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Medical and Elective (Social) Egg Freezing: Key Insights from Women's Perspectives

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Introduction

During the last two decades, oocyte cryopreservation has gained worldwide acceptance as an established procedure for fertility preservation, not only for women facing fertility-threatening cancer therapy or other medical conditions [1–4] but also for healthy young women wishing to preserve their reproductive potential for the future [5–7]. There are two main types of oocyte cryopreservation. One is medical egg freezing (MEF), which, per recommended guidelines, is offered to women at risk of losing their reproductive ability due to cancer chemo-/radiotherapy or other fertility-threatening medical or surgical interventions.

The other is elective egg freezing (EEF), which is being offered as a form of fertility preservation based on healthy women's sociodemographic characteristics and life circumstances, which may lead to postponement of women's reproductive desires. As shown unequivocally in our own research [8, 9], most women undertaking EEF are highly educated professionals without partners. This "lack of a partner" problem reflects growing global gender disparities in educational achievement, and it is the main reason why women are resorting to EEF around the globe.

In this chapter, we will review the indications for the two approaches—MEF and EEF—and discuss the key messages for care providers as gathered by direct analysis of women's perspectives.

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Medical Egg Freezing (MEF)

Medical egg freezing (MEF) is increasingly being recommended for women at risk of losing their reproductive ability due to cancer chemotherapy or other fertility-threatening medical conditions [2–4]. Cancer is by far the most common reason for MEF, and preferably MEF should be carried out before women begin chemotherapy. Besides cancer, young women with medical conditions such as autoimmune disorders, severe endometriosis, genetic profiles including BRCA 1 and 2, and mosaicism for Turner syndrome, all of which can threaten their future fertility, are also resorting to MEF [2, 3, 10, 11]. In all these cases, MEF can potentially preserve a woman's ability to conceive a future genetically related child, thereby preventing future infertility-related regret [12]. MEF may also give female cancer patients the feeling of psychological comfort that sperm cryopreservation has offered to generations of young men with cancer [13–15].

Studies of MEF, especially among cancer patients, report numerous ongoing barriers to access. These include inadequate presentation of fertility-related information to patients [16–18], lack of available MEF specialists to whom referrals can easily be made [19–21], and patient-provider communication issues [21], which include physicians' own discomfort in discussing future fertility, especially when time is of the essence [18, 22–25]. In an overview of barriers to fertility preservation among cancer patients, both intrinsic factors (i.e., patients' attitudes and health literacy, clinicians' approaches and skills, doctor-patient relationships) and extrinsic factors (i.e., fertility preservation resources, institutional characteristics) were found to influence patients' and healthcare professionals' decision-making at the time of cancer diagnosis [26]. A recent meta-analysis also shows that onco-fertility services and support are often not delivered to eligible patients according to current guidelines [27].

Although many of these studies have focused primarily on provider issues, less attention has been paid to the cost of MEF as a potential barrier to access. In two web-based surveys of cancer survivors conducted in the USA, concerns about MEF cost, especially among lower-income patients, were a significant factor in women's decisional conflict—that is, “to preserve or not to preserve” [28]. Despite the reduction in cost over time, both US surveys show that between one-quarter and one-third of respondents considered the costs of MEF to be prohibitive [28]. Similarly, in a recent multi-country, population-based survey of pediatric and adolescent cancer patients in Europe, the cost of MEF and the availability of public funding were found to be prominent factors affecting patients' MEF decision-making [29], as well as physicians' recommendations about whether to pursue fertility preservation [20].

Recently, we conducted in-depth interviews with 45 women who undertook MEF in two countries (the USA and Israel) [30, 31]. Breast cancer was the most common indication for MEF (15 cases, or 43%), followed by blood cancers (leukemia and lymphoma) (11 cases, or 31%), and a variety of other cancers (9 cases, or 26%). In ten cases, women had undergone MEF for other reasons, including severe endometriosis or dermoid tumors requiring full or

partial oophorectomies (four women), BRCA-positive genetic profiles requiring future oophorectomies (two women), a benign pituitary tumor (one woman), and three women suffering from other diseases (type 1 diabetes and autoimmune disorders).

Women who completed MEF were extremely grateful for the technology's existence. They considered themselves to be the "lucky ones" who were able to complete at least one MEF cycle. However, MEF patients also had specific needs and concerns. Women were upset when they were not given adequate information about MEF, were forced to search for IVF and fertility preservation specialists on their own, were needed to "run from one office to another" in order to coordinate their own treatment, or were asked to wait for an IVF clinic appointment, especially when cancer treatment was urgent. When cancer struck, women wanted prompt and seamless referral, "teamwork" between their various physician specialists, and a "smooth passage" through the MEF procedure.

The cost for MEF and lack of insurance coverage also had a major impact on women and their families, especially in the USA, where MEF is not covered by most insurance policies. In Israel, MEF is subsidized by the state health insurance program for women with cancer. However, women with other fertility-threatening medical diagnoses must pay for MEF on their own. Thus, in both countries, issues of cost and lack of MEF insurance coverage were paramount concerns for some women. Fortunately, in the USA, some state legislatures (e.g., in Connecticut and Rhode Island) are beginning to mandate insurance coverage for the costs of MEF [32].

Elective Egg Freezing (EEF)

In the growing literature on the nonmedical uses of oocyte cryopreservation, various terms such as "social egg freezing," "elective oocyte cryopreservation," "elective fertility preservation," "oocyte banking for anticipated gamete exhaustion," and "planned oocyte cryopreservation" have been proposed [4, 7, 33, 34]. We have added "elective egg freezing" (EEF) to the glossary of accepted terms [8, 9], because it most closely mirrors women's preferred usage.

Most recent reviews of oocyte cryopreservation suggest that women are undertaking EEF to postpone their fertility, maintain reproductive autonomy [35], or forestall age-related fertility decline [11, 36–38]. However, it is unclear from these reviews whether postponement of fertility is intentional and planned and whether reproductive autonomy is women's primary goal.

In our own binational qualitative study of EEF, we assessed the sociodemographic characteristics and life circumstances of 150 healthy US and Israel women who had undertaken at least one cycle of EEF [8]. About three-quarters of the women in both countries froze their eggs in their late 30s (ages 35–39), with the remainder in their early 30s (17%) or early 40s (9%). The average age for EEF in the USA was 36.6 and in Israel 36.2. Only one woman (in the USA) froze her eggs before age 30.

More than half of the women (58%) undertook only one EEF cycle, and one-third (30%) undertook two cycles. These figures did not vary significantly between the two countries, although slightly more women in the USA (12%) undertook a third or higher-order cycle. On average, nearly 18 eggs per woman were retrieved and frozen among the US group, versus 13 in Israel.

Women in both countries were educated professionals (100%). But despite their educational backgrounds and achievements, most women in both countries had been unable to find stable, committed relationships with men who also wanted to have children. More than four-fifths of women in this study (85%) were unpartnered at the time of EEF. Of the 15% who were partnered, less than half of this partnerships were stable and oriented toward future marriage and childbearing.

This “lack of a partner” problem was reflected in women’s qualitative assessments of why they were still single in their late 30s (and sometimes early 40s), despite their desires to marry and have children. Giving voice to women themselves revealed their frustrations and anxieties surrounding partnership difficulties. Women offered a variety of experiential perspectives on the lack of a partner problem in their own lives and for women more generally. Women’s assessments could be summarized and categorized in four ways:

Women’s Higher Expectations: Women addressed generational changes in expectations for egalitarian partnerships. Women in this study had been raised to believe in gender equality at home and at work. Thus, they hoped not to “settle” for a man who was less educated, less professionally accomplished, or less committed to similar interests and life goals. Many women said that they were still hoping to find the “right” person—the “soulmate” they were “meant” to be with. Searching for this person took time and commitment but could prevent the fearful outcome of “settling for less” or entering into a “bad marriage.”

Men’s Lower Commitments: Having said this, the majority of women in the study were skeptical about men of their generation and whether these men shared the same desires and life goals. Women pointed out that men were not necessarily socialized in the same way to want egalitarian relationships with professional women, with whom they could balance the burdens and responsibilities of family life. Women in this study described men’s increasing “commitment phobia,” particularly men who were the “children of divorce” and were not sanguine about the virtues of either marriage or fatherhood. Furthermore, women in the US portion of the study, particularly on the West Coast, described the “Peter Pan” syndrome—i.e., boys (in men’s bodies) who never grow up. These men were often described as uninterested or unable to fulfill the roles assumed by adult men in society, including marriage and fatherhood. Furthermore, in the San Francisco Bay Area and other “progressive” cities, women described the growing phenomenon of “polyamory”—namely, millennial-generation men’s desires to have multiple, open relationships with “primary” and “secondary” female partners. In short, women in this study described men’s lowered commitments to fidelity, marriage, and parenthood—the trifecta often expected within traditional, heteronormative family structures.

Skewed Gender Demography: Beyond changing gender expectations on the part of both women and men, there was clear acknowledgment by many of the women in this study that men of similar backgrounds—namely, single, college-educated, professionals, often with advanced degrees and high earnings—were simply hard to find. As one woman explained it succinctly, “the caliber of women is just higher than the caliber of guys.” This lament was especially true among American women on the East Coast, and particularly in New York City and Washington, DC, metropolitan areas that are well known to have higher percentages of educated women than educated men [39]. Women in those cities often lamented the dearth of “available” (and heterosexual) male partners in the skewed gender landscapes in which they were living. Furthermore, women often described their difficulties in “dating down” to less educated, less successful, or younger men. They characterized such relationships as fraught with “intimidation” on the part of men, who were generally emasculated by a woman’s superior professional status, living situation, or earnings. Furthermore, they pointed out that most men were “ageist”—very reluctant to marry an older woman, especially one in her late 30s or early 40s who might place “pressure” on a partner to have children immediately.

Self-Blame: Women who found themselves in this situation—without partners in their mid- to late 30s—sometimes posed the “Why me?” question out loud in their interviews. Often with sadness, women expressed their amazement and disbelief that they had somehow “ended up” without a partner. Yet, they often added that they knew (many) other professional women in this situation. On a personal level, some women blamed themselves for not finding a partner, because they were too “picky,” only attracted to “alpha males,” had let a “good one” get away, were not attractive enough to men, or had not put enough “energy” into dating (especially online dating, which was widespread in our study population). In short, women in this study sometimes engaged in self-blame—a negative discourse that author Sarah Eckel [40] has questioned in her book *It’s Not You: The 27 (Wrong) Reasons You’re Single*.

Conclusion

Oocyte cryopreservation is without doubt a very powerful technology that is allowing women to safeguard their future fertility, whether for medical or elective reasons. However, many issues still remain. For MEF, the lack of insurance coverage and the high costs create an insurmountable barrier, which is difficult to justify and which prevents many young women from protecting their future fertility. Many patient organizations, such as Resolve and Alliance for Fertility Preservation, are strong advocates in support of legislation that requires fertility preservation insurance coverage for cancer or other medical conditions whose treatment causes infertility. An encouraging development is that 15 US states have introduced bills compelling insurers to cover MEF, and 8 more are planning to do so in the near future (www.allianceforfertilitypreservation.org, accessed Feb 10,2020).

As shown in our study, most women undertaking EEF are doing so because of the “lack of partner” problem, and other studies confirm this finding. For example, surveys undertaken with women who have completed EEF in the USA [41, 42], Belgium [43], and Australia [44] also corroborated “lack of a partner” as the primary reason for women to undergo EEF, usually at an advanced reproductive age (late 30s to early 40s). Interestingly, the Australian study also revealed that 90% of women contacted 15 years after completing EEF had yet to use their stored oocytes and were still hoping to find a partner to avoid single parenthood [44]. In one of the US studies, an anonymous survey of women who had undergone EEF on average 2 years before reported significant anxiety, depression, loneliness, and hopelessness about their reproductive futures in the absence of current male partners [41].

The lack of male partners with whom to pursue marriage and childbearing has been described by economic journalist Jon Birger [39] as “the man deficit.” As Birger shows in his book *Date-onomics: How Dating Became a Lopsided Numbers Game*, the growing global gender disparity in college education may be the culprit. To wit, there are now 5.5 million college-educated women in the USA for only 4.1 million men (i.e., a ratio of 4:3) in the age bracket between 22 and 29. Between the ages of 30 and 39—when women start freezing their eggs—there are 7.4 million college-educated women for only 6 million men (i.e., a ratio of 5:4). This adds up to nearly 3 million more college-educated women than college-educated men in the 22–39 reproductive age bracket in America. To quote Birger (2015, p. 3), “These lopsided gender ratios may add up to a sexual nirvana for heterosexual men, but for heterosexual women—especially those who put a high priority on getting married and having children in wedlock—they represent a demographic time bomb.”

In Israel, too, women have surpassed men at all academic levels. Between the years 1970–2013, the percent of female master’s students soared from 26 to 61%, and at the doctoral level, from 19 to 52% [45]. In the 2010–2011 academic year, women comprised 57% of undergraduates, 60% of master’s students, and 52% of PhD students [45]. In the academic year 2015–2016, women undergraduate students outnumbered men by 21% (and 40%, if teachers’ colleges are included). At the master’s level, the gap reached 62.5% [45], and women now make up most of medical and law students in Israel [46].

This “man deficit” in higher education is growing around the world. The most recent World Bank data show that women significantly outnumber men in higher education in at least 75 countries where data are available ([47], World Bank, 2018). In the West, this includes, for example, Australia, where there are 41% more women than men in higher education, as well as Belgium (31%), France (23%), Italy (36%), New Zealand (35%), Norway (46%), Sweden (53%), and the UK (31%). In many non-Western countries as well, these educational disparities are emerging, including in Argentina (62%), China (19%), Cuba (43%), Lebanon (16%), Malaysia (53%), Panama (49%), South Africa (48%), Thailand (41%), and Tunisia (65%), to name a few.

Given the reason why so many otherwise healthy women are now pursuing EEF in many Western and non-Western societies [48, 49], it is important for IVF clinicians to become aware of, and sensitive to, the overarching lack of a partner

problem facing these talented professional women. EEF patients may need different forms of social and emotional support as they enter the couples-oriented world of IVF. Future empirical research of this nature will serve to facilitate worldwide comparisons of the underlying sociodemographic forces and gender-based disparities leading to the burgeoning uptake of EEF among otherwise healthy women around the globe.

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