

Exploring the Fertility Needs of Women Before and After Oocyte Freezing for Medical and Non-Medical Reasons: A Scoping Review

Mansoureh Moaya¹, Shadab Shahali¹, Minoor Lamyian¹, Sayed-Mohammad Azin², Alireza Milanifar³

¹Department of Reproductive Health and Midwifery, Faculty of Medical Sciences, Tarbiat Modares University, Tehran, Iran; ²Medical Law Department, University of Science and Culture, Tehran, Iran; ³Department of Ethics, Avicenna Institute, Tehran, Iran

Correspondence: Shadab Shahali, Email shadab.shahali@modares.ac.ir

Objective: Oocyte cryopreservation represents an effective strategy for fertility preservation among women of reproductive age. The most consistent and robust body of evidence highlights female age at the time of oocyte retrieval as the single most critical biological determinant of reproductive outcomes. While fertility preservation enhances women's reproductive autonomy, it simultaneously presents significant challenges regarding the adoption and integration of this advanced technology.

Methods: We reviewed seven databases to assess the fertility needs of women before and after oocyte freezing for medical and non-medical reasons. The inclusion criteria targeted studies on fertility preservation in women, excluding research involving men, adolescents, and transgender individuals. Out of the 2550 screened publications, 44 studies met the eligibility requirements and were included.

Results: The synthesis revealed five key areas of reproductive needs for women before and after oocyte freezing. Included counseling and fertility-related information, decision-making support, and emotional care. Furthermore, obtaining informed consent and issues related to the secondary use of frozen eggs are critical considerations for healthcare providers.

Conclusion: Realistic counseling is essential to ensure that women understand both the opportunities and limitations of oocyte freezing. Balanced, evidence-based guidance can help women make informed decisions while avoiding unrealistic expectations. Future efforts should focus on integrating fertility preservation education into public health strategies, expanding insurance or subsidy programs to reduce financial burden, and developing culturally sensitive counseling frameworks.

Trial Registration: This review was registered at PROSPERO with Registration ID: CRD42021223906.

Plain Language Summary: Women's reproductive capacity is inherently limited and susceptible to various health conditions that may compromise fertility. Fertility preservation in women—particularly through oocyte cryopreservation—remains an area with substantial unmet needs. Key challenges include disparities in the quality of preservation services and limited access to essential facilities.

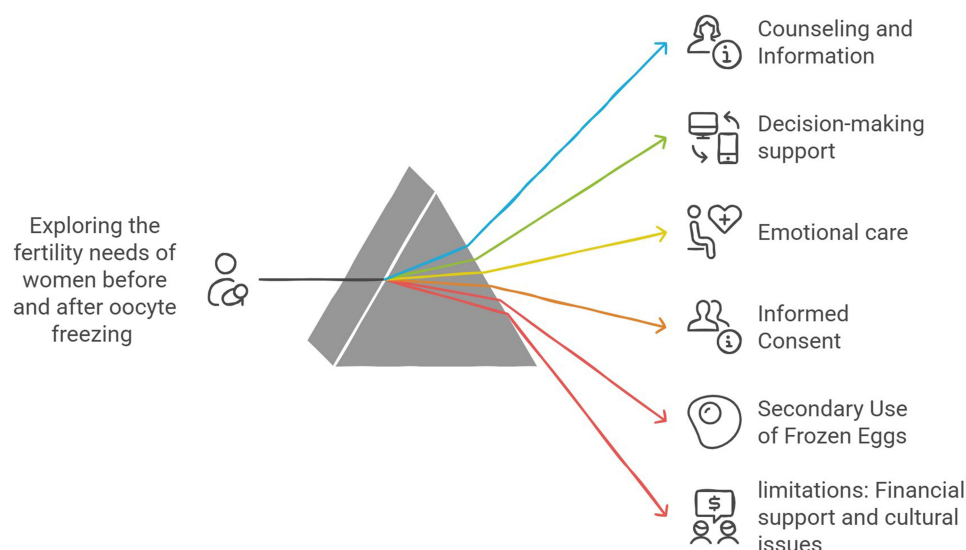
Keywords: human fertility, social freezing, fertility preservation, fertility autonomy, oocyte cryopreservation

Introduction

The postponement of childbearing among women is an issue that has been raised with increasing frequency¹. According to the latest census in Iran, the highest age-specific fertility rate was observed among urban women in the 35–39 age group.² In high-income countries, the number of women postponing motherhood has increased in recent decades.³ Several factors contribute to women delaying their first pregnancy.⁴ The global decline in fertility rates is primarily due to increasing levels of social affluence, increasing female literacy, and the decoupling of the meaning of life from reproduction.⁵

Numerous demographic and epidemiologic studies have shown a decline in female fertility beginning in the mid-thirties.^{6–8} It is important to acknowledge that certain aspects of women's reproductive health, particularly those related to their reproductive capabilities, especially among unmarried women, have not received sufficient attention and may have been

Graphical Abstract



neglected in discussions.⁹ On the other hand, advances in fertility preservation techniques, such as egg freezing, now offer people the opportunity to have genetic offspring by preserving their gametes.¹⁰ Women encounter various challenges when using reproductive technologies. Clinical outcomes indicate that approximately 15–20 mature oocytes are required to achieve one live birth, highlighting the importance of counseling women about realistic expectations.¹¹ Evidence shows that success rates are highest when oocytes are frozen before the age of 35, with live birth rates directly associated with both the age at freezing and the number of mature oocytes obtained.¹² While the procedure is generally safe, risks such as ovarian hyperstimulation syndrome remain considerations.¹³ Preserving fertility in cancer patients is also a challenge. Knowledge gaps and poor referral practices are common, although the importance of fertility preservation (FP) is generally understood by oncologists.¹⁴ The American Society of Reproductive Medicine (ASRM) considers planned oocyte cryopreservation as a means of promoting women's independence and social equality.¹⁵ In many cases, women face barriers such as restrictive laws, stigma, and discrimination that make it difficult to access reproductive health services.¹⁶ Although the need for fertility awareness and infertility prevention is emphasized, fertility awareness is currently missing from reproductive health guidelines.¹⁷ Reproductive life management is a simple concept that can be quite complex in practice.¹⁸ In the context of ongoing sociological change in contemporary societies, women's fertility needs have changed considerably. As a result, oocyte cryopreservation has become a globally relevant practice, encompassing not only epidemiological trends but also psychosocial considerations and continuing unmet clinical needs.¹⁹ This raises the question of what factors should be considered to meet the fertility needs of women before and after oocyte freezing. This review aimed to conduct a comprehensive literature review to analyze the reproductive needs of women who have undergone medical and non-medical oocyte freezing for fertility preservation.

Review Questions

This review addresses gaps in the literature and identifies the fertility needs of women before and after oocyte freezing to provide optimal care in women's fertility management at the time of oocyte freezing. This scoping review is guided by the following research question: What are the fertility requirements for individuals seeking oocyte freezing? How should service providers manage the fertility needs of women before and after oocyte freezing?

Methods

Protocol and Registration

This review was registered at PROSPERO with Registration ID: CRD42021223906. We conducted a scoping review using the framework proposed by Arksey and O'Malley²⁰ which consists of the following steps: 1) clarifying and linking the purpose and research question, 2) identifying relevant studies, 3) study selection, 4) charting the data, and 5) collating, summarizing, and reporting results. Using the Arksey and O'Malley framework enabled us to systematically explore peer-reviewed literature and clinical guidelines to achieve the study's objectives. Collecting data to identify the needs of egg freezing applicants and analyzing them was instrumental for optimal planning and care management. We followed the Preferred Reporting Items for Systematic Reviews and Meta-Analyses extension for Scoping Review (PRISMA-ScR) [1] checklist for reporting.

Eligibility Criteria

To maximize information, we utilized all available databases, including PubMed, Embase, Scopus, the Cochrane Library, Google Scholar, WHO, and ESHRE from 2004 to December 2024. Google Scholar and Google were searched to access conferences and clinical guidelines as grey literature. Related articles were uploaded into the Mendeley software.

Search Strategy

Search terms were created using the PCC (population, concept, and context) framework. The study population comprised women who underwent egg freezing. Concept focused on autonomy, motivation, and ethical considerations in fertility preservation, within the context of availability and decision-making aids. The study included the following keywords: Human fertility, social egg freezing, fertility preservation, Oocyte cryopreservation, and fertility awareness. Articles in both English and non-English languages were collected using MeSH and non-MeSH search engines. Cultural differences in the reproductive needs of egg freezing applicants were not considered in the search for articles. The search strategy was established (Table 1).

Study Selection Process

We reviewed studies of all types: review papers, quantitative studies, and qualitative investigations. All relevant subjects regarding fertility preservation services, the role of healthcare providers, and barriers to the topic were selected. Title and abstract screenings were conducted separately by two members of the research team.

Data Charting

Data extraction was carried out independently by two authors to ensure a thorough and unbiased process. During the screening phase, if an article referenced the fertility needs of individuals considering egg freezing in either the title or

Table 1 Search Strategy in PubMed

PCC	Search Query
Population and Context, and Concept	("Oocyte Retrieval"[MeSH Terms] OR "Oocyte Cryopreservation"[MeSH Terms] OR "egg freezing" OR "oocyte freezing" OR "oocyte preservation" OR "fertility preservation"[MeSH Terms] OR "cryopreservation"[MeSH Terms]) AND ("Women"[MeSH Terms] OR "Female"[MeSH Terms] OR woman OR women OR female OR females) AND (needs OR "patient needs" OR "healthcare needs" OR "psychological needs" OR "social needs" OR "informational needs" OR "decision making"[MeSH Terms] OR "patient satisfaction"[MeSH Terms] OR "patient experience" OR "autonomy" OR "emotional support" OR "social support"[MeSH Terms] OR counseling OR expectations OR motivations OR barriers OR challenges OR "quality of life"[MeSH Terms]) AND ("before egg freezing" OR "prior to egg freezing" OR "pre egg freezing" OR "post egg freezing" OR "after egg freezing" OR "before oocyte cryopreservation" OR "after oocyte cryopreservation" OR "pre-procedure" OR "post-procedure") AND ((humans[Filter]) AND (female[Filter]) AND (english[Filter]) AND (alladult[Filter]) AND (2004:2024[pdat])) AND ((humans[Filter]) AND (female[Filter]) AND (english[Filter]) AND (alladult[Filter]) AND (2004:2024[pdat]))

abstract, the full text was subsequently reviewed by the respective author. In instances where there was a difference of opinion regarding the extracted data, the authors engaged in constructive discussions to address the matter. Should any disagreements persist, a third author, recognized as an expert in the field, was consulted to offer further insights and facilitate a consensus.

Data Synthesis

The data were extracted for each piece of evidence. We then compiled a table of studies, including the authors' names, year of publication, study type, and key findings. Tabulation was provided separately for egg freezing applicants and health care providers.

Results

Selection of Sources of Evidence

The PRISMA flow diagram illustrates the study selection process and summarizes the reasons for exclusions (Figure 1). Studies that investigated fertility preservation in men, children, and transgender individuals were excluded from the study. The primary search of the peer-reviewed literature generated 2552 studies. Thirty-five peer-reviewed studies were duplicates and removed. During the screening process, 2399 studies did not meet the inclusion criteria and were eliminated as irrelevant records, leaving 118 articles screened in terms of full text and abstracts. Forty-one studies were excluded from the study due to

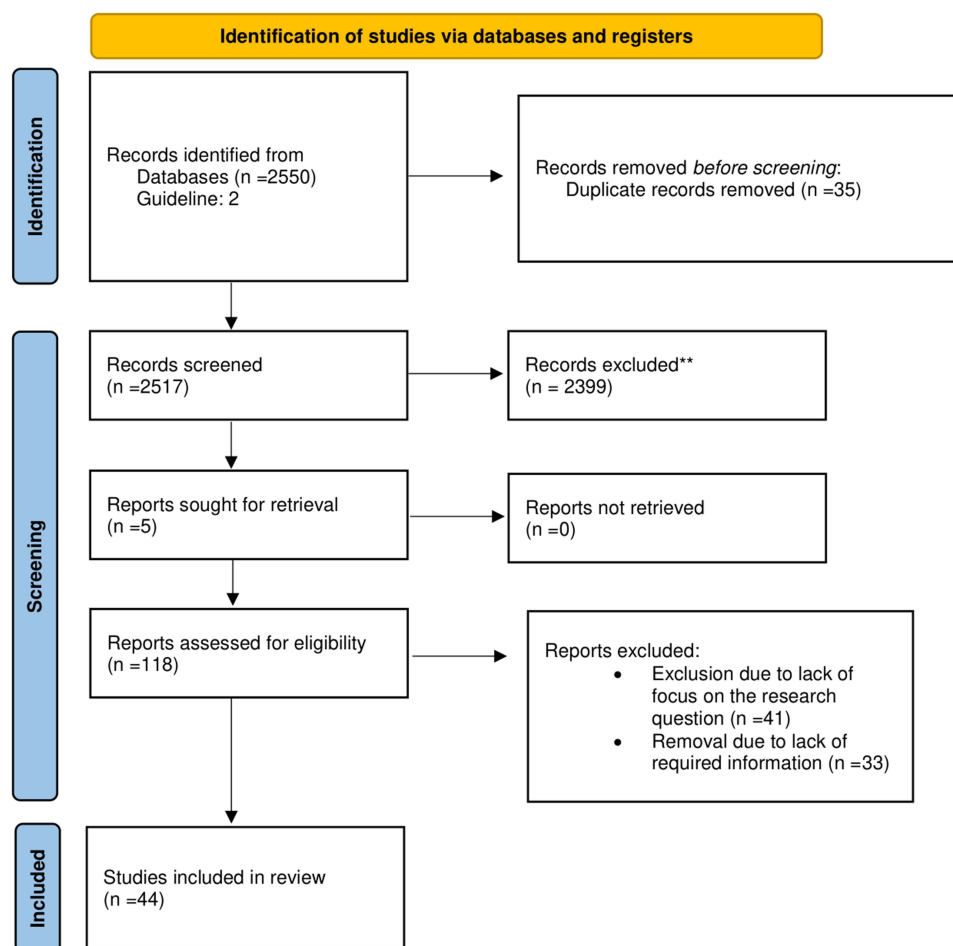


Figure 1 PRISMA ScR flow diagram detailing the quantity of included and excluded papers at each stage of screening. **Studies did not meet the inclusion criteria and were eliminated as irrelevant records.

a lack of focus on the research question, and 33 studies did not provide information about the reproductive needs of egg freezing applicants and were excluded. Ultimately, 44 studies were used in the synthesis stage.

Characteristics of Sources of Evidence

We incorporated a diverse range of research, including 8 qualitative studies, 17 quantitative studies, 20 review studies, and two clinical guidelines. Out of the 44 studies included in the review, five key topics were organized. The number of studies conducted on each key topic related to women's fertility needs before and after oocyte freezing in medical and non-medical reasons is specified (Figure 2), so that a significant proportion of studies concerning the needs of egg-freezing applicants have centered on areas such as Counseling, and fertility-related discussions (18/44: 40%), in comparison, there appears to be a relatively smaller number of studies addressing the legal and support issues pertinent to applicants, with a fairly consistent distribution across this category, emotional care (5/44: 11%), Obtaining informed consent (8/44: 18%), Decision-making support (9/44:20%), and issues related to the secondary use of frozen eggs (5/44: 11%). The findings of the studies are separately presented in two tables: one outlining women's fertility needs (Table 2), including counseling, fertility-related discussions, emotional care, and decision-making support; the other highlighting areas of concern from health providers, including obtaining informed consent and issues related to secondary use of frozen eggs (Table 3). The results have been organized into categorized sections as follows:

Counseling and Fertility-Related Discussions

Surveys in several countries indicate that students know little about age-related fertility decline in women.^{21–23} One survey found that young female graduate students often obtain information on fertility from reliable sources, such as educational institutions or health care providers. However, they also rely on other sources, including the media, which can lead to incomplete or inaccurate knowledge about fertility preservation.²⁴ A systematic review suggests that accurate and relevant information about social egg freezing should be made available to the public through educational programs in schools, media portrayals, and counseling by health professionals to make informed decisions at the right time.²⁵ Other studies have stated that despite thorough counseling before ovarian stimulation to retrieve oocytes, many women did not fully understand the effect of diminishing ovarian reserve with age.^{27,28} Studies indicate a strong negative correlation between reproductive outcomes following egg freezing and the woman's age at the time of the procedure.^{8,25,26}

Significantly, younger age at the time of egg retrieval is associated with better egg quality and quantity, leading to higher fertilization rates and more live births.⁶³ The role of serum anti-Mullerian hormone (AMH) as a predictor of ovarian response has been confirmed.³⁶ Individuals who undergo oocyte cryopreservation at a younger age generally show higher ovulatory responses, require fewer cycles of ovarian stimulation, and achieve higher live birth rates, highlighting the critical impact of age on fertility preservation.¹² Some oocytes are destroyed during the thawing process, and frozen oocytes do not guarantee

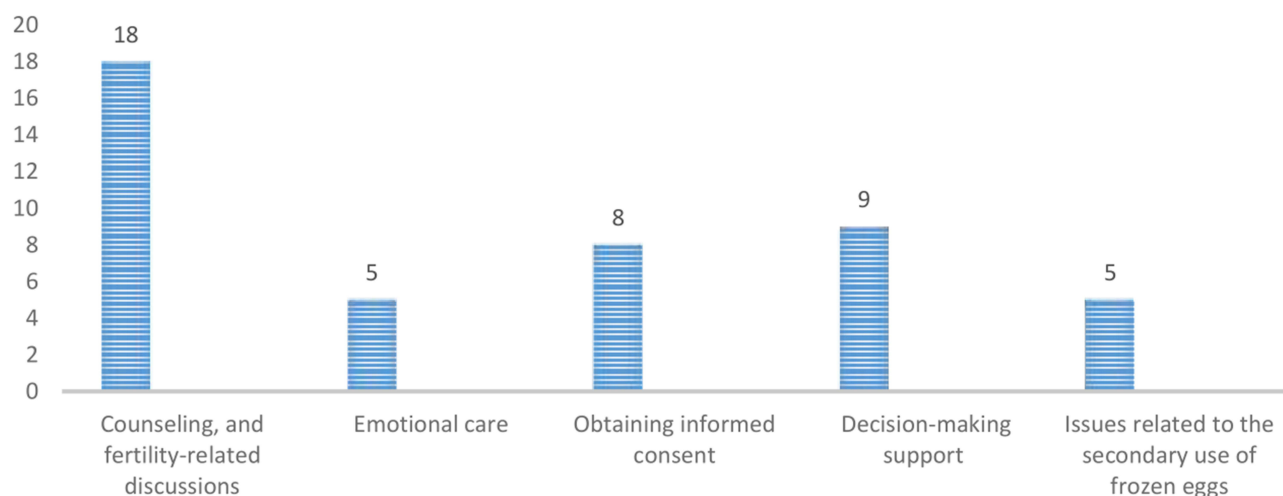


Figure 2 The number of articles in five key areas of women's reproductive needs before and after oocyte freezing.

Table 2 Study Characteristics of Papers and Key Outcomes of Women's Fertility Needs in Oocyte Freezing for Medical and Non-Medical Reasons

Authors (year)[ref.]	Reason of Egg Freezing			Type of Study	Key Outcomes/Findings
	Cancer and Egg Freezing	Disease and Egg Freezing	Social Egg Freezing		
Tozzo et al (2019) ²¹ Porto et al (2024) ²² Akhondi et al (2023) ²³	–	–	√	Survey	The insufficient knowledge of students regarding age-related fertility decline in women has been highlighted.
Stevenson et al (2021) ²⁴	–	–	√	Survey	Insufficient knowledge regarding fertility preservation, the negative stigma associated with egg freezing, and financial barriers were reported.
Platts et al (2020) ²⁵	–	–	√	Systematic Review	Accurate and relevant information regarding social egg freezing should be made readily accessible to the public.
Mintziori et al (2019) ²⁶	–	–	√	Review	A strong negative correlation was identified between women's age and reproductive outcomes. Financial difficulties were recognized as a significant factor.
Dason et al (2023) ²⁷	√	–	–	Survey	Decision support had mainly consisted of delivering basic information either before or during the consultation.
Hafezi et al (2022) ²⁸ PubMed	–	–	√	Cross-sectional study	A lack of awareness among women about age-related fertility decline has been highlighted.
Harzif, et al (2020) ²⁹ PMC	–	–	√	Cross-sectional study	Incorporating fertility discussions into women's annual examinations is considered essential.
Greenwood et al (2018) ³⁰ Yee et al (2021) ³¹ PubMed	–	–	√	Retrospective cohort Survey	Following fertility preservation counseling, women are less likely to experience regret about not pursuing it.
Emirdar et al (2023) ³² PubMed	√	–	=	Survey	There is a clear need to emphasize referrals and to raise awareness of fertility preservation methods among healthcare professionals.
Navarria et al (2020) ³³	–	√	–	Survey	Interest in fertility preservation techniques has been reported among women diagnosed with endometriosis.
Cermisoni et al (2023) ³⁴ PubMed Hampton et al (2015) ³⁵	–	√	–	Overview Review	Fertility preservation counseling in people with genetic diseases is recommended.
ESHRE (2020) ³⁶	√	√	√	Guideline	Emphasizing the importance of fertility preservation training for healthcare professionals is essential to improve patient care.
Dolmans et al (2018) ³⁷	√	–	–	Review	The critical importance of early referral to fertility preservation before cancer treatment.
Gorman et al (2011) ³⁸	√	–	–	Qualitative study	There is a need to create educational materials for patients and healthcare providers on the issue of informed consent.
Salama et al (2018) ³⁹	√	–	–	Review	The barriers and opportunities associated with oncofertility practice have been discussed.

(Continued)

Table 2 (Continued).

Authors (year)[ref.]	Reason of Egg Freezing			Type of Study	Key Outcomes/Findings
	Cancer and Egg Freezing	Disease and Egg Freezing	Social Egg Freezing		
Garvelink et al (2015) ⁴⁰	–	–	√	Qualitative study	The process of oocyte freezing for oncofertility patients involves multiple important decisions that must be made within a limited period.
Wennberg et al (2019) ⁴¹	–	–	√	Review	Egg freezing can contribute to empowering women in managing their fertility.
Hammarberg et al (2017) ⁴² Petropanagos et al (2015) ⁴³	–	–	√	Cross-sectional survey	Some oocytes are destroyed during the thawing process, and frozen oocytes do not guarantee a pregnancy.
Daniluk et al (2016) ⁴⁴ Scopus	√	–	√	Survey	Factors that influence women's decisions to freeze their eggs include financial costs, health risks to themselves or their future children, and the procedure's success rates.
Hodes-Wertz (2013) ⁴⁵	–	–	√	Survey	Egg freezing technology may be useful for bridging the gap between the early reproductive years and when a woman is truly "ready" to have children, but financial issues are important.
Proost et al (2022) ⁴⁶	–	–	√	Qualitative study	Women were interested in planning for their future fertility, so further discussion and policy development are needed.
Inhorn et al (2017) ⁴⁷	–	–	√	Qualitative study	Egg freezing gives women a sense of empowerment.
Drost et al (2023) ⁴⁸	–	–	√	Qualitative study	Expressed the negative stigma surrounding egg freezing.
Baldwin et al (2020) ⁴⁹	–	–	√	Qualitative study	Emotionally challenging and feelings of isolation and stigma due to being single were mentioned.
Mosavi et al (2014) ⁵⁰ PubMed	–	–	√	Qualitative study	The influence of cultural taboos and the lack of accessible, accurate information have been recognized.
Lawson et al (2015) ⁵¹	√	–	–	Qualitative Study	The provision of psychological counseling for patients pursuing fertility preservation has been addressed.
Jones et al (2020) ⁵²				Survey	Although egg freezing can impose physical, psychological, and financial burdens, women generally do not regret the decision. Their primary concern revolves around the duration of egg storage.

pregnancy.⁴³ Some have recommended including fertility preservation discussions in women's annual check-ups.²⁹ One study found that an informed decision to freeze oocytes was associated with a lower likelihood of regretting it later.³¹ In a retrospective cohort study, women who were thoroughly informed and emotionally supported during egg freezing reported fewer subsequent regrets.³⁰ One study highlights that referral rates for fertility preservation counseling among cancer patients of reproductive age remain inadequate, underscoring the need for increased referral and awareness of fertility preservation techniques among healthcare providers. The study also shows that patients' level of education is related to their desire for fertility preservation.³² The results of a survey of women with endometriosis show that they are interested in understanding their fertility potential and exploring fertility preservation options.³³ Studies indicate that fertility preservation counseling for individuals with genetic conditions associated with diminished ovarian reserve should be performed by a multidisciplinary team, consisting of a gynecologist, an embryologist, a psychologist or counselor, and a geneticist.^{34–36}

Table 3 Study Characteristics of Papers and Key Outcomes of Healthcare Providers' Concerns in Oocyte Freezing for Medical and Non-Medical Reasons

Authors (Year)[ref.]	Reason of Egg Freezing			Type of Study	Key Outcomes/Findings
	Cancer and Egg Freezing	Disease and Egg Freezing	Social Egg Freezing		
Gruben (2017) ⁵³ Taghavi (2019) ⁵⁴	–	–	√	Review	Providing women with information, informed consent, and counseling in oocyte freezing.
Ahmed et al (2022) ⁵⁵ Loren et al (2013) ⁵⁶	√	–	–	Review Systematic Review	Oncologists should inform patients that treatment may lead to a potential reduction in fertility.
Varlas et al (2021) ¹⁹	–	–	√	Review	Many women are less aware of the safety and effectiveness of this method.
Petropanagos et al (2015) ⁴³ PubMed	–	–	√	Review	To support women in making informed choices, family physicians should engage in discussions about this practice within the larger context of reproductive health.
Borovecki et al (2018) ⁵⁷	–	–	√	Review	Fertility preservation at earlier reproductive ages is generally associated with higher live birth rates.
Walker et al (2022) ¹² PubMed	√	–	–	Review	Higher oocyte yield, achieved through fewer ovarian stimulation cycles at younger ages, is associated with increased live birth rates.
Hernández et al (2024) ⁵⁸	–	–	√	Qualitative study	Women emphasized the importance of being a mother and having one's own biological child, and the complexities and limitations associated with adoption.
Patrizio et al (2016), ⁵⁹ An Ethics Committee opinion (2018) ¹⁵	√	–	√	Review	Storage period of the eggs and who will use them? should be specified with informed consent.
Robertson et al (2014) ⁶⁰ PubMed	–	–	√	Review	Issues concerning the disposition of oocytes and their potential donation represent important topics that warrant further investigation.
Frydman et al (2016) ⁶¹ PubMed	–	–	√	Review	Raises numerous ethical questions regarding the decision to collect gametes and their future use.
Chin et al (2022) ⁶²	–	–	√	Review	With the emergence of egg freezing and the potential for a surplus of unused frozen eggs in the coming years, there is an urgent need to comprehensively update regulations regarding donor anonymity and recipient rights.

Decision-Making Support

Research highlights the importance of referring patients to fertility specialists before starting chemotherapy or radiotherapy to optimize fertility preservation outcomes.³⁷ Concerns about patient survival often impact decisions regarding fertility preservation. There is an urgent need to develop educational resources for patients to support women and their healthcare providers in making well-informed decisions.³⁸ It is important to communicate the potential gonadotoxic effects of cancer treatment and ensure timely referral for fertility preservation support.⁴⁰ These clinical aspects underscore the need for timely decision-making and individualized fertility preservation strategies alongside psychosocial and ethical support.³⁶

A study examining nine developing countries identified common barriers to oncofertility practices, including limited awareness among providers and patients, cultural and religious constraints, lack of insurance coverage, and inadequate funding for infertility programs.³⁹ In one study, women with cancer seeking fertility preservation generally reported satisfaction with the information provided. However, they also highlighted challenges, particularly the pressure to gather information quickly and make critical decisions within a limited timeframe.⁴⁰ Raising public awareness of age-related fertility decline and encouraging informed decision-making about egg freezing can empower women to take control of their reproductive choices.⁴¹ One study recommends that women considering egg freezing for non-medical reasons are thoroughly counseled about key factors, including their age, the number of eggs retrieved, and the possibility that some eggs may not be viable or may go unused.⁴² It is important to understand that using stored eggs does not guarantee the birth.^{8,42} One study found that factors influencing women's decision to freeze their oocytes included the financial cost, the health risks to themselves or their potential children, and the success rates of the procedure.⁴⁴ Financial considerations were frequently cited as an important factor in decision-making in several studies.^{24–26} One study has shown that egg freezing technology can bridge the gap between the early reproductive years and when a woman is truly “ready” to have children.⁴⁵ Egg freezing, therefore, empowers women by reducing societal pressure and preserving the option of biological motherhood in the future.⁴⁷ A qualitative study found that women increasingly need to plan their future reproductive decisions. In addition to postponing childbearing, they are choosing to freeze their eggs to preserve their fertility. This issue needs to be discussed further, and supportive policies need to be developed.⁴⁶

Emotional Care

Recent studies have shown that the negative social stigma surrounding oocyte cryopreservation is a significant barrier to decision-making regarding oocyte freezing.^{24,48} In another study, some applicants described the process of egg freezing as emotionally challenging, often associated with feelings of isolation and the stigma associated with being single.⁴⁹ A study conducted in Iran linked cultural taboos and lack of access to accurate information to unmarried women's reluctance to seek sexual and fertility services.⁵⁰ One study indicated that cancer patients have to make psychologically complex decisions about preserving their fertility.⁵¹ Given the wide range of fertility options and uncertainty about their future, thorough screening for anxiety and depression is essential.³⁸ Early identification of patients who may benefit from additional psychological counseling is crucial.⁵¹ One of the included studies reported that women did not regret their decision to pursue oocyte cryopreservation despite the associated physical, psychological, and financial burdens. Nevertheless, dissatisfaction was observed regarding the limitation on the length of time their eggs were stored.⁵²

Obtaining Informed Consent

Studies recommend that healthcare providers talk to patients about potential fertility risks as soon as possible after a cancer diagnosis. This information should be effectively communicated and fully documented to ensure informed consent.^{53,54} Oncologists should inform patients about the potential reduction in fertility as a result of treatment and discuss fertility preservation options.^{55,56} As oocyte freezing technology is new, many women are unaware of its safety and effectiveness.¹⁹ One study recommended that all women, regardless of their sexual orientation, age, disabilities, health status, relationships, or socioeconomic background, should be fully informed about social egg freezing. To help women make informed decisions, family physicians should discuss this practice in the broader context of reproductive health and family planning.⁴³ The American Society of Ethics Committee recommends that healthcare providers provide complete information on live birth and success rates associated with frozen eggs to assist individuals undergoing fertility treatment in making informed decisions. To ensure that patients fully understand the procedure and its potential outcomes, education, counseling, and informed consent are critical.¹⁵ Studies suggest that women who follow fertility preservation at a younger age generally have higher live birth rates. With in vitro fertilization (IVF), the chance of pregnancy decreases with age, from nearly 38% at age 35 to 2% at age 45, suggesting that younger women may have better outcomes.^{12,57}

Issues Related to the Secondary Use of Frozen Eggs

A study investigating ethical dimensions of oocyte cryopreservation revealed that women prioritized family formation in their decisions and placed great importance on the experience of motherhood and pregnancy. Participants also highlighted the complexities and limitations of adoption, as well as the ethical and genetic considerations.⁵⁸ The research highlights

the experimental nature of many aspects of reproductive medicine, due to both the techniques used and the populations undergoing fertility preservation. This emerging field raises critical ethical questions regarding the collection of gametes and their future use.⁶¹ There are different national regulations regarding the maximum storage periods for these biological samples.¹⁵ Studies recommend that at the time of signing the egg freezing contract, the storage period of the eggs and their intended use should be specified with the informed consent of the applicant, following the rules and guidelines established by the centers.^{15,59} The consent forms should address the future status of frozen eggs, and the applicant's preferences regarding marriage, divorce, and wishes regarding posthumous reproduction and inheritance rights.¹⁵ The decision-making process regarding the storage, fertilization, and transfer of the frozen eggs falls under the woman's legal rights. However, for many aspects of assisted reproductive technology, there are no comprehensive regulatory guidelines, and egg freezing is no exception.⁶⁰ Not all individuals who undergo oocyte cryopreservation will ultimately use their frozen oocytes, so there may be opportunities for oocyte donation. There is therefore an urgent need for a comprehensive update of the regulations on donor anonymity and recipient rights. At the same time, recipients must be informed about the egg donor's health information, and their various ethical concerns must be taken into account.⁶²

Discussion

While fertility preservation by egg freezing is widely used in infertility treatment centers, it is essential to carefully assess the specific needs of women who choose this method. This scoping review summarized existing information on women's fertility needs before and after oocyte freezing for medical and non-medical reasons and identified three key areas of women's fertility needs for egg freezing included: 1) counseling and fertility-related discussions, 2) emotional care, 3) decision-making support, and for health providers two areas were identified: 1) obtaining informed consent, and 2) issues related to the secondary use of frozen eggs.

Studies have shown that fertility preservation counseling empowers women to make timely decisions about their reproductive needs and improve their quality of life.^{41,47,55} There is an urgent need to improve public education about fertility preservation. Many women report that they have received information about egg freezing from friends and non-medical sources.^{24,25,45} Numerous studies have highlighted the limited awareness of fertility preservation options available to women in society and the urgent need to improve understanding and advocacy.^{21–24}

Limited knowledge and awareness of age-related fertility decline in women exacerbate infertility rates and hinder the achievement of their reproductive goals. Biologically, oocyte cryopreservation is highly age-dependent, as ovarian reserve and oocyte quality decline significantly after the age of 35. Younger women not only produce more oocytes during hormonal stimulation but also achieve higher survival and fertilization rates after thawing.^{12,36} The highest number of eggs and the best live birth rate were observed in women under 37.5 years of age or those with an AMH greater than 1.995 ng/dL at the time of egg retrieval.¹² Proper counseling for those considering oocyte freezing plays a crucial role in minimizing regret and achieving better outcomes. In certain societies, cultural norms contribute to the social stigmatization of oocyte cryopreservation and present significant barriers for unmarried women considering this option. Stigma is a complex concept that encompasses interrelated factors. Pescosalido and Martin define stigma as a set of interrelated and heterogeneous systemic structures, from the individual to society, that lead to reactions with cultural manifestations such as prejudice and discrimination.⁶⁴

Religious and cultural factors significantly influence women's autonomy and decision-making regarding oocyte cryopreservation. In the Middle East and Asia, traditional gender norms, religious rules, and societal expectations restrict women's reproductive choices.²³ Future research should seek to systematically quantify the impact of specific cultural and religious factors on decision-making regarding oocyte cryopreservation across diverse populations.

The success rates of oocyte freezing in achieving pregnancy are crucial, with studies emphasizing that the woman's age at the time of egg freezing is a key factor for success.⁶⁵ Implementing effective fertility preservation options for women whose fertility is declining due to age increases the likelihood of successful pregnancy and reduces the significant psychological stress associated with unintended childlessness.⁶⁶ Given the growing evidence that decision aids improve knowledge and reduce conflict and regret in decision-making, routine fertility preservation counseling is recommended for women with cancer. It is imperative to develop a training program for healthcare workers to improve their knowledge and awareness of fertility preservation support for cancer patients.¹⁴ In terms of maternal health, Bachmann (2018)

suggests that counseling should be recommended for women using frozen oocytes for pregnancy, especially about the risks of pregnancy at advanced maternal age.⁶⁷

Several studies have highlighted financial constraints and inadequate insurance coverage as major barriers to oocyte cryopreservation.^{24–26,44,52} Given the high cost of oocyte cryopreservation, financial support plays an important role in decision-making. Ohno (2024) suggests educational and awareness programs targeting urban citizens have been effective, and financial support from local municipalities for women to cover the initial costs of oocyte cryopreservation has been recommended.⁶⁸ If the frozen eggs are not used and the woman wishes to donate them as a nondirected donor (a status that has replaced anonymous donor status), informed consent should be obtained again if the donor is over 34 years old, as recommended by ASRM. In addition, genetic counseling, a physical health and sexually transmitted disease examination, and a psychological evaluation of the donor were recommended.⁶⁹

Currently, the proportion of medical patients who ultimately use their frozen oocytes is less than 10%, and nearly 40% of social oocyte cryopreservation cases return to use their cryopreserved oocytes. This presents challenges for evaluating long-term clinical outcomes in the future.¹² It is recommended that written consent be obtained at the time of egg freezing, specifying the status of posthumous reproduction, and ensuring that healthcare providers provide accurate information to help women make an informed decision. Some countries have introduced time restrictions on the storage of eggs,⁷⁰ and require applicants to use the frozen eggs within a certain time frame. Therefore, applicants need to be aware of such restrictions and make informed decisions about the appropriate age for freezing. Research shows a positive correlation between education level and fertility awareness. Women with a higher level of education are more likely to seek information and, consequently, pay more attention to their fertility.⁷¹ The goal of health planning in biomedicine and public health is to recognize and address the different health needs of men and women according to their biological differences. This approach is integral to the development of a health policy aimed at promoting gender equality.⁵⁷ The new ideology of human rights emphasizes the satisfaction of basic human needs as a fundamental goal, contributing to social equality.⁷² Over the past half-century, family planning policies have generally focused on birth control, which has had a significant impact on global population growth, which is now falling below replacement rates in some countries.⁷³ As women's societal roles in society change and childbearing is increasingly delayed, their reproductive needs have shifted accordingly. To prevent infertility, a proactive approach is essential. Oocyte freezing is a medically and emotionally complex process. This study highlights the necessity of a comprehensive support system for women undergoing oocyte cryopreservation, including counseling, detailed information, emotional care, and decision support. Going forward, it is crucial to address challenges such as uncertainty, financial issues, and the secondary use of frozen oocytes.

Limitations

In this study, cultural and religious issues related to oocyte freezing were addressed only to a limited extent. Future research should explore cultural aspects of women's fertility needs in the context of oocyte freezing. In addition, the limited number of studies specifically addressing post-egg-freezing needs may limit the scope of findings.

Conclusion

This scoping review synthesized current evidence on the fertility needs of women before and after oocyte freezing for both medical and non-medical reasons. The findings highlight several key needs, including access to accurate counseling and fertility-related information, support for informed decision-making, and the provision of emotional and psychological care. From the perspective of healthcare providers, particular emphasis must be placed on ensuring comprehensive informed consent and addressing ethical concerns related to the secondary use of frozen oocytes. Despite the potential of oocyte freezing to empower women in managing reproductive choices, several challenges remain. Financial barriers, limited awareness of age-related fertility decline, cultural and religious restrictions, and inadequate referral practices continue to hinder equitable access. Furthermore, gaps persist in the provision of post-freezing support and in regulatory frameworks that govern storage duration, donation, and posthumous use of gametes. Realistic counseling is essential to ensure that women understand both the opportunities and limitations of oocyte freezing. While the procedure may mitigate age-related fertility decline, it does not guarantee future pregnancy. Balanced, evidence-based guidance can help women make informed decisions while avoiding unrealistic expectations. Future efforts should focus on integrating

fertility preservation education into public health strategies, expanding insurance or subsidy programs to reduce financial burden, and developing culturally sensitive counseling frameworks. Strengthening regulations and support systems will be critical to ensuring that oocyte cryopreservation truly addresses women's reproductive needs and contributes to informed, patient-centered care.

Abbreviations

NIHR Library, The National Institute for Health and Care Research; WHO, World Health Organization; ESHRE, European Society of Human Reproduction and Embryology; FP, Fertility Preservation; ASRM, American Society of Reproductive Medicine; EF, Egg Freezing; AMH, Anti-Mullerian hormone.

Data Sharing Statement

All data related to the study are included in the article.

Acknowledgments

The present study was supported by TarbiatModares University, Tehran, Iran as part of the first author's Ph.D. thesis.

Author Contributions

All authors have made significant contributions to the manuscript, including study design, conceptualization, data collection, implementation, analysis, and interpretation. They have contributed to drafting, revising, or critically reviewing the article and have provided final approval of the version to be published. Additionally, all authors have agreed on the journal to which the article was submitted and have accepted responsibility for all aspects of the work.

Funding

There is no funding to report.

Disclosure

The authors declare that they have no competing interests in this work.

References

1. Li H, Fan C, Mubarik S, et al. The trend in delayed childbearing and its potential consequences on pregnancy outcomes: a single center 9-years retrospective cohort study in Hubei, China. *BMC Pregnancy Childbirth*. 2022;22:1–10. doi:10.1186/s12884-022-04807-8
2. Statistical center of Iran according to the 2016 census total fertility rate of Iran reached to 2.01 between 2011 and 2016 [Persian].
3. Eurostat. Being young in Europe today. Publications Office of the European Union. 2015.
4. Behboudi-Gandevani S, Ziaei S, Farahani FK, Jasper M. The perspectives of Iranian women on delayed childbearing: a qualitative study. *J Nurs Res*. 2015;23:313–321. doi:10.1097/JNR.0000000000000084
5. Aitken RJ. The changing tide of human fertility. *Hum Reprod*. 2022;37:629–638. doi:10.1093/humrep/deac011
6. Owen A, Carlson K, Sparzak PB. *Age-Related Fertility Decline*. 2024.
7. Anspach Will E, Maslow B-S, Kaye L, Nulsen J. Increasing awareness of age-related fertility and elective fertility preservation among medical students and house staff: a pre- and post-intervention analysis. *Fertil Steril*. 2017;107:1200–1205.e1. doi:10.1016/j.fertnstert.2017.03.008
8. Cobo A, García-Velasco JA. Why all women should freeze their eggs. *Curr Opin Obs Gynecol*. 2016;28:206–210. doi:10.1097/GCO.0000000000000269
9. Harper JC, Hammarberg K, Simopoulou M, et al. The International Fertility Education Initiative: research and action to improve fertility awareness. *Hum Reprod Open*. 2021;2021:1–4. doi:10.1093/hropen/hoab031
10. Köroğlu N, Aydın T. Oocyte vitrification for oncological and social reasons. *Turkish J Obstet Gynecol*. 2023;20:59–63. doi:10.4274/tjod.galenos.2022.59827
11. Raquel A, Montoya-botero P, Sachs-guedj N, Polyzos NP. Obstetrics and Gynaecology Association between the number of oocytes and cumulative live birth rate: a systematic review. *Best Practice & Research. Clinical Obstetrics & Gynaecology*. 2023;87:102307. doi:10.1016/j.bpobgyn.2022.102307
12. Walker Z, Ginsburg AL, Ginsburg E. Oocyte cryopreservation review: outcomes of medical oocyte cryopreservation and planned oocyte cryopreservation. *Reprod Biol Endocrinol*. 2022;20. doi:10.1186/s12958-021-00884-0
13. Timmons D, Montrieff T, Koyfman A, Long B. Ovarian hyperstimulation syndrome: a review for emergency clinicians. *Am J Emerg Med*. 2019;37:6757.
14. Ghaemi M, Rokhzadi I, Dashtkoobi M, et al. Knowledge, attitudes, and practices of healthcare providers among women oncofertility in Iran: a cross-sectional study. *BMC Cancer*. 2024;24. doi:10.1186/s12885-024-12821-6
15. Ethics Committee of the American Society for Reproductive. Planned oocyte cryopreservation for women seeking to preserve future reproductive potential: an Ethics Committee opinion. *Fertil Steril*. 2018;110:1022–1028. doi:10.1016/j.fertnstert.2018.08.027

16. Fletcher J, Yee H, Ong B, Roden RC. Centering disability visibility in reproductive health care: dismantling barriers to achieve reproductive equity. *Women's Heal.* **2023**;19:17455057231197166.
17. Bakkensen JB, Goldman KN. Women's preventive services initiative: fertility counseling overlooked. *Am J Obs Gynecol.* **2022**;226:524–528. doi:10.1016/j.ajog.2021.06.100
18. Delbaere I, Verbiest S, Tydén T. Knowledge about the impact of age on fertility: a brief review. *Ups J Med Sci.* **2020**;125:167–174. doi:10.1080/03009734.2019.1707913
19. Varlas VN, Bors RG, Albu D, et al. Social freezing: pressing pause on fertility. *Int J Env Res Public Heal.* **2021**;18:8088. doi:10.3390/ijerph18158088
20. Arksey H, O'Malley L. Scoping studies: towards a methodological framework. *Int J Soc Res Methodol.* **2005**;8:19–32. doi:10.1080/1364557032000119616
21. Tozzo P, Fassina A, Nespeca P, Spigarolo G, Caenazzo L. Understanding social oocyte freezing in Italy: a scoping survey on university female students' awareness and attitudes. *Life Sci Soc Policy.* **2019**;7:3.
22. Porto ME, Moura AL, Carvalho TR, et al. Fertility preservation: knowledge, awareness, and attitude of university students and professors. *Minerva Obs Gynecol.* **2024**;76:142–150.
23. Akhondi MM, Ardakani ZB, Warmelink JC, Haghani S, Ranjbar F. Knowledge and beliefs about oocyte cryopreservation for medical and social reasons in female students: a cross-sectional survey. *BMC Womens Health.* **2023**;23:1–11. doi:10.1186/s12905-023-02481-2
24. Stevenson EL, Gispanski L, Fields K, Cappadora M, Hurt M. Knowledge and decision making about future fertility and oocyte cryopreservation among young women. *Hum Fertil.* **2021**;24:112–121. doi:10.1080/14647273.2018.1546411
25. Platts S, Trigg B, Bracewell-Milnes T, et al. Exploring women's attitudes, knowledge, and intentions to use oocyte freezing for non-medical reasons: a systematic review. *Acta Obs Gynecol Scand.* **2021**;100:383–393. doi:10.1111/aogs.14030
26. Mintziori G, Veneti S, Kolibianakis EM, Grimbizis GF, Goulis DG. Maturitas Egg freezing and late motherhood. *Maturitas.* **2019**;125:1–4. doi:10.1016/j.maturitas.2019.03.017
27. Dason ES, Drost L, Greenblatt EM, et al. Patients' and providers' perspectives on the decision to undergo non-urgent egg freezing: a needs assessment. *BMC Womens Health.* **2023**;23:1–11. doi:10.1186/s12905-023-02743-z
28. Hafezi M, Zameni N, Aghamaleki SZN, Omani-Samani R, Vesali S. Awareness and attitude toward oocyte cryopreservation for non-medical reasons: a study on women candidates for social egg freezing. *Psychosom Obs Gynaecol.* **2022**;43:532–540. doi:10.1080/0167482X.2022.2090332
29. Harzif AK, Maidarti M, Silvia M, et al. Knowledge, attitude, intention, and religion aspect toward fertility preservation among obstetrics and gynecology residents in Indonesia: a cross-sectional study. *Int J Reprod Biomed.* **2020**;18:47–56. doi:10.18502/ijrm.v18i1.6199
30. Greenwood EA, Pasch LA, Hastie J, et al. To freeze or not to freeze: decision regret and satisfaction following elective oocyte cryopreservation. *Fertil Steril.* **2018**;109:1097–1104. doi:10.1016/j.fertnstert.2018.02.127
31. Yee S, Goodman CV, Fu V, et al. Assessing the quality of decision-making for planned oocyte cryopreservation. *J Assist Reprod Genet.* **2021**;38:907–916. doi:10.1007/s10815-021-02103-6
32. Emirdar V, Karataşlı V, Acet F, et al. Perspectives and knowledge about fertility preservation strategies among female cancer patients in Turkey. *Int J Clin Pract.* **2023**;2023. doi:10.1155/2023/6193187
33. Navaria-Forney I, Bénard J, Mazloun A, et al. A web-based survey of reproductive awareness and choices in women with endometriosis. *Eur J Obs Gynecol Reprod Biol.* **2020**;251:106–113. doi:10.1016/j.ejogrb.2020.05.012
34. Cermisoni GC, Pisaturo V, Vanni VS, et al. Fertility preservation as an option for women with genetic disorders: insights from a swot analysis on elective oocyte freezing and preimplantation genetic testing. *Life.* **2023**;13:1483.
35. Hampton K, Mazza D. Fertility-awareness knowledge, attitudes and practices of women attending general practice. *Aust Fam Physician.* **2015**;44:840–845.
36. ESHRE. Female fertility preservation. *Guidel Eur Soc Hum Reprod Embryol Female Fertil Preserv ESHRE.* **2020**;2020:1.
37. Dolmans MM. Recent advances in fertility preservation and counseling for female cancer patients. *Expert Rev Anticancer Ther.* **2018**;18:115–120. doi:10.1080/14737140.2018.1415758
38. Gorman JR, Usita PM, Madlensky L, Pierce JP. Young breast cancer survivors: their perspectives on treatment decisions and fertility concerns. *Cancer Nurs.* **2011**;34:32–40. doi:10.1097/NCC.0b013e3181e4528d
39. Salama M, Ataman-Millhouse L, Sobral F, et al. Barriers and opportunities of oncofertility practice in nine developing countries and the emerging oncofertility professional engagement network. *J Glob Oncol.* **2018**;2018:369–374.
40. Garvelink MM, ter Kuile MM, Bakker RM, et al. Women's experiences with information provision and deciding about fertility preservation in the Netherlands: 'Satisfaction in general, but unmet needs'. *Heal Expect.* **2015**;18:956–968. doi:10.1111/hex.12068
41. Wennberg A. Social freezing of oocytes: a means to take control of your fertility. *Ups J Med Sci.* **2020**;125:95–98. doi:10.1080/03009734.2019.1707332
42. Hammarberg K, Kirkman M, Pritchard N, et al. Reproductive experiences of women who cryopreserved oocytes for non-medical reasons. *Hum Reprod.* **2017**;32:575–581. doi:10.1093/humrep/dew342
43. Petropanagos A, Cattapan A, Baylis F, Leader A. Social egg freezing: risk, benefits and other considerations. *CMAJ.* **2015**;187:666–669. doi:10.1503/cmaj.141605
44. Daniluk JC, Koert E. Childless women's beliefs and knowledge about oocyte freezing for social and medical reasons. *Hum Reprod.* **2016**;31:2313–2320. doi:10.1093/humrep/dew189
45. Hodes-Wertz B, Druckenmiller S, Smith M, Noyes N. What do reproductive-age women who undergo oocyte cryopreservation think about the process as a means to preserve. *Fertil Steril.* **2013**;100:1343–1349. doi:10.1016/j.fertnstert.2013.07.201
46. Proost MD, Paton A. Medical versus social egg freezing: the importance of future choice for women's decision-making. *Monash Bioeth Rev.* **2022**;40:145–156. doi:10.1007/s40592-022-00153-9
47. Inhorn MC, Ruoxi Yu PP, Patrizio P. Upholding Success: asian Americans, Egg Freezing, and the Fertility Paradox. *Med Anthropol.* **2021**;40:3–19. doi:10.1080/01459740.2020.1825415
48. Drost L, Dason ES, Han J, et al. Patients' and providers' perspectives on non-urgent egg freezing decision-making: a thematic analysis. *BMC Women's Heal.* **2023**;23:49.

49. Baldwin K, Culley L. Women's experience of social egg freezing: perceptions of success, risks, and 'going it alone'. *Hum Fertil.* 2020;23:186–192. doi:10.1080/14647273.2018.1522456
50. Mosavi SA, Babazadeh R, Najmabadi KM. Assessing Iranian adolescent girls' needs for sexual and reproductive health information. *J Adolesc Heal.* 2014;55:107–113. doi:10.1016/j.jadohealth.2013.11.029
51. Lawson AK, Klock SC, Pavone ME, et al. Psychological Counseling of Female Fertility Preservation Patients. *J Psychosoc Oncol.* 2015;33:333–353. doi:10.1080/07347332.2015.1045677
52. Jones BP, Kasaven L, L'Heveder A, et al. Perceptions, outcomes, and regret following social egg freezing in the UK; a cross-sectional survey. *Acta Obstet Gynecol Scand.* 2020;99:324–332. doi:10.1111/aogs.13763
53. Gruben V. Freezing as freedom? A regulatory approach to elective egg freezing and women's reproductive autonomy. *Alta Law Rev.* 2017;754–774. doi:10.29173/alr773
54. Taghavi N, Samani RO. The responsibility of oncologists toward informing patient about fertility preservation methods. *MLJ.* 2019;12:141–162.
55. Ahmed Y, Hammad Khan AM, Rao UJ, et al. Fertility preservation is an imperative goal in the clinical practice of radiation oncology: a narrative review. *ecancermedicalscience.* 2022. doi:10.3332/ecancer.2022.1461
56. Loren AW, Mangu PB, Beck LN, et al. Fertility preservation for patients with cancer: American Society of Clinical Oncology clinical practice guideline update. *J Clin Oncol.* 2013;31:2500–2510. doi:10.1200/JCO.2013.49.2678
57. Borovecki A, Tozzo P, Cerri N, Caenazzo L. Social egg freezing under public health perspective: just a medical reality or a women's right? An ethical case analysis. *J Public Health Res.* 2018;7:101–105. doi:10.4081/jphr.2018.1484
58. Pérez-Hernández Y, De Proost M. Egg freezing, genetic relatedness, and motherhood: a binational empirical bioethical investigation of women's views. *Bioethics.* 2024;38:592–599. doi:10.1111/bioe.13163
59. Patrizio P, Molinari E, Caplan A. Ethics of medical and nonmedical oocyte cryopreservation. *Current Opinion Endocrinol Diab Obes.* 2016;23:470–475. doi:10.1097/MED.0000000000000292
60. Robertson JA. Egg freezing and egg banking: empowerment and alienation in assisted reproduction. *J Law Biosci.* 2014;1:113–136. doi:10.1093/jlb/lbu002
61. René Frydman MG, Grynberg M. Introduction: female fertility preservation: innovations and questions. *Fertil Steril.* 2016;105:4–5. doi:10.1016/j.fertnstert.2015.10.035
62. Chin AHB. Singapore needs to update regulation of frozen egg donation after permitting social egg freezing. *J Assist Reprod Genet.* 2022;39:1497–1500. doi:10.1007/s10815-022-02526-9
63. Su Y, Lin P-Y, Huang F-J, et al. Taiwanese Journal of Obstetrics & Gynecology Age is a major prognosticator in extremely low oocyte retrieval cycles. *Taiwan J Obstet Gynecol.* 2017;56:175–180. doi:10.1016/j.tjog.2016.04.039
64. Pescosolido BA, Martin JK. The Stigma Complex. *Annu Rev Sociol.* 2015;41:87–116. doi:10.1146/annurev-soc-071312-145702
65. Carrillo L, Seidman DS, Cittadini E, Meirrow D. The role of fertility preservation in patients with endometriosis. *J Assist Reprod Genet.* 2016;33:317–323. doi:10.1007/s10815-016-0646-z
66. Caughey LE, White KM. Psychosocial determinants of women's intentions and willingness to freeze their eggs. *Fertil Steril.* 2021;115. doi:10.1016/j.fertnstert.2020.09.150
67. Bachmann G, MacArthur TA, K K. Need for Comprehensive Counseling in Women Requesting Oocyte Cryopreservation. *J Womens Heal.* 2018;27:227–230. doi:10.1089/jwh.2017.6423
68. Ohno M, Kikuchi I, Kagawa N, et al. The importance of social oocyte cryopreservation in supporting local municipalities: a prospective study. *Women's Health.* 2024;20. doi:10.1177/17455057241276256
69. The Practice Committee of the American Society for Reproductive Medicine. *Gamete and Embryo Donation Guidance*; 2024.
70. Bowen-Simpkins P, Wang JJ, Ahuja KK. The UK's anomalous 10-year limit on oocyte storage: time to change the law. *Reprod BioMed Online.* 2018;37:387–389. doi:10.1016/j.rbmo.2018.07.004
71. Juliana P, Brandão T, Schmidt L, Maria EC, M MV. What do people know about fertility? a systematic review on fertility awareness and its associated factors. *J Med Sci.* 2018;123:71–81.
72. Cooray LJM. Basic human rights & needs based human rights. *From Hum Rights Aust by.* 1985.
73. Fauser BCJM, Adamson GD, Boivin J, et al. Declining global fertility rates and the implications for family planning and family building: an IFFS consensus document based on a narrative review of the literature. *J.* 2024;30:153–173. doi:10.1093/humupd/dmad028

International Journal of Women's Health

Publish your work in this journal

The International Journal of Women's Health is an international, peer-reviewed open-access journal publishing original research, reports, editorials, reviews and commentaries on all aspects of women's healthcare including gynecology, obstetrics, and breast cancer. The manuscript management system is completely online and includes a very quick and fair peer-review system, which is all easy to use. Visit <http://www.dovepress.com/testimonials.php> to read real quotes from published authors.

Submit your manuscript here: <https://www.dovepress.com/international-journal-of-womens-health-journal>

Dovepress
Taylor & Francis Group