ATATÜRK ÜNİVERSİTESİ YAYINLARI
ATATURK UNIVERSITY PUBLICATIONS

Research Article *Araştırma Makalesi* DOI: 10.17049/jnursology.1439703

Women's Experiences of Decisions-Making on Embryo Cryopreservation and Conceptualization of Their Frozen Embryo

Kadınların Embriyo Kriyoprezervasyona Karar Verme Deneyimleri ve Dondurulmuş Embriyolarının Kavramsallaştırılması

Esra ŞAHİNER[1]
Elif ÖZÇETİN[2]
İlkay BOZ[3]

[1]Akdeniz University, Nursing Faculty, Obstetrics and Gynecology Nursing Department Antalya, Turkey
[2]Akdeniz University Faculty of Medicine IVF Center Antalya, Turkey
[3]Akdeniz University, Nursing Faculty, Obstetrics and Gynecology Nursing Department Antalya, Turkey

ABSTRACT

Objective: The aim of this research is to clarify the experiences of women in deciding on the Embryo Cryopreservation (EC) procedure and the meanings they attribute to their frozen embryos.

Methods: This study employed a descriptive phenomenological design and a thematic analysis approach rooted in Husserl's philosophical perspective. Random sampling techniques and maximum diversity sampling methods were both utilized, with data collected between April and October 2021 via semi-structured, in-depth interviews.

Results: Following the analysis of the interviews, five themes and 10 sub-themes emerged. The themes were the following: ''Decision-making pathways in embryo cryopreservation'', ''Motivators in the embryo cryopreservation process'', ''Reflections on embryo cryopreservation'', ''Conceptualization of the frozen embryo'', and ''Expectations from the healthcare system''.

Conclusion: In this investigation, it was discovered that women expressed discomfort with embryo cryopreservation when decisions were solely made by doctors without adequate information about the process. Furthermore, it was found that women tend to hold a more positive perception of embryos as the quality of frozen embryos improves.

Keywords: Decision-Making, embryo cryopreservation, embryo transfer, conceptualization of embryo, phenomenological qualitative study

ÖZ

Amaç: Bu araştırmanın amacı, kadınların Embriyo Kriyoprezervasyon (EK) işlemine karar verme deneyimlerini ve dondurulan embriyolarına yükledikleri anlamları açıklamaktır.

Yöntemler: Bu çalışmada, Husserl'in felsefi bakış açısına dayanan betimleyici bir fenomenolojik tasarım ve tematik analiz yaklaşımı kullanılmıştır. Yarı yapılandırılmış, derinlemesine görüşmeler yoluyla Nisan ve Ekim 2021 arasında toplanan verilerde hem rastgele örnekleme teknikleri hem de maksimum çeşitlilik örnekleme yöntemleri kullanıldı.

Bulgular: Görüşmelerin analizi sonucunda beş tema ve 10 alt tema ortaya çıkmıştır. Temalar şu şekildeydi: ''Embriyo kriyoprezervasyonunda karar verme yolları'', ''Embriyo kriyoprezervasyonu sürecinde motive edici faktörler'', ''Embriyo kriyoprezervasyonuna ilişkin düşünceler'', ''Dondurulmuş embriyonun kavramsallaştırılması'' ve ''Sağlık sisteminden beklentiler''.

Sonuç: Bu araştırmada, kadınların embriyo kriyoprezervasyonu konusunda yeterli bilgiye sahip olmadan embriyo kriyoprezervasyon işlemine sadece doktorlar tarafından karar verilmesinden rahatsızlık duydukları ortaya çıktı.Ayrıca, dondurulan embriyoların kalitesi

Geliş Tarihi/Received: 27.02.2024
Revizyon Tarihi/Revised 23.05.2024
Kabul Tarihi/Accepted: 14.06.2024
Yayın Tarihi/Publication Date: 25.06.2024

Sorumlu Yazar/Corresponding author: İlkay BOZ
E-mail: ilkayarslan@akdeniz.edu.tr

Cite this article: Şahiner E, Özçetin E, Boz İ. Women's Experiences of Decisions-Making on Embryo Cryopreservation and Conceptualization of Their Frozen Embryo. *J Nursology*. 2024;27(2):136-145.

arttıkça kadınların embriyolara ilişkin daha olumlu bir algıya sahip olma eğiliminde oldukları da ortaya çıktı.

Anahtar Kelimeler: Embriyonun kavramsallaştırılması, embriyo kriyoprezervasyon, embriyo transferi, fenomenolojik nitel çalışma, karar verme

INTRODUCTION

For couples, Embryo Cryopreservation (EC) is an option that is known to reduce ovarian hyperstimulation syndrome risk and increase the possibility of pregnancy.[1,2] Katz et al.[3] describe the purposes of cryopreservation as the preservation of fertility in the face of death and aging, and the commodification and financialization of protection. The relationship between cryopreservation and reproductive autonomy is still questioned.[3] Bach and Krolokke[4] describe how cryopreservation technologies interfere with reproductive aging aside from disease and death and propose a new term: cryomedicalization.[4]

Currently, couples have to decide whether to go through the EC procedure before the treatment results are known. Couples are making the decision between freezing their embryos for later cycles or donating them to stem cell research or other infertile couples.[5] This is a complex time for couples where they feel stressed, under pressure, worried, and may experience ethical dilemmas.[6] The majority of studies in the literature discuss how the fate of the frozen embryo is decided, ethical and legal considerations, and embryo donation and/or destruction.[5,7-9] However, only one study has been conducted regarding how EC was decided upon at the initial stages and the subsequent of the frozen embryos. In this study conducted in England, certain women expressed concerns regarding the ethical implications of the EC process and expressed apprehension about the future well-being of their frozen embryos in the event of EC being undertaken. It has been observed that couples approach EC from a scientific perspective, i.e., conceptualizing the embryo as "medical," and try to overcome their feelings of guilt and ethical dilemmas related to the "freezing life" point of view.[6] The literature is limited regarding how women decide on EC, the effect of this procedure on their lives, what they experience after the procedure, and the meaning of the frozen embryo, indicating the necessity for additional qualitative investigations.

In Turkey, frozen embryos are not used for donation or research purposes, and the options for embryo transfer (ET) are freezing and destruction. Studies on women's decision-making processes regarding EC in our country, the effects of these processes on their lives, and the conceptualizations of their frozen embryos have not yet been found. Identifying the emotions women experienced during the EK process will help us understand their current stress levels and how much psychological support they require.[10] In the EC process, revealing women's expectations to health professionals and filling in the missing services in healthcare will provide women with a better overall experience.[11-13]

AIM

The purpose of this study is to explore the experiences of women deciding on the EC procedure and the meanings they attribute to frozen embryos.

Research Questions

In this study, we seek to answer the following questions:

1. Is EC presented as a choice or a necessity in a healthcare system where cryomedicalization has become widespread?
2. How are people included in the decision-making process, and are the preferences of the main decision-maker taken into account?
3. What are the meanings that women who undergo EC attach to their embryos?

METHODS

This study employed a descriptive phenomenological design and thematic analysis approach rooted in Husserl's philosophical perspective. This study was conducted to examine women's experiences of deciding on the EC procedure in depth.[14,15] The Consolidated Criteria for Reporting Qualitative Research (COREQ) guidelines were used in the reporting of this research.[16]

Setting and Participants

A study was conducted at the In Vitro Fertilization (IVF) Center of Akdeniz University on 17 women undergoing EC treatment. As stated in the sources in the literature, the random sample type was used to reduce bias and increase credibility and reliability, and the maximum diversity sample type was used to determine differences differences.[17,18] Criteria for inclusion in the sampling include agreeing to participate in the research, being able to speak Turkish, receiving infertility treatment, having undergone EC, and not being diagnosed with any psychiatric disease. The exclusion criteria from the sample were having psychological problems and a time lapse of more than three months after the EC process (forgetting

the effect of the experience). Each participant underwent a single interview session. A total of 50 women were interviewed in this study, and 36 women refused to participate in the study due to the workload and the negative results of ET. When similar examples are seen repeatedly, the researcher empirically ensures that the categories are saturated.[19] When the data reached a saturation point, no new information emerged and started to repeat, and the data collection process was terminated with the participation of 17 women.

Data Collection

Data was collected using the interview method between April 2021 and October 2021. The COVID-19 pandemic caused interviews to be conducted over the phone. Personal information form and semi-structured interview form were used to collect data. During the interviews with the women, a personal information form was first filled out, and then the interview was conducted with a semi-structured interview form. Based on the literature, the personal information form contains eight questions pertaining to women's sociodemographics and infertility.[6,20] The semi-structured interview form comprises seven questions crafted following a literature review aimed at elucidating women's decision-making experiences concerning EC and their perceptions of their frozen embryos[6,8,20] (Table 1). There was an average duration of 30 minutes for the interviews.

Rigor

Rigor in this study was ensured through adherence to four key criteria: credibility, transferability, dependability, and confirmability.[24] Developing a conceptual framework from the literature review informed the construction of the interview protocol in order to enhance the credibility of the research. Subsequently, researchers maintained objectivity during data analysis by focusing on participants' statements rather than injecting their own commentary. In order to minimize researcher biases during the analysis phase, detailed literature reviews were avoided, with interviews guided solely by the research questions.

To enhance transferability, all findings were presented without additional commentary. Researchers individually coded the data obtained from interviews. After debate between the two coders, a consensus was reached on the codes to assess the degree of agreement and dependability between them. Ensuring the validity of the research involved seeking input from an external expert regarding data collection tools, raw data, coding, and observation notes. Additionally, researchers underwent qualitative research training, and the principal investigator possessed expertise in qualitative research methodologies.

Data Analysis

The researcher transcribed the audio recordings of the interviews into written form, resulting in an 84-page text derived from the interviews. The analysis of the data followed an inductive approach, adhering to the six-stage thematic analysis framework outlined by Braun and Clarke[21]. The process involved several steps: 1) acquainting oneself with the data; 2) creating initial codes; 3) pinpointing potential themes; 4) revisiting and enhancing themes; 5) delineating and labeling themes; and 6) presenting the findings.[22,23]

In the first stage, transcripts were read several times by all researchers. In the second stage, the codes were defined and a table was created indicating the limits of the codes. In the third stage, the table with the codes was reviewed many times to identify the themes. The fourth stage is described as a two-level analytical process. At the first level of analysis, the codes embedded in each theme were reviewed by the researchers. Whether there was sufficient supporting data for each theme and the relationships between the data and the level of consistency were checked. At this stage, the themes were changed and combined; in this first level, the themes to be included in the analysis were decided and in the second level, the compatibility of the changed themes was reviewed and the thematic table was revised. In the fifth stage, the definition and explanation of each theme and its importance to the research question was determined. In the sixth stage, the final analysis and explanation of the findings were recorded.[21,22]

Ethical Considerations

A clinical research ethics committee at Akdeniz University granted ethical approval for the study (Date:13.01.2021, No: 70904504/39). Participants were notified that their involvement was voluntary, they retained the right to withdraw at any point, their provided data would remain confidential, and measures would be taken to ensure data security. The excerpts from the interviews were coded instead of named (Participant 1= P-1).

RESULTS

Study participants had an average age of 33.17±5.50 (min: 25, max: 44; see Table 2). Analysis of the data identified 115 codes, five main themes, and ten subthemes (see Table 3).

Theme 1. Decision-making pathways in embryo cryopreservation

According to the study, the majority of the women were unfamiliar with the EC process, but they trusted their doctors and would do whatever their doctor told them to in order to have a child.

Table 1 Semi-structured interview questions
General opening question: Could you introduce yourself?
How did you decide on the embryo freezing process?
What did you feel and what did you think during the embryo freezing process?
How has the embryo freezing process affected you?
Has the embryo freezing process affected your social life and relationships? What were the difficulties he faced?
Who did you get support from when deciding on embryo freezing?
What are your expectations from healthcare professionals in the embryo freezing process?
What do you think about your frozen embryo(s)? (What does it mean?)
Closing
My questions are over, is there anything you want to tell me?

Doctor's decision: a paternalistic way

Since most of the women assumed their doctor would not do anything unethical, they stated that they would do whatever their doctor said, e.g., *''The doctor decided, he did not want the embryo to be wasted, we trust the doctor, he will never does anything wrong'' [P-2].* The doctor gave no further information and made a decision regarding the EC procedure on his own without giving more information to some women. They requested information about why EC was performed, what they would experience during this process, and the benefits of this procedure, e.g., *''I mean, I wanted the doctor to talk to us before the treatment, we are going through such a process, you will experience these, these should happen, for example, the embryo is frozen, but I don't know why it is frozen" [P-12].*

In partnership with the doctor: a shared decision-making way

According to some women, their doctors informed them about EC before the procedure, and they decided on EC together, e.g., *''We decided on the embryo cryopreservation process, together with the doctor, the doctor informed us about embryo cryopreservation'' [P-8]***.** After receiving information from healthcare professionals, some women reported a reduction in their hesitations regarding EC, e.g., *''Our doctor informed us, when we train nurses, we have hesitations as a mother, but our hesitations have decreased, we trusted our doctor'' [P-11].*

Theme 2. Motivators in the embryo cryopreservation process

Hope for higher success

Most women who underwent the EC procedure cited their doctor's assurance of increased pregnancy rates as a motivating factor, e.g., *''So that we can achieve higher success with embryo cryopreservation'' [P-6].*

A small number of women, on the other hand, stated that being informed by their doctor that the body will rest and the embryo will hold better with the EC process was a motivating factor, e.g.,*''We decided together, our doctor said that my body should rest, he decided that the embryo would hold better, the doctor asked me, we approved'' [P-17].*

Belief and trust in the healthcare professional

Several women expressed that having healthcare professionals who provided sincere and comforting communication regarding their concerns about the EC process played a significant role in their decision to undergo the procedure, e.g., *''Our doctor's speaking style and sincerity made us very comfortable, we trusted our doctor, we found ourselves in the treatment'' (P-8).* Although some of the women did not know about the EC procedure, they stated that their trust in healthcare professionals was a motivating factor in deciding to have the EC procedure, e.g., *''It was said by the health professionals that the embryo would be frozen, I could not convey it to you because I did not receive any information'' [P-16].*

Supportive environment

The majority of women reported receiving support from their families, spouses, and friends while making the decision about the EC procedure. It has been determined that this supportive environment had a positive effect on their decision to have EC, e.g., *''We received financial and moral support from my wife's family and my family'' [P-12].* Some women also mentioned that they received support from healthcare professionals while making their decision about the EC procedure, e.g., *''Everyone at the IVF center was very helpful'' [P-4].*

Table 2. Participants characteristics

Participant No	Age	Education Status	Working Status	Marriage Duration (years)	Cause of infertility	Infertility Diagnosis Duration (years)	Infertility Treatment Duration (years)	Number of EC*
P-1	30	University	Working	7	Unexplained infertility	4	4	1
P-2	28	High school	Not Working	7	Unexplained infertility	4	4	1
P-3	26	High school	Not Working	7	Unexplained infertility	6	6	1
P-4	30	University	Not Working	4	Unexplained infertility	3	3	1
P-5	35	University	Working	5	Male-induced infertility	2	2	1
P-6	33	High school	Not Working	13	Unexplained infertility	6	6	3
P-7	33	Primary school	Working	8	Female-induced infertility	2	2	3
P-8	30	University	Not Working	1	Female-induced infertility	1	1	1
P-9	37	University	Working	4	Unexplained infertility	3	3	1
P-10	34	University	Working	8	Female-induced infertility	1	1	1
P-11	44	High school	Working	7	Unexplained infertility	1	1	1
P-12	39	University	Working	3	Unexplained infertility	1	1	1
P-13	30	Universiy	Not Working	5	Female-induced infertility	4	4	1
P-14	29	High school	Not Working	6	Female-induced infertility	5	5	1
P-15	25	Primary school	Not working	7	Female-induced infertility	1	1	1
P-16	39	University	Working	6	Female-induced infertility	2	2	2
P-17	42	High school	Working	2	Female-induced infertility	1	1	1

***EC: Embryo cryopreservation**

Theme 3. Reflections of embryo cryopreservation

Troubling

The majority of women indicated unfamiliarity with the EC process and they were nervous because they were doing it for the first time, e.g., *''I was a little nervous because I didn't know what cryopreservation was because I had never experienced anything like this'' [P-2].* A few women expressed unease due to uncertainty about the survival of frozen embryos until the EC process, e.g., *''We are left with a question mark whether it will happen or not, whether we can get over it because we are older'' [P-17].*

The feeling of leaving a piece behind

A portion of the women stated that they were constantly thinking about their embryos after the EC procedure, e.g., *''My mind was always there [in the IVF center], I even wanted to go and see the frozen embryo'' [P-14].* Some women, on the other hand, stated that they felt the feeling of leaving a piece of themselves behind, e.g., *''After all, it was a little strange to leave a part of ourselves or her/him (embryo) to come'' [P-10].*

Table 3. Example of the thematic analysis: from codes to themes

Codes	Sub-themes	Themes
Doctor decided completely by himself (P-12) It was said that it would be frozen, I cannot tell you because I did not receive any information, because I trust the health professionals, I said that they know something (P-16)	Doctor's decision: a paternalistic way	Decision-making pathways in embryo cryopreservation
I researched the freezing process a lot, I had no knowledge about the process, our doctor was very helpful, informed about the process, we proceeded in this way (P-7) We decided together, my body decided that if it rested, the embryo would hold better in the womb, the doctor asked me, we approved (P-17)	In partnership with the doctor: a shared decision-making way	
So that we can achieve higher success with EC (P-6) We decided together, our doctor said that my body should rest, he decided that the embryo would hold better, the doctor asked me, we approved (P-17)	Hope for higher success	Motivators in the embryo cryopreservation process
Our doctor's speaking style and sincerity made us very comfortable, we trusted our doctor, we found ourselves in the treatment (P-8) Our doctor informed us, the nurses gave counseling about the procedure, as a mother, we have hesitations, but we trust our doctor (P-11)	Belief and trust in the healthcare professional	
My biggest supporter was my wife (P-7) Spiritually, my wife is a great supporter, and so were our mothers and friends (P-10)	Supportive environment	
It is a pending process, you become uneasy, you make something you never knew before (P-4) I was a little nervous because I didn't know what cryopreservation was because I had never experienced anything like this'' (P-2)	Troubling	Reflections on embryo cryopreservation
I wanted the cryopreservation process to be done immediately, people are both excited and stressed, their mind is always there (P-3) After all, it was a little strange to leave a part of ourselves or leave him (P-10)	The feeling of leaving a piece behind	
I haven't been out much, there is sickness (covid) (P-4) I tried not to even contact my family so as not to be covid (P-8)	Survival out of fear of Covid-19	
My frozen embryo has no meaning for me, I don't plan to use it anyway (P-1) We have babies, we have healthy embryos (P-7)	-	Conceptualization of the frozen embryo
Maybe something can happen to inform those who come to treatment for the first time, a person can be assigned (P-12) Regarding providing information, we expect that they will call and they will explain, so there was no return on that issue (P-6)	Informative and insightful care -	Expectations from the healthcare system
Health professionals should answer all of our questions, and most importantly, be people who understand our psychology (P-17) When you enter the environment of the IVF center, everyone understands each other, we have very understanding nurses (P-13)	Healthcare professional who understands psychology	

Survival out of fear of Covid-19

The majority of women reported that their lives remained unaffected following the EC procedure, except for concerns about contracting Covid-19, e.g., *''I was very nervous about Covid, I had panic attacks all the time, in case I got Covid-19'' [P-8].*

Women stated that they distanced themselves from their families and social environment until the frozen embryos were transferred in order to manage their fear of getting Covid-19, e.g., *''I couldn't even tried to contact my family because of Covid'' [P-8].*

Theme 4. Conceptualization of the frozen embryo

When the quality of the frozen embryo was high, women explained the meaning of the embryo as *"son/child"* or a *"miracle,"* e.g., *''I feel like my children, they [embryos] are a part of us'' [P-17]. ''A miracle of Allah, the frozen embryo stays outside, then it is with you'' [P-15].* When the quality of the frozen embryo is low, the meaning of the embryo for women is expressed as *"one cell"* or *"meaninglessness,"* e.g., *''Frozen embryo has no meaning for me, I don't plan to use it anyway'' [P-1]. ''So it was like a living cell'' [P-3].*

Theme 5. Expectations from the healthcare system

Informative and insightful care

The majority of the women mentioned that they needed to be informed by health professionals and answered individual questions during the EC process, e.g., *''Regarding giving information, we expect that they will call and they will explain, so there has not been much feedback on that issue'' [P-6]. ''I have a complaint about the embryologist. I am angry with the embryologist; he told us that our embryos were of good quality; why didn't he tell us if the quality was not good? We had embryo cryopreservation done for no reason; we paid for nothing'' [P-1].* In addition, women stated that they expect healthcare professionals to establish an understanding form of communication during the information process, e.g., *''When I ask something or want to learn because I have entered a subject that I do not know, at least I would like not to be scolded'' [P-7].*

Healthcare professional who understands psychology

Most of the women expressed their expectations from healthcare professionals to understand the psychology of infertile individuals, e.g., *''When you enter the environment, everyone understands each other, we have very understanding nurses''[P-13],* and *"…the most important thing is that there are people who understand our psychology'' [P-17].* They stated that they are sensitive during the treatment process, and that healthcare professionals should treat them with understanding and provide moral support, e.g., *''We felt morally and emotionally safe; we could explain our problems whenever we went or called'' [P-2].*

DISCUSSION

This study examined the experiences of women undergoing infertility treatment in their decision-making regarding EC, as well as their conceptualizations of their frozen embryos. As seen in the theme of "Decision-making pathways in EC," it is understood that women generally start the EC process with the doctor's decision, and they think that the doctor will do what is best for them. However, some women want their doctors to provide explanatory information before the EC procedure and want that decision to be made not only by the doctor, but by themselves as well. It was stated that after IVF treatment, 92% of women wanted to continue their treatment with the doctor.[25] There are paternalistic decision-making, informed decision-making, and shared decision-making models regarding diagnosis, treatment, and care processes in the healthcare system. A paternalistic model describes a clinician's decision on behalf of the patient, independent of the patient's preferences, based on a professional assessment of the patient's benefit.[26] Patient-centered, informed decision-making involves healthcare professionals informing the patient and leaving the patient alone to make the decision.[27] In shared decision-making, healthcare professionals and patients collaborate to make decisions. This model encourages patient participation and will contribute positively to patient communication with healthcare professionals.[28-30] According to report, individuals who participate in their treatment process with a shared decision-making model will have better healthcare experiences and outcomes.[13] In this study, most of the women experienced the paternalistic decision-making model in deciding whether to undergo the EC procedure. A small number of women stated that they do not want the paternalistic decision-making model and that they want to make a joint decision with healthcare professionals. In a systematic review on interventions to increase participation in healthcare decisions in non-western countries, it is stated that healthcare professionals should receive training on this issue in order for the shared decision-making model to be applied effectively.[31] It is recommended that healthcare professionals learn about women's decision-making preferences regarding the treatment process and provide necessary information and include women in the planning phase of this process.

This study demonstrates that the primary motivators influencing the decision-making process for the EC procedure are largely associated with healthcare professionals. Research has shown that when healthcare professionals inform women that an EC procedure will enhance pregnancy rates, it positively impacts their motivation to opt for the freezing process. In a study examining the attitudes and preferences of infertile individuals towards the EC process, approximately 50% of the women stated that they would prefer to undergo the procedure with the knowledge that the probability of getting pregnant would increase.[32] Despite limited knowledge about the EC process among some women, research indicates that they tend to place trust in

healthcare professionals who convey information in a positive manner. This positive communication has been observed to influence their decision to undergo the freezing process. Qualitative studies highlight that trust in healthcare professionals is paramount in infertility care.[33,34]

In frozen embryos, when the quality of the embryo is high, women's embryos are considered "son/child" or "miracle;" when it is low, women attribute meanings such as "a cell" or "meaningless." Upon a literature review, it becomes apparent that individuals frequently characterize their embryos using terms like "baby," "child," "living being," or "tissue".[6,31] In the fresh embryo, it is seen that they attribute meanings such as "baby," "child," "healthy child," "cell," or "alive".[20] In this study, it was understood that the meanings women assign to their frozen embryos and the processes of conceptualizing their embryos are related to the quality of the embryos. If the quality of the frozen embryo was high, women were emotionally attached to their embryos, attached positive meanings to them, and talked about their embryos in an possessive manner, while if the quality was low, women did not attribute emotional meanings to their embryos and objectified their frozen embryos with medical terms.

In our study, several women stated that they did not understand why embryos of poor quality were frozen, complained about the incomplete information provided by healthcare professionals regarding embryo quality, and were angry with healthcare professionals for this reason. In a recent mixed-methods study aimed at supporting professionals in the field of infertility, training needs were assessed among healthcare practitioners, it is stated that 34% of healthcare professionals are lacking knowledge about environmental factors affecting embryo culture, and there is no consensus on the time of embryo freezing and the quality of that embryo.[36] Knowing the meanings women attribute to their frozen embryos, healthcare professionals should inform women accurately about the EC process and embryo quality and include them in their decision-making processes. This way, women will consciously take part in the treatment process and their communication with healthcare professionals will not be adversely affected.

In the theme of ''Expectations from the healthcare system'', it is understood that women want to work with healthcare professionals who understand the complex emotions and psychology they experience during the treatment. Pedro et al.[37] found that as a result of healthcare professionals not being empathetic enough towards individuals diagnosed with infertility, and not paying attention to the psychological aspects of the treatment, patients terminated the treatment[37]. According to the European Society of Human Reproduction and Embryology (ESHRE) guidelines, health professionals should be able to understand and pay attention to the emotional impact of infertility in the psychosocial care of women.[10] From the findings of the study, it is understood that women need individual-centered care. Person-centered care is to respect the individual's preferences, needs, dignity, and to ensure that their values guide all clinical decisions.[38,39] Among the social factors affecting individual-centered care are the positive attitude of the professional, good relations with the individual, patient participation in the decision-making process, and emotional support.[11] In clinical work, practices beneficial to individual-centered care can be determined and awareness of health professionals can be increased and strengthened.

This study has limitations, including the inability to interview men who play a role in EC decision-making, the lack of follow-up interviews to assess long-term effects, and constraints on closely observing participants due to the COVID-19 pandemic preventing face-to-face interviews.

In this study, answers were sought to three questions in the introduction section. Firstly, it is understood that EC is not offered as an option to most couples receiving infertility treatment, and the doctor decides on behalf of the couples and performs the EC process. Secondly, it is understood that most couples receiving infertility treatment are not included in the decision-making process for the EC procedure, their preferences are not asked, and there is a lack of information about the EC procedure. This study demonstrated that most women were disturbed by the decisions of their doctor regarding the EC procedure, and some of them were uncomfortable with the lack of detailed information they were provided about EC. It was determined that women were uneasy due to their lack of knowledge about the EC process and their uncertainties regarding the fate of their frozen embryos. It is thought that with an increase in the level of women's knowledge about the EC process and the post-procedure process, their anxiety may decrease following the procedure. It is recommended to examine the effects of decision-making models in the EC process with more qualitative data and to plan trainings to raise awareness among health professionals on this issue. Finally, it is understood that the meanings that women who have EC give to their embryos vary depending on the quality of the embryo. It is understood that women conceptualize their

frozen embryo positively and establish stronger emotional bonds if the quality of the frozen embryo is high. It can be suggested to investigate the long-term effects of this attachment in a multidimensional manner.

Etik Komite Onayı: Etik kurul onayı Akdeniz Üniversitesi Klinik Araştırmalar Etik Kurulu'ndan (Tarih: 29.01.2021, Sayı: 70904504/39) alınmıştır.
Bilgilendirilmiş Onam: Çalışmaya katılan kadınlardan Google form ile online onam alınmıştır.
Hakem Değerlendirmesi: Dış bağımsız.
Yazar Katkıları: Fikir-İB, EŞ, EÖ; Tasarım-EŞ, İB; Denetleme-EŞ, İB; Kaynaklar-EŞ, İB; Veri Toplanması ve/veya İşlenmesi: EŞ; Analiz ve /veya Yorum: EŞ, İB; Literatür Taraması-EŞ, İB; Yazıyı Yazan-EŞ, İB; Eleştirel İnceleme-İB, EŞ.
Çıkar Çatışması: Yazarlar, çıkar çatışması olmadığını beyan etmiştir.
Finansal Destek: Yazarlar, bu çalışma için finansal destek almadığını beyan etmiştir.

Ethics Committee Approval: Ethics committee approval was received from Akdeniz University Clinical Research Ethics Committee (Date: 29.01.2021, Number: 70904504/39).
Informed Consent: Online consent was obtained from the women participating in the study via Google form.
Peer-review: Externally peer-reviewed.
Author Contributions: Conceptualization-İB, EŞ, EÖ; Design-EŞ, İB; Supervision-ES, İB; Sources-EŞ, İB; Data Collection and/or Processing-EŞ; Analysis and/or Interpretation: EŞ, İB; Literature Review-EŞ, İB; Written by-EŞ, İB; Critical Review-İB, EÖ.
Conflict of Interest: The authors have no conflicts of interest to declare.
Financial Disclosure: The authors declared that this study has received no financial support.

REFERENCES

1. Roque M, Haahr T, Geber S, Esteves SC, Humaidan P. Fresh versus elective frozen embryo transfer in IVF/ICSI cycles: a systematic review and meta-analysis of reproductive outcomes. Hum Reprod Update. 2019;25(1):2-14. https://doi.org/10.1093/humupd/dmy033
2. Zaat T, Zagers M, Mol F, Goddijn M, van Wely M, Mastenbroek S. Fresh versus frozen embryo transfers in assisted reproduction. Cochrane Db Syst Rev. 2021;2(2):CD011184. https://doi.org/10.1002/14651858.cd011184.pub3
3. Katz O, Hashiloni-Dolev Y, Kroløkke C, Raz A. Frozen: social and bioethical aspects of cryopreservation. New Genet Soc. 2020;39(3):243-9. http://dx.doi.org/10.1080/14636778.2020.1802823
4. Bach AS, Kroløkke C. Hope and happy futurity in the cryotank: Biomedical imaginaries of ovarian tissue freezing. Sci Cult-Uk. 2020;29(3):425-49. http://dx.doi.org/10.1080/09505431.2019.1681953
5. Fitzgerald RP, Legge M, Rewi P, Robinson RJ. Excluding indigenous bioethical concerns when regulating frozen embryo storage: An Aotearoa New Zealand case study. Reprod Biomed Soc Online. 2019;8:10–22. https://doi.org/10.1016/j.rbms.2019.01.001
6. Goswawi M, Murdoch AP, Haimes E. To freeze or not to freeze embryos: clarity, confusion, and conflict. Hum Fertil. 2015;18(2):113-20. https://doi.org/10.3109/14647273.2014.998726
7. Bruno C, Dudkiewicz-Sibony C, Berthaut I, Weil E, Brunet L, Fortier C, et al. Survey of 243 ART patients having made a final disposition decision about their surplus cryopreserved embryos: the crucial role of symbolic embryo representation. Hum Reprod. 2016;31:1508–14. https://doi.org/10.1093/humrep/dew104
8. Machado CS. The fate of surplus embryos: ethical and emotional impacts on assisted reproduction. JBRA Assist Reprod. 2020;24(3):310–5. https://doi.org/10.5935%2F1518-0557.20200015
9. Raz A, Amer-Alshiek J, Goren-Margalit M, Jacobi G, Hochberg A, Amit A, et al. Donation of surplus frozen pre-embryos to research in Israel: underlying motivations. Isr J Health Policy Res. 2016;5:25. https://doi.org/10.1186/s13584-016-0085-4
10. Gameiro S, Boivin J, Dancet E, de Klerk C, Emery M, Lewis-Jones C, et al. ESHRE guideline: routine psychosocial care in infertility and medically assisted reproduction-a guide for fertility staff. Hum Reprod. 2015;30(11):2476-85. https://doi.org/10.1093/humrep/dev177
11. Jafarzadeh-Kenarsari F, Ghahiri A, Zargham-Boroujeni A, Habibi M, Hashemi M. Patient-centered fertility care: from theory to practice. JMRH. 2016;4(3):712-9. https://doi.org/10.22038/jmrh.2016.7186
12. Shandley LM, Hipp HS, Anderson-Bialis J, Anderson-Bialis D, Boulet SL, McKenzie LJ, et al. Patient-centered care: factors associated with reporting a positive experience at United States fertility clinics. Fertil Steril. 2020;113(4):797-810. https://doi.org/10.1016/j.fertnstert.2019.12.040
13. Veillard J, Fekri O, Dhalla I, Klazinga N. Measuring outcomes in the Canadian health sector: driving better value from healthcare. Toronto: C.D. Howe Institute Commentary. 438. 2015.
14. Neubauer BE, Witkop CT, Varpio L. How phenomenology can help us learn from the experiences of others. Perspect Med Educ. 2019;8(2):90-7. https://doi.org/10.1007%2Fs40037-019-0509-2
15. Sundler AJ, Lindberg E, Nilsson C, Palmer L. Qualitative thematic analysis based on descriptive phenomenology. Nurs Open. 2019;6(3):733-9. https://doi.org/10.1002/nop2.275
16. Booth A, Hannes K, Harden A, et al. COREQ. Guidelines for reporting health research: a user's manual. Int J Qual Methods. 2014;1-16. https://doi.org/10.1002/9781118715598.ch21
17. Baltacı A. Nitel araştırmalarda örnekleme yöntemleri ve örnek hacmi sorunsalı üzerine kavramsal bir inceleme. BEÜ SBD. 2018;7(1):231-274. https://dergipark.org.tr/tr/pub/bitlissos/issue/38061/399955
18. Moser A, Korstjens I. Series: Practical guidance to qualitative research. Part 3: Sampling, data collection and

analysis. Eur J Gen Pract. 2018;24(1):9-18. https://doi.org/10.1080/13814788.2017.1375091
19. Glaser BG, Strauss AL. Discovery of Grounded Theory: Strategies for Qualitative Research. New York: Routledge, 2017.
20. Şahiner E, Boz İ. Experiences of women undergoing infertility treatment from embryo transfer until pregnancy test and their conceptualization of their embryo. J Psychosom Obstet Gynecol. 2021;42:1-10. https://doi.org/10.1080/0167482x.2020.1865909
21. Braun V., Clarke V. Using thematic analysis in psychology. Qual Res Psychol. 2006; 3(2): 77–101. http://dx.doi.org/10.1191/1478088706qp063oa
22. Maguire M, Delahunt B. Doing a thematic analysis: A practical, step-by-step guide for learning and teaching scholars. AISHE-J. 2017;9(3).
23. Kiger ME, Varpio L. Thematic analysis of qualitative data: AMEE Guide No. 131. Med Teach. 2020;42(8):846-54. https://doi.org/10.1080/0142159x.2020.1755030
24. Cypress BS. Rigor or Reliability and Validity in Qualitative Research: Perspectives, Strategies, Reconceptualization, and Recommendations. Dimens Crit Care Nurs. 2017;36(4):253-63. https://doi.org/10.1097/dcc.0000000000000253
25. Chan CHY, Lau BHP, Tam MYJ, Ng EHY. Preferred problem solving and decision-making role in fertility treatment among women following an unsuccessful in vitro fertilization cycle. BMC Women's Health. 2019;19(1):1-11. https://doi.org/10.1186/s12905-019-0856-5
26. Driever EM, Tolhuizen IM, Duvivier RJ. et al. Why do medical residents prefer paternalistic decision making? An interview study. BMC Med Educ. 2022;22:155. https://doi.org/10.1186/s12909-022-03203-2
27. Friesen-Storms JH, Bours GJ, van der Weijden T, Beurskens AJ. Shared decision making in chronic care in the context of evidence based practice in nursing. Int J Nurs Stud. 2015;52(1):393-402. https://doi.org/10.1016/j.ijnurstu.2014.06.012
28. Blair L, Legare F. Is shared decisions making a utopian dream or achievable goal? Patient. 2015;8:471-76. https://doi.org/10.1007/s40271-015-0117-0
29. Harter M. It's time for shared decision making and person-centred care. Patient. 2020;13;643-44. https://doi.org/10.1007%2Fs40271-020-00471-2
30. Tonelli MR, Sullivan MD. Person-centred shared decision making. J Eval Clin Pract. 2019;25(6):1057-62. https://doi.org/10.1111/jep.13260
31. Dolan H, Li M, Trevena L. Interventions to improve participation in health-care decisions in non-Western countries: A systematic review and narrative synthesis. Health Expect. 2019;22(5):894-906. https://doi.org/10.1111/hex.12933
32. Stormlund S, Schmidt L, Bogstad J, Løssl K, Prætorius L, Zedeler A, et al. Patients' attitudes and preferences towards a freeze-all strategy in ART treatment. Hum Reprod. 2019;34(4):679-88. https://doi.org/10.1093/humrep/dez006
33. Harzif AK, Shafira N, Mariana A, Lovita BT, Mutia HD, Maidarti M, et al. Communication and respect for patient value as significant factors in patient-centered ınfertility care: a survey of patients' experiences in two ınfertility centers. J Hum Reprod Sci. 2020;13(1):22-5. https://doi.org/10.4103%2Fjhrs.JHRS_62_19
34. Streisfield A, Chowdhury N, Cherniak R, Shapiro H. Patient centered infertility care: the health care provider's perspective. PXJ. 2015;2(1):93-7. http://dx.doi.org/10.35680/2372-0247.1062
35. Kayssan M, Dolatian M, Omani Samani R, Maroufizadeh S. Attitudes of ınfertile couples, fertility clinic staff and researchers toward personhood of the human embryo in Iran. Cell J. 2017;19(2):314–23. https://doi.org/10.22074/cellj.2016.4989
36. Peloquin S, Garcia-Velasco JA, Blockeel C, Rienzi L, de Mesmaeker G, Lazure P, et al. Educational needs of fertility healthcare professionals using ART: a multi-country mixed-methods study. Reprod Biomed Online. 2021;43(3):434-45. https://doi.org/10.1016/j.rbmo.2021.06.020
37. Pedro J, Canavarro MC, Boivin J, Gameiro S. Positive experiences of patient-centred care are associated with intentions to comply with fertility treatment: findings from the validation of the Portuguese version of the PCQ-Infertility tool. Hum Reprod. 2013; 28(9):2462-72. https://doi.org/10.1093/humrep/det259
38. Akgün M, Boz İ. Person centered care approach in infertility. JERN. 2019;16(2):170-75. https://doi.org/10.5222/HEAD.2019.170
39. Gülpınar N, Başkaya SS, Yeşilbudak Z, Boz İ. Determination of the caring behaviors and affecting factors women perceived during infertility treatment. JERN. 2019;16(1):21-6. http://dx.doi.org/10.5222/HEAD.2019.021