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Cryopreserving Jewish Motherhood: Egg Freezing in Israel and the United States

Oocyte cryopreservation (i.e., egg freezing) is one of the newest forms of assisted reproduction and is increasingly being used primarily by two groups of women: (1) young cancer patients at risk of losing their fertility through cytotoxic chemotherapy (i.e., medical egg freezing); and (2) single professionals in their late 30s who are facing age-related fertility decline in the absence of reproductive partners (i.e., elective egg freezing). Based on a binational ethnographic study, this article examines the significance of egg freezing among Jewish women in Israel and the United States. As they face the Jewish maternal imperative, these women are turning to egg freezing to relieve both medical and marital uncertainties. In both secular and religious Jewish contexts, egg freezing is now becoming naturalized as acceptable and desirable precisely because it cryopreserves Jewish motherhood, keeping reproductive options open for Jewish women, and serving as a protective self-preservation technology within their pronatalist social environments. [egg freezing, Jewish, cancer, fertility, motherhood]

Introduction

In the ever-changing world of assisted conception, oocyte cryopreservation—more commonly known as egg freezing—is one of the newer assisted reproductive technologies (ARTs). Through a method of flash freezing called “vitrification,” human oocytes (eggs) can be frozen and stored in egg banks for use in future in vitro

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fertilization (IVF) cycles. First offered experimentally to young cancer patients, who were at risk of infertility due to chemotherapy (Baysal et al. 2015), the initial success of this new form of fertility preservation led to expanded clinical trials, and eventually, to the approval of egg freezing for healthy women facing age-related fertility decline. Over the past decade, both medical egg freezing (MEF) and elective egg freezing (EEF) have spread globally. A recent International Federation of Fertility Societies' report (2019) shows that egg freezing is being performed "frequently" in over half (52%) of 82 countries surveyed, with most clinics performing both MEF (83%) and EEF (68%).

Israel and the United States were among the first countries to introduce MEF and EEF in IVF clinics after the experimental label was lifted (Inhorn et al. 2018a, 2018b). In 2013, the first year after clinical acceptance in the United States, approximately 5,000 cycles of egg freezing were undertaken. Five years later in 2018, that number had more than doubled to 11,000 cycles, according to the Society for Assisted Reproductive Technology. In Israel, a front-page newspaper headline announced: "The number of women undertaking egg freezing in Israel has risen tenfold in six years" (Efrati 2018). Other Israeli media outlets, as well as gynecologists and Jewish religious authorities, have supported this expansion.

In the Jewish religious realm, egg freezing has been added to the range of reproductive technologies supported by Israel's religious establishment, even across often divided local religious factions. The PUAH Institute, which was founded in 1980 to align ART implementation with Jewish law (*halacha*) (Ivry 2010; Ivry and Teman 2018), has thrown its support behind egg freezing, actively encouraging EEF among single Orthodox women and offering accompaniment to IVF clinics. In its official statement on egg freezing, PUAH explains that EEF may help women who started childbearing "a little later," but who want to build a Jewish family (PUAH Institute 2018). PUAH is active in American Jewish communities as well, offering educational, financial, and emotional support for Jewish Americans using ARTs. As a result, rabbis from several different religious communities now encourage Orthodox single women in their late thirties to freeze their eggs (James 2012). Apparently, religious endorsement has had an effect. According to a recent article in the Jewish newspaper *Forward*, "Jewish women are freezing their eggs more than ever" (Klein 2018). This turn to egg freezing is part of an overall trend documented by the Jewish Fertility Foundation in which American Jewish women use ARTs on average more frequently than American women of other religious backgrounds.

In this article, we examine this recent turn to egg freezing among Jewish women. We suggest that egg freezing is becoming readily naturalized and increasingly normalized in some Jewish circles as both acceptable and desirable, precisely because it *cryopreserves Jewish motherhood*—literally, "freezing fertility in time" for women's future use. Here, we describe the ways in which egg freezing is used to cryopreserve motherhood among Jewish women facing cancer and fertility-threatening medical diagnoses, as well as among primarily heterosexual single women in their late 30s and early 40s, who are facing the so-called fertility cliff (Waldby 2019) but have been unable to find an appropriate reproductive partner. Cryopreserving Jewish motherhood through egg freezing may allow a respite from these medical and social uncertainties. Given that egg freezing is being adopted primarily by unmarried women,

we seek to understand single Jewish women's perspectives on egg freezing in relation to their intimate lives and social relations.

In Judaism, reproduction is placed center stage. Thus, novel reproductive technologies that may facilitate the reproduction of the Jewish population are readily embraced (Kahn 2000; Prainsack and Firestone 2005; Remennick 2006). We suggest that Jewish women who embark on egg freezing intend to signal their commitment to the *Jewish maternal imperative*—the religious and social mandate for Jewish women to participate in “reproducing Jews” (Kahn 2000), “embodying (Jewish) culture” (Ivry 2009b), and “birthing a mother” (Teman 2010). The Jewish maternal imperative is seen particularly clearly in Israel—the “land of imperative motherhood” (Remennick 2000)—where the state supports Jewish women's reproduction through many state-subsidized fertility services. Indeed, under some circumstances, the state may subject local Jewish women and couples to various forms of “bio-scrutiny” to ensure that they create the desirable kind of Jewish family, in terms of both physical and genealogical heritage (Weiss 2002: 28–32). This Jewish maternal imperative also involves expectations—and in some circles pressures—to marry, at least among heterosexual women,¹ which is manifest in high marriage rates among Jewish Israelis and Americans. Under such normative expectations and demands, egg freezing may emerge as a *self-preservation technology* for unmarried Jewish women, protecting not only their fertility, but their very sense of personhood within pronatalist and conjugally oriented local environments.

In this article, we first review the Jewish maternal imperative, as it has been described by a host of anthropologists and other scholars. We then turn to our own binational, comparative study of egg freezing in Israel and the United States, probing the significance of egg freezing for Jewish women in the context of the maternal imperative. Namely, under what circumstances do Jewish women decide to freeze their eggs? What challenges does egg freezing present? How might the experiences of Jewish women living in Israel differ from those in the United States? Finally, how does egg freezing contribute to the Jewish maternal imperative by holding out hope of future motherhood?

The Jewish Maternal Imperative

Reproduction is revered in Judaism. Ancient and contemporary texts construe childbearing as a pillar of one's personal and social identity, and a vital contribution to Jewish perpetuity. As such, reproduction transcends individuals and acquires a collective moral significance (Fogel-Bijou 1999; Kahn 2000). Although the biblical commandment to “be fruitful and multiply” applies to men, Jewish identity is transmitted matrilineally, rendering childbearing a major responsibility and life goal for women as well. Most rabbis contend that an infant's Jewishness is defined by the religion of the birth-giving woman—i.e., the womb rather than the genes. However, numerous recent studies, especially by anthropologists (Birenbaum-Carmeli 2009; Hashiloni-Dolev and Triger 2020; Ivry 2009a; Ivry and Teman 2018; Kahn 2000; Nahman 2013; Teman 2010), capture the centrality of genetics in contemporary Jewish reproduction, and thus the prevalent perception that it is important, if possible, to use one's own eggs in conception; egg freezing is designed to accommodate this preference.

In Israel, childbearing has been construed as crucial to the nation-building project (Birenbaum-Carmeli 2004; Ebenstein et al. 2016; Portugese 1998), and as women's main mode of political participation (Berkovitch 1997; Haelyon 2006; Herzog 2002; Lemish and Barzel 2000). As a result, in Israel, Jewish women across all sectors have more children than their counterparts in any industrialized country—at a total fertility rate of 3.17 children per woman, or roughly twice the European average.² Among Orthodox Israeli women, the total fertility rate is substantially higher at 6.6 children per woman (Ilan 2020). In some Ultra Orthodox circles, marrying a Jewish man and founding a large family is effectively a prerequisite that becomes a woman's singular life trajectory.

Nonetheless, Jewish couples, including those living in Ultra Orthodox communities in the United States, Europe, and Israel, may apply various family planning practices (Taragin-Zeller 2019) and actively negotiate and resist external reproductive pressures emanating from state or medical authorities (Kasstan 2019; Raucher 2020; Taragin-Zeller and Kasstan 2021). In fact, in some American Jewish circles, voluntary childlessness may be increasing in popularity (Shain 2019; Waxman 2001), although to a lesser extent in Israel (Donath 2011). In the United States since the 19th century, Jewish birth rates have been slightly below those of non-Jewish Americans (Lugo et al. 2013), with a current American Jewish average of 2.1 children per woman versus 2.2 for the United States as a whole. However, this average encapsulates great internal variance, ranging from 1.7 among Reform Jews to 4.1 in Orthodox communities.

Still, within Jewish communities, childlessness is the source of major stigma and suffering for women, overshadowing their accomplishments in other life domains (Remennick 2000). Considering “the right to parenthood” to be a basic human right (Kahn 2000), childless women in Israel have described their condition as a “serious illness.” Furthermore, against the background of the Holocaust trauma (Kahn 2000), infertility has been perceived as a “final extinction” for Holocaust survivor families. Not surprisingly then, Jewish women, along with religious authorities, politicians, and professional bodies in Israel, have welcomed all forms of ARTs since the early 1980s, when IVF was first introduced in the country (Birenbaum-Carmeli et al. 2000; Kahn 2000; Nahman 2013; Vertommen 2017). Israel's state-supported IVF policy is the world's most generous, and Israeli women are the world's heaviest users of the technology (Birenbaum-Carmeli 2016). Although infertile women often experience the procedures as deeply agonizing—splitting their bodies and souls, in the hope for a child (Benjamin and Ha'elyon 2002)—many are willing to undergo and repeat intrusive medical interventions (Birenbaum-Carmeli and Dirnfeld 2008), as they themselves largely subscribe to the Jewish maternal imperative, and often view ARTs as the route to happiness (Gooldin 2013).

The Ethnographic Study: Methods and Participants

Given this background, we undertook a binational study of women in Israel and the United States who had completed at least one cycle of egg freezing. Between June 2014 and August 2016, women were recruited from seven IVF clinics, four in the United States (New Haven, CT; New York, NY; Baltimore, MD/Washington, DC; and San Francisco Bay/Silicon Valley, CA) and three in Israel (Tel-Aviv and Haifa).

In the U.S. IVF clinics, study flyers were posted, emailed, or given directly to women during their appointments. In Israel, clinic staff invited women by phone to take part in the study. Women who volunteered for the study were asked to sign written informed consent forms, agreeing to a confidential, audio-recorded interview. The research protocol was approved by Institutional Review Boards at the researchers' universities and the ethics committees of each collaborating clinic.

Ethnographic interviews usually lasted about one hour, ranging from one-half hour to more than two hours. Interviews were conducted in a variety of locations, including IVF clinics and women's or researchers' offices, as well as cafes, libraries, and other public settings. The researchers used an identical semi-structured, open-ended interview guide, which, in Israel, was translated into Hebrew, the language of the interviews. All women were asked a brief set of sociodemographic and reproductive history questions, followed by an open-ended interview in which women were invited to share their egg freezing stories. Women often led the interviews, describing their life circumstances at the time of egg freezing, their primary motivations, their perceptions and experiences of undergoing egg freezing, and their support systems and financing in place. In addition, women were asked about egg freezing outcomes, their plans for egg disposition, and finally, reproductive plans, hopes, and recommendations.

Women often volunteered highly detailed accounts of egg freezing to the first and second authors, who are medical anthropologists with years of experience interviewing ART patients. The American anthropologist interviewed all of the American participants, while the Israeli anthropologist interviewed the Israeli women. Completed interviews were transcribed verbatim by trained research assistants, including the third author, who was a member of the U.S. research team. In Israel, interview transcripts were translated into English by a professional translator. Interview transcripts were then uploaded into a qualitative data software program (Dedoose) for thematic analysis. Detailed case summaries of each interview were also written, and sociodemographic data on study participants were compiled.

Of the total of 195 EEF and MEF patients in the study, 71 women (47 Israelis,³ 24 Americans), or more than one-third, were Jewish. Most of the Israeli Jewish women were secular, but four self-defined as Orthodox and eight as traditional or religious. In Israel, most women were of Ashkenazi (i.e., European) origin, although about one-quarter were of Mizrahi (i.e., Middle Eastern) or mixed ethnic origins. Israeli MEF users were more diverse, with all ethnic groups being equally represented. In the United States, Jewish women were overrepresented at 16% of the total study population, even though Jews represent only 2.2% of the U.S. population. Two American women were converts, but the rest had been born into Ashkenazi-origin Jewish families, including two Orthodox women. Altogether, 14 of the study's participants, or 20%, self-defined as religiously observant.

All women completed at least one cycle of egg freezing. Most of the MEF patients were facing cancer or cancer-related diagnoses. Compared to women undertaking EEF, they: (1) pursued MEF at younger ages (29.3 on average); (2) froze fewer eggs (nine on average); (3) had completed less education (usually bachelors' degrees); (4) were less advanced in their careers; and (5) often came from less affluent families than EEF users, who pay for the technology on their own. In general, EEF users in both countries: (1) pursued EEF at older ages (36.4 on average); (2) froze more

eggs (14 on average), sometimes through repeated cycles; (3) were highly educated (masters' degrees and beyond); (4) were generally well established in their careers, in health care, the sciences, business, law, education, and the arts, among others; and (5) were relatively affluent by virtue of their careers and sometimes their family backgrounds.

Across these two groups, however, women shared similar concerns. First, all women were attempting to prevent their future infertility—a concern that ran across the two categories. Second, over 90% of the participants were single. In what follows, we explore factors complicating relationship formation and stability, not only among women facing cancer, but also among 30-something Jewish women facing age-related fertility decline. In such cases, egg freezing may provide a “technomedical fix” (Martin 2010) to social problems lying well beyond Jewish women's individual control.

Medical Egg Freezing among Jewish Women

Young women whose medical diagnoses put them at risk of future infertility are increasingly offered MEF (Baysal et al. 2015; Bourlon et al. 2020). Cancer patients scheduled for cytotoxic chemotherapy, as well as women with fertility-threatening medical conditions, including autoimmune disorders, severe endometriosis, and particular genetic profiles, are all candidates for MEF (American Society for Reproductive Medicine 2013).

One genetic condition that is especially relevant to Jewish women involves BRCA mutations, which are substantially more prevalent among women of Ashkenazi Jewish descent and place carriers at an increased risk of both breast and ovarian cancers, sometimes at an early age (Rose et al. 2016; Struewing et al. 1997). Women who are BRCA positive are often referred for prophylactic surgical removal of the fallopian tubes, ovaries, and breasts to prevent future cancer. Since the advent of egg freezing, BRCA carriers are also being referred for MEF, with the goal of fertilizing and implanting BRCA-mutation-free embryos in the future (Birenbaum-Carmeli et al. 2016).

Although testing for BRCA mutations has not become routinized in Israel, where prenatal genetic testing is considered part of good parenting (Hashiloni-Dolev 2007; Ivry 2009a, 2009b; Remennick 2006; Weiss 2002), BRCA mutations do receive media attention (Howard 2019), suggesting that these mutations may eventually be added to the list of “Jewish diseases” caused by hereditary pathology. Recently, recommendations for cost-effective screening protocols among Ashkenazi Jewish women have been published (Manchanda et al. 2017), and mutation carriers are increasingly being offered MEF prior to prophylactic ovary and tube removal (Birenbaum-Carmeli et al. 2016).

In our study, 16 Jewish women—five in the United States and 11 in Israel—underwent MEF, at average ages of 32.8 in the United States and 27.7 in Israel. In the United States, three of the five women had BRCA mutations. One of these women, Leah,⁴ an Orthodox Jewish woman, had learned about her BRCA positivity “by mistake” when she undertook a 23andMe at-home genetic test. Leah's physician confirmed the BRCA results and diagnosed her with BRCA2-positive breast cancer. Following her oncologists' recommendation, she underwent MEF and had 11 eggs

stored prior to a double mastectomy and chemotherapy. Leah explained, “I’m glad I did it, because it’s one less thing to have to worry about.” After Leah’s diagnosis, numerous members of her extended family also underwent BRCA testing, with several learning that they were BRCA positive. This new knowledge turned Leah into something of a BRCA activist. As she explained, this activism was also related to reproduction:

Ashkenazi Jews have a 1 in 40 chance of having a BRCA mutation, versus 1 in 400 in the non-Jewish population. ... So my mission is to bring everybody in the Jewish community to get tested for BRCA mutations, because they all have their heads in the sand and don’t want to know. But I think my story shows how important it is to know. But there are people who won’t say, in the Jewish community, who won’t say the word “cancer.” They call it “that illness.”... So cancer has an extra kind of stigma to it. ... And people don’t want to know, because when you tell people [as an unmarried person], then you don’t get set up on dates. So, do you tell? When do you tell somebody? Do you tell a potential spouse?

Leah’s concerns over cancer and its potential effect on future marriage and motherhood were relevant for secular Jewish women as well. Two American women, Joan and Ellen, were 33 and 32, respectively, when they learned they were BRCA positive and were advised to have their ovaries removed—Joan by age 40, Ellen by age 35. Joan had already undergone a double mastectomy and could not bear the thought of having her ovaries removed while she was still unmarried. “When you have your boobs cut off, you’re not feeling super sexy,” she explained, “and you’re not sure how people will react.” While feeling very insecure about her marriageability, Joan still felt optimistic about her future motherhood, because of the 11 eggs she had stored: “I’m so lucky that I could do [MEF]. ... The fact that [the eggs] were harvested when I was 34 is a good thing. [So] even if I have my ovaries and my tubes taken out, you know ... that’s what the egg insurance is.”

In Israel, the 11 women in the study who undertook MEF did so following a cancer diagnosis. All were keen to pursue MEF, even if delaying chemotherapy to undergo the procedure somewhat increased the risk to their health and survival. For example, Moriah, an Orthodox teacher, was diagnosed with cancer at 24. Her uncle immediately referred her to a fertility preservation expert, to “first take care of my fertility.” Due to her urgent need for cancer treatment, Moriah undertook MEF with minimal hormonal stimulation, resulting in three stored eggs and several cryopreserved ovarian tissue segments.⁵ Moriah linked her MEF with Jewish history, when she stressed that the egg retrieval took place on *Tish’a be’av*, the Day of Atonement for the destruction of the ancient Temple.

Despite her life-threatening disease, Moriah remained anxious about her fertility. Having completed her MEF, she begged her oncologist to cancel a course of chemotherapy to reduce the damage to her ovaries. When the oncologist refused and suggested that she might adopt a child in the future, Moriah was appalled, saying, “I want my *own* children.” She also insisted that she must use her future husband’s sperm, even though she was unpartnered at the time of MEF. In retrospect, Moriah regretted she had not undertaken another MEF cycle and preserved more eggs:

Today, when young women ask for my advice, I tell them to do *everything* beforehand, everything, everything they possibly can ... [for] terrible and challenging as this disease is, if you survive it, it's over. But your fertility stays with you. ... I kept telling my doctor that for me, it wasn't over... until I give birth.

Two years after she had completed her cancer treatment, Moriah started seeing Saul. When she brought up the subject of fertility, Saul, an Orthodox man, felt compelled to consult with a rabbi, because the subject had halachic implications. Moriah recalled: "It tortured us, that fertility might force us apart." The rabbi sought scientific assessments of the likelihood of conception by cryopreserved eggs and ovarian tissues. When the doctor affirmed that "he sees the chances as very high and that he's very optimistic," the rabbi gave his blessing and the couple married. Their baby was born less than two years later.

The centrality of childbearing as a component of womanhood went beyond religiously observant women. Indeed, childbearing was described as central by all the Jewish MEF patients in both Israel and the United States. In Israel, strong state support of the technology was conveyed by its public funding for cancer patients (Inhorn et al. 2018c). But even in the United States, where most insurers do not cover MEF, Jewish women in the study were determined to preserve their motherhood potential through MEF. As Ellen, who was BRCA positive, explained:

I'm fighting with my insurance company right now. I paid out of pocket \$18,000 for it. I borrowed money from my dad and saved a bunch and put some on a credit card and paid for that. Right. Because the doctors ... have recommended getting my ovaries or my fallopian tubes removed at 35 to avoid ovarian cancer. ... And that's part of the reason I wanted to get my eggs frozen—to ensure that I could have children one day.

Even though Ellen was secular, her ideal was to marry a Jewish man and create a BRCA-free Jewish family. Her maternal desire was strengthened by the fact that BRCA-related cancers had killed multiple members of her father's family. Indeed, for Ellen and all of the Jewish women in our study who were facing cancer diagnoses and BRCA mutations, MEF was their "hope technology" (Franklin 1997), cryopreserving their potential motherhood while waiting for a brighter future.

Elective Egg Freezing among Jewish Women

In a social climate where reproduction is both a personal and community project, Jewish women are generally expected to marry—ideally, to a Jewish man—and raise children. This was articulated most clearly by some of the American women in our study, who, as part of a religious minority group, conveyed how their Jewishness affected their marriage and motherhood desires and prospects. At the age of 31, Clara, a PhD psychologist, explained why she had volunteered to participate in an EEF clinical trial before she married:

My anxiety was so high about it. I felt this pressure to meet someone. And at that point I was much more involved in the Jewish community, so I think the pressure was even more intense, because that's sort of what it means to be a successful Jew. It's all about having kids and family. And so my anxiety was very high, and it was getting in the way. I was really [thinking about] my own family of origin, and I was just really anxious about it.

Indeed, marriage rates among Jews remain high. In the United States, Jews marry more than their counterparts in any other religion (except for Hindus and Mormons) (Lugo et al. 2013). In Israel, marriage rates exceed the average of every other industrialized country by nearly 50%.⁶ Given this Jewish marriage priority, the level of “singleness” in our study—94% among MEF patients and 90% among women pursuing EEF—was striking. Lack of a reproductive partner was particularly pronounced for the latter group, who comprised three-quarters of our study subjects (55 out of 71 women, or 77%). Most of these single Jewish women were highly educated professionals in their late 30s (aged 36.4 on average) when they undertook EEF.

In an overview of the sociodemographic factors underlying EEF, Inhorn et al. (2018a) underscored a growing global gender education gap leading to a scarcity of university-educated men (Birger 2015). The education gap may be a particular problem for Jewish women in the United States, who are more highly educated than non-Jewish women, non-Jewish men, and, increasingly, as women's educational level rises, Jewish men as well (Hartman and Hartman 2009). Whereas the modal degree for non-Jewish White Americans is a high school diploma, the modal degree for Jewish women is a bachelor's degree (Lugo et al. 2013). Furthermore, American Jewish women are four times as likely to have completed a post-graduate degree than the broader population of White American women (Barack Fishman 2015; Hartman and Hartman 2009).

The difficulty of finding an educated male partner was highlighted primarily by the American Jewish women in this study. For example, Livia, a PhD scientist working for the federal government, described the Washington, DC, dating scene in this way:

There's a huge imbalance. ... I mean, I must have been on over one hundred dates. And I think maybe five of the men—maybe—had any sort of professional degree. ... A couple of guys were stupid enough to insult my job! [laughing] I think that's part of why I've been single for a long time, and I'm older now, and I'm less willing to compromise.

Similarly, Gail, living in California's Silicon Valley, joked: “I'm still hoping that the miracle ... the spaceship will land, the bright guy will walk out. But I've been on so many goddamn date lists, I've met everyone in California!” Another woman, Jessica, a successful realtor, had not met a suitable partner in numerous online dating sites, including JDate.com, which advertises itself as “the #1 Choice for Jewish Singles.” Thus, she had spent \$22,000 of her own savings for two EEF cycles and was now contemplating approaching a professional matchmaker. She laughed:

Whatever! I have already paid \$22,000 for something, and now I'm paying to like find a husband! Not that there's anything wrong with it. But it completely counters anything that my friends have done or anything I know, where you meet someone naturally, you have a kid, and like, great! You know? And I don't know if I feel defeated, empowered, or otherwise by the egg freezing thing, in and of itself—having to go through it and paying that and whatever. And then the same thing with potentially doing that in a matchmaking setting.

Nearly half of the Jewish American participants—nine out of 19—had once been in serious relationships with men, hoping that they would marry. But relationships had broken up either because the men were not willing to commit to marriage and parenthood, or the women decided not to settle for a relationship that did not feel equal, educationally or otherwise. For example, Sally spent nearly a decade with a partner who she had parted from at 37, explaining:

I didn't really respect him. ... I kind of cared about him and he was a really good friend, but I was always looking for someone else. ... I guess the biological clock turned on when I was 37, and when ... I realized again, I didn't want to be with this guy, I said, "It's time to freeze my eggs."

Women's decisions to leave unfulfilling relationships were found in Israel as well. Liat, a 40-year-old Israeli senior manager, was in a relationship from the age of 15 to 25. Once they decided to marry and started preparing for the wedding, she felt that "it doesn't suit me, and I left." Liat reflected:

I don't regret this. ... I was mainly interested in my self-development. ... But it's so strange that I've rolled into this situation, without a partner, without children. ... All my life I was certain I'd be a young mother and that I'll have four kids. I was certain I'll have four kids.

A hope for large families was frequently mentioned by Israeli women, whether religious or secular. Even women in their late 30s still hoped to create normative families of three, four, or more children. Zillah, for instance, was hoping to have six children. "Everyone tells me that children are joy," Zillah explained. "I've wanted children ever since I was a child." The only Israeli women who envisioned having "a child," in the singular, were those who were single mothers or who were contemplating it.

Yet, such strong maternal desires were not felt by every Israeli woman who opted for EEF. For example, Sveta, a 38-year-old physician who had migrated from Eastern Europe to Israel at age 28, said she waited "to stand on my own feet, first of all, not to depend on anyone" before starting to look for a partner at age 30. Years later, Sveta undertook EEF, even though she was not keen on having children. The procedure yielded only three eggs, but Sveta was not planning another cycle. Rather she said to her brother, "At worst, I've wasted US\$4,000." Reflecting on her reproductive doubts, Sveta described a visit to her home country, where she was shocked to hear women say that they "don't enjoy children" and do not plan to have any.

Although relieved to hear this alternative perspective, Sveta kept struggling with the surrounding Israeli pronatalism, thinking “I should see a psychologist, for at some point I say to myself: ‘What’s wrong with you that you don’t want children?’”

Jewish pronatalism dominated Sharon’s account as well. A 40-year-old Israeli research scientist, Sharon parted from her boyfriend “when he started talking about children. I said to myself, ‘No way!’ And this is how the relations started to end.” Yet, in her description of her eventual road to EEF several years later, she focused on her pronatalist surroundings: “My younger sister was pregnant. My cousins, too, have children. . . . All of a sudden, there are children everywhere. . . . My ex-boyfriend has also married.” Thus, at age 37, still unsure whether she wanted children, Sharon undertook three EEF cycles. When she told friends and relatives, their unanimous response was: “Why freeze? Why not make a baby finally?” Sharon paid US\$14,000—half an average Israeli annual income—for her EEF.

Although EEF’s funding was a major challenge in both countries, it stirred more negative reactions and dispute among Israeli women. Comparing EEF’s private funding policy to the state-mandated public funding of MEF and IVF, Israeli women, who had paid \$US4,000–7,000 per EEF cycle out of pocket, were divided. All the women accepted the MEF/EEF division as valid. Some women agreed with the differential funding policy, viewing EEF as a nonmedical private endeavor that is rightly self-funded. Other women, however, claimed that given Israel’s exceptional support of fertility treatments—with funding of IVF for practically every woman and MEF for cancer patients—the lack of EEF funding was actually sidelining the needs of reproductively older women and penalizing single women for deviating from the hegemonic life course script and for being socially responsible. Rose, a 37-year-old manager who undertook EEF a year earlier and was expecting a child as a single mother (via donor insemination), was furious about the policy:

The state should fund egg freezing. There are many women, well-educated women, who say: “I will not have children until I can support them.”... And here stands an Orthodox woman, who keeps bearing children ... and she gets this whole treatment for fifty dollars, because for her, it’s not egg freezing but IVF, and this does get funded! And this demoralizes the woman who works full time and encourages the one who doesn’t!! ... It is so frustrating.

Without state funding, many of the Israeli women in our study could ill afford EEF. Of the 36 Israeli participants who had undertaken EEF—all of whom were highly educated, full-time workers—over half (19 of 36) had the procedure fully (17) or partly (2) funded by their parents. In the United States, at US\$10,000–15,000 per cycle and with annual storage fees of US\$500–1,500, EEF is twice as expensive as in Israel and is normally not covered by health insurance.⁷ Nonetheless, with two exceptions, the Jewish American women in this study managed to cover their EEF by themselves, drawing on savings, salaries, or a random source, such as savings from a college game show or Jewish raffle winnings. Two women had used inheritances from their grandmothers to perpetuate their maternal lineages. One such woman, Eileen, reflected: “This is what Nana would want me to do. I’m going to go ahead and do this and not feel bad about it.”

Relatives' support went well beyond finance, lending significance to EEF as a "family affair." Some Israeli women saw their parents as their main partners in the EEF process. Libi, age 38, first learned about EEF from her 78-year-old father, who encouraged her to undertake it and eventually covered the entire expense. Another woman, Ella, a 38-year-old Israeli divorced mother of a daughter, was urged by her parents to undertake EEF so that she could have another child in the future. Ella's parents paid for the procedure and accompanied her to the main clinic appointments as well as to the egg retrieval surgery. Other parents were present as "role models" of happy marriages and family lives. In the United States, several women mentioned close relationships with their fathers, who had always supported them emotionally and financially. One physician, Alice, who described her relationship with her recently deceased father as "very, very, very, very, very strong," said that any future husband would have to be "somebody who was going to be an amazing, amazing father like, ... you know, one-tenth of what my dad was. They had to be something special."

Within this family- and child-oriented world, numerous women in our study described EEF as "empowering," even "tremendously empowering," a "good option," an "investment in the future," an "insurance policy," a "safety net," and an "immediate relief"—one designed to "reduce pressure," "prevent regrets," "provide peace of mind," "buy time," and make a woman "feel more in control." Nonetheless, many women also acknowledged that EEF was "no guarantee," "not the be all and end all," "maybe a whole lot of nothing," or, in Gail's ironic depiction, "a very, very expensive torture system!" Rhona, a career coach who froze her eggs at 41, dwelled on the fortitude required to undertake EEF, explicitly tying it to Jewish motherhood: "Being Jewish, you're from this tough Russian stock, so I did it [EEF]. But I mean, it's not a joke. ... I'm sure that people get emotional when you talk about this, you know. I *so* much want to be a mom."

Conclusion

Despite such ardent desires for children on the part of women like Rhona, only eight of 71 (11%) of these Jewish women had materialized the Jewish maternal imperative by the end of our study. They were all Israelis, three MEF patients and five EEF users. All three MEF patients were religious women who viewed childbearing as a central life goal. Once married, each of the three tried to conceive immediately and ultimately did so without using their frozen eggs.⁸ Still, they viewed the technology favorably and recommended it for other Jewish women. Five Israeli women who had undertaken EEF had become mothers by the time of their interviews—two religious women who had married, and three single women who had opted for solo motherhood and conceived through donor insemination. Although none of these women had used their frozen eggs, they each considered EEF an important interim step on the road to motherhood. The religious women who married viewed EEF as a source of calm that had possibly eased their subsequent partnering. The secular women described their EEF experience as a preliminary, moderate encounter with the option of assisted conception.

In the U.S. portion of the study, no Jewish woman had married or become pregnant.⁹ Only one woman, Lara, had used her 16 frozen eggs, spending a grand

total of \$150,000 on multiple IVF attempts, but to no avail. As the only child of a Holocaust survivor, Lara took pride in having tried her best to become a mother—even without a partner—to bear grandchildren for the father she loved.

We suggest that for the Jewish women in the study, egg freezing represented a proactive step, one that embodied their participation in the Jewish family- and child-centered ethos. In Jewish pronatalist environments, unmarried and childless women may exist in a liminal state of “otherhood,” not motherhood, as described poignantly by the single and involuntarily childless Jewish American author Melanie Notkin (2014). Although many of our interlocutors acknowledged that the desired life scenario of marrying a Jewish man and bearing Jewish children might not materialize, these Jewish women were willing to invest energy, as well as substantial personal and family resources, in a costly strategy to preserve their remaining fertility potential.

Cryopreserving Jewish motherhood in this way is also a technological concession to problematic gendered fault lines in which Jewish women’s educational achievement has significantly outstripped men’s, particularly in the United States, where highly educated women face a significant dearth of marital partners (Inhorn et al. 2018a, 2018b). Thus, marriage—the normal prerequisite to childbearing in Jewish society—now involves a challenging search for an equal partner, who will be invested in marriage and family building. Some American women in this study said that they knew many single Jewish women in this partnership predicament. As Alice, single at 38 exclaimed, “All the Jewish girls of my age in this area are doing egg freezing!”

In the absence of reproductive partners, the allure of egg freezing in Jewish family-centered settings is in cryopreserving one’s fertility over the long haul. Indeed, in Israel, a woman who has undertaken EEF at age 37 can use her cryopreserved eggs until she turns 55. For those 18 years, she is still a “potential mother” and can explore possibilities of partnering, marriage, single motherhood, or none of the above. In the meantime, egg freezing serves as a form of social capital that can be—and often is—presented to men on dates, with men invariably welcoming this information, according to women in the study. As such, EEF, especially when announced and explained to others, is a vehicle of participation in Jewish marriage- and child-centric communities.

As shown in other recent studies, most women who undertake MEF or EEF are single and are pursuing this fertility preservation strategy to hold open the possibility of future genetic motherhood (Baldwin 2019; Brown and Patrick 2018; Carroll and Kroløkke 2018; Inhorn et al. 2018a, 2018b, 2018c; van de Wiel 2020; Waldby 2019). However, Jewish women face the additional pronounced normative expectation to “reproduce Jews” (Kahn 2000) and become Jewish mothers for all of the reasons described above. Pronatalist religious pressures to pursue egg freezing appear to be emerging in other contexts as well, as shown for some Muslim and observant Christian women (Inhorn et al. 2020). Thus, future studies of egg freezing must be conducted in multiple national and religious contexts to assess how religious moralities and community-based social pressures factor into single women’s “quests for conception” through egg freezing (Inhorn 2020). Such studies will also contribute to the rich anthropological scholarship on the symbolic importance and value of eggs to women’s reproduction, begun by Emily Martin (1987, 1991) and

carried forward by anthropologists working in numerous global settings (see Inhorn and Birenbaum-Carmeli 2008 and Inhorn 2020 for overviews).

In conclusion, for Jewish women, egg freezing is not just a new “hope technology” (Franklin 1997). It is also a “self-preservation technology” being used by women who wish to retain a sense of normative fertility and hold open the possibility of future motherhood in a world that cherishes childbearing and valorizes the Jewish mother as the fount of Jewishness.

Notes

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1. Births out of wedlock are rare in Israel—5–8% versus the average of 40% in other Organization for Economic Cooperation and Development states. However, as shown in Susan Martha Kahn’s (2000) pathbreaking ethnography, *Reproducing Jews: A Cultural Account of Assisted Conception in Israel*, religious authorities condone the use of ARTs for single and lesbian women as part of the larger state project to “reproduce Jews.” In this study, one Israeli woman who had undergone EEF was a lesbian. All the rest were heterosexual

2. <https://data.oecd.org/pop/fertility-rates.htm>

3. One woman was an Israeli Druze, who undertook MEF before cancer treatment. Because she was not Jewish, she is not included in any of the descriptive statistics presented here.

4. All names are pseudonyms.

5. Moriah was one of three Israeli women to be offered ovarian tissue freezing in addition to egg freezing.

6. http://www.oecd.org/social/family/SF_3_1_Marriage_and_divorce_rates.pdf.

7. Even MEF for cancer patients is not routinely covered by health insurance in the United States (see Inhorn et al. 2018c).

8. All three of these women became pregnant using frozen ovarian tissue, a form of fertility preservation available clinically in Israel at the time, but rarely in the United States.

9. Two American women became pregnant and the mother of daughters after the study was completed. They reached out independently to the second author to share the good news.

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