneously, they use it to adjust their bodies to structural conditions that penalize women for having children at the "wrong" time in their careers.

Thus, egg freezing is a manifestation of broader, cultural anxieties about women's success in the labor market and accompanying reproductive shifts, such as women's deferral of marriage and childbearing (Cherlin 2009), that appear to threaten the possibility of motherhood and family. Transformations in gender over the past half-century seem to destabilize the traditional functions of the family premised on a gender division of labor, and mothers' social gains and workforce participation stir anxieties about what will happen to

the family and the home—the "haven in a heartless world" (Lasch 1977). Egg freezing shifts women's reproductive timelines to resolve women's delayed fertility in a system that has made the reconciliation of work and family life untenable. By facilitating motherhood and marriage in an age when these feel less certain and more challenging to sustain, egg freezing reifies traditional ideas about women and their roles in society, upholding dominant ideologies that link womanhood to motherhood (Ridgeway and Correll 2004).

Issues at Stake in the Future of Egg Freezing

Should egg freezing be the gift parents give their daughters on the day of their college graduation? Should egg freezing, like a personal savings account, become the kind of investment young women are encouraged to make for the benefit of their futures? Should company-sponsored egg freezing be the policy companies adopt to equalize women's position in the labor market? What is at stake in the future of egg freezing?

I began this dissertation by asserting that egg freezing is increasingly framed as a feminist issue. Below, I level several critiques at egg freezing and question the extent to which fertility preservation will result in the kind of feminist transformation of gender relations that proponents claim it will. These critiques focus on the implications of egg freezing for reproductive autonomy, reducing gender inequality, and the relationship between technology and women's work.

Egg Freezing and Reproductive Autonomy

Egg freezing reflects how opportunities can just as quickly become obligations. The findings of this dissertation reveal the imperative quality of egg freezing. This technology's social and scientific development and its increasing commercial reach establish the expectation that women should be *proactive* and exhaust all available options to ensure their

fertility and future motherhood. This injunction burdens women to take on the risks of this technology in the absence of fertility problems and even in the face of the technology's high failure rate. These messages certainly resonate with the women I spoke with, who felt compelled to "try their best" and "do all they could" to fulfill the responsibility of motherhood through egg freezing. This responsibility is concerning, as it ostensibly extends to *all* women, regardless of whether they desire motherhood. It also may contribute to the perception that any negative consequences that arise should women fail to freeze eggs are women’s fault, placing the blame of childlessness and infertility squarely on the shoulders of women.

Egg Freezing and Gender Inequality

Egg freezing burdens women with the responsibility to solve gender inequalities in American society. Women use this technology to maneuver through a myriad of gender inequalities; these range from motherhood penalties in professional work environments (Correll, Benard, and Paik 2007), the gender imbalance in the college-educated marriage market (Inhorn 2017), and the double standard of aging (Sontag 1972).

However, egg freezing is less of a "solution" to inequality and acts more like a compromise. Egg freezing is an individualistic and short-sighted "quick fix" (Petropanagos 2010) that improves women's personal circumstances but falls short of addressing structural inequalities. Perhaps the think-piece I excerpted in Chapter Two stated it best: "Practically, this isn't about changing the system. It's about making it easier for ambitious women to exist in the world we have" (Ferro 2014). Ironically, this statement was intended as praise for egg freezing. However, I contend that it is the very systems that have constructed women's bodies as inconvenient to the interests of the corporation that are most to blame for the sacrifices young women must make as they attempt to combine their

personal, educational, professional, and family goals. Therefore, systems need to be transformed, not women's bodies.

Moreover, as feminism itself has become commodified under neoliberalism, we see a similar commodification of newer ideas about gender, such as that upwardly mobile women should "always be optimizing" (Tolentino 2019) their bodies and selves and make "smart (self-)investments in the present to ensure enhanced returns in the future" (Rottenberg 2016:332). In performing this labor, women will realize a highly individualized sense of empowerment and personal fulfillment. Similarly, egg freezing is a neoliberal technology; fertility preservation is an investment women make in themselves to delay maternity so they can increase their personal and market capital and someday reconcile motherhood and career. But these strategies are insufficient as they fall back upon traditional ideas about women's roles in society.

Any individual gains that women acquire through egg freezing would not extend to people without access to egg freezing nor to people who have not delayed childbearing. Therefore, collective responses by employers and the government are needed. Policies that will help challenge the gender division of labor that undergirds the conflicts between work and family life will go a long way, such as paid parental and sick leave and affordable childcare. In addition, policies that would help people feel better prepared to have families earlier in life, such that family is not a possibility people can only envision after establishing financial security later in life, will also be helpful. These can include policies that benefit all working Americans, such as a living wage, reasonable work hours, and paid overtime.

Technology and Women's Work

Finally, I am concerned about the implications of technoscientific solutions to gender inequality that center on women's bodies. As discussed, egg freezing propagates a negative view of women's bodies as inferior to technology and men's presumed reproductive advantage. Historically, the relationship between technology and women's work has been fraught. For example, people first thought that household appliances such as the microwave and vacuum cleaner would lessen women's work by making domestic duties more efficient (Coontz 1992; Hochschild 2003). However, these innovations paradoxically lengthened the time mothers would spend on these tasks to meet newer and ever-rising standards of cleanliness (Hochschild 2003). The technology resulted in "more work for mother," not less (Cowan 1983). Egg freezing is another technology promising to resolve time binds (between reproduction, maternal care, and work) that may become one more task to cross off the to-do list, "another chore of modern womanhood" (Alter 2015:44).

Despite these critiques, it is important to acknowledge how egg freezing benefits people who use it. The benefits of egg freezing for the women I spoke with were primarily emotional, as they turned to egg freezing more for the sense of relief and control it offers than a guarantee of a future pregnancy. In a few ways, this sense of control helped women make choices that better served them and their futures. For example, some women felt empowered to be more selective about finding a compatible partner who shares their hopes and interest in having a family someday.

In addition, egg freezing facilitates family formation for individuals who may not otherwise be able to have biological children. The drive to become a parent is integral to a person's identity and an important marker in the transition to adulthood for many Americans (Arnett 1998). To this end, egg freezing can become one of the greatest sources

of joy and satisfaction for the person who has a child through it. This privilege should extend to any person who similarly hopes to become a parent, and not only the most affluent individuals in society.

Future Research Directions

Several additional aspects of fertility preservation that this dissertation does not address remain open to investigation. This study is limited by its focus on the pioneers of egg freezing with the most access to it, who are predominantly white, middle-class, cisgender, heterosexual women. As egg freezing's popularity increases and as it becomes more accessible to women through expanded insurance coverage, future studies may examine how intersecting identities, such as race, class, and religious affiliation, shape women's use of egg freezing. For example, this research suggests that fertility preservation, like other cutting-edge biotechnologies, does not appeal to an exclusively white consumer base (Roberts 2009). Women of color are increasingly included in the marketing of this technology and attend commercial egg freezing events. As one woman of color shared with me, she wanted to be interviewed and contribute to the research because she feels her concerns about fertility and hopes for motherhood "aren't just for the rich, white one-percenters."

Yet, women of color, and Black women in particular, "aren't given the luxury of having their nontraditional choices appear to be new and radical," and "when [they] make 'unconventional' decisions around reproduction, [they're] stigmatized" (Allen 2016). Future research may focus more specifically on how race impacts attitudes toward and experiences with this reproductive technology.

Research that includes more perspectives of gender minorities is also needed. Little is known about trans men's experiences of fertility preservation. As this research has examined the importance of motherhood to gender identity, future research can likewise examine how people whose gender identity does not align with their assigned birth sex construct the links between parenthood and gender identity.

Future research may also continue to examine how social inequalities shape people's reproductive intentions and behaviors. The COVID-19 pandemic has generated uncertainties that have had race and gendered effects. Women's workforce participation hit a 33-year low in 2021, and women of color have disproportionately suffered job losses (Frye 2020). Likewise, there has been a sharp uptick in the number of women seeking out fertility preservation this past year, suggesting that expectations of and concerns about delayed fertility are even more relevant than they were previously (Dockterman 2021). Future research projects can pursue questions examining how the new conditions brought about by this pandemic will influence processes and experiences of seeking companionship and having families in years to come.

Finally, research may begin to look toward the next frontier of fertility preservation: ovarian tissue freezing. Instead of stimulating a woman's ovaries with hormones to produce mature eggs, ovarian tissue freezing is a procedure that involves removing an ovary or part of the ovary. On the surface of the ovary reside hundreds and potentially thousands of eggs that can be frozen, thawed, then reimplanted at a future date, after which time they regain normal function of producing hormones and eggs (Rivas Leonel, Lucci, and Amorim 2019). Current estimates report more than 130 live births worldwide have resulted from ovarian tissue freezing and re-transplantation (Rivas Leonel, Lucci, and Amorim 2019).

According to the medical experts I spoke with, this procedure has several advantages over egg freezing. Ovarian tissue freezing can preserve hundreds of more eggs than a single egg freezing cycle. It can also reverse menopause and restore a person's natural fertility. This procedure is initially targeting young patients diagnosed with a medical issue, such as cancer, that potentially damages the reproductive system. These young patients who have not yet started their menstrual cycles and therefore cannot participate in egg freezing would be able to preserve their fertility using this technology.

Although ovarian tissue freezing remains experimental, it raises several ethical concerns that future research should explore. Ovarian tissue freezing is even more invasive than egg freezing because it requires surgery and a general anesthetic. As it is being developed for prepubescent girls, these patients are too young to consent to an experimental procedure, giving their parents or guardians ultimate say if they determine it to be in the child's "best interests." Thus, as these technologies become more sophisticated, they will continue to call into question the implications of fertility preservation for reproductive autonomy.

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