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Representations of in vitro fertilization in the first cycle of IVF in women

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ABSTRACT

Introduction: Women typically experience more intense stress related to infertility compared to men, which is partly connected to the importance that motherhood and parenthood have for women in most societies. Considering the dominance of pronatalism in the majority of cultures, it is not surprising that women, who are most often considered responsible for reproduction, suffer greater social and psychological pressure due to infertility.

Method: The study employs a social constructionist framework to explore how women facing infertility construct their notions of their first IVF treatment. Eleven women, aged 21–39, participated in the study and underwent semi-structured interviews. Thematic Analysis with a social constructionist epistemology was employed to investigate co-produced accounts of their first IVF.

Results: Four ways of representing IVF emerged from the women's statements about this procedure: IVF as a helpful step towards success; as a stressful journey into the unknown; as a game of chance; and as something I (do not) ask about.

Discussion: The representations of IVF identified allow us to understand the subject positions of our participants that determine their thoughts, emotions, and behavior. In the narratives of almost all participants, we encounter different, even contradictory positions. The results allow us to understand better the needs of women facing infertility and to try to develop a system of treatment that is going to meet these needs, and therefore prevent the psychological consequences caused by this bio-psycho-social crisis.

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Introduction

Health and disease are socially constructed categories. They are objectively non-measurable and something about which professionals and patients negotiate in a particular social context (Greil et al., 2011). The social construction of infertility compared to other medical conditions is especially important. This is because infertility today is not

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viewed as a private issue for the couple affected by it, but rather as a medical condition, i.e. a question of public health that is primarily focused on women (Becker, 2000; Bell, 2009). The reasons for the significance and specificity of the social construction of infertility are related to the nature and consequences of this problem. Firstly, regardless of the medical definition of infertility and the diagnostic criteria associated with it, couples will not see themselves as infertile unless they accept parenting as a desirable social role. Besides, infertility affects not only the couple but also the extended family and the whole community. The third specificity of infertility is that, in most cases, it is an absence of the desired state (pregnancy) and not the presence of symptoms (Greil et al., 2011). However, it should be noted that a certain number of people do experience symptoms of an issue that is associated with infertility (for example, women with endometriosis). Finally, in the case of infertility, there are multiple solutions to this problem (adoption, foster care, gamete donation, etc.) and not only one cure (Greil et al., 2011). Greil et al. (2011) state that 'Infertility is best understood as a socially constructed process whereby individuals come to regard their inability to have children as a problem, to define the nature of that problem, and to construct an appropriate course of action' (Greil et al., 2011, p. 737). Factors that are especially important for the experience of infertility are the following: pronatalism, the level of patriarchy, the domination of men, and the gender role of women in a particular society. The literature on the experience of infertility emphasizes the significance of the sociocultural context (Greil et al., 2010). For example, the patriarchal ideology of mothering is characterized by the denial of women's identities and selfhood outside of motherhood (Glenn, 1994). Researchers pay special attention to social aspects and social consequences of infertility in less economically developed countries and/or traditional societies. These include pressure from the family, stigmatization, and a loss of status (Gameiro & Boivin, 2017). An analysis of studies on this topic from almost 30 years ago by Greil (1997) led to the conclusion that infertility is a very negative experience, especially defeating for women. Later research also shows that women are afflicted with infertility more than men (Epstein & Rosenberg, 2005; Reis et al., 2013; Wichman et al., 2011) and that women also experience failure of In Vitro Fertilization (IVF) more than men (Newton et al., 1990; Slade et al., 1997), which leads to their feelings of helplessness, guilt, anger, and sadness (Eugster & Vingerhoets, 1999). In comparison to women without the problem of infertility, women undergoing IVF experience feeling upset, shame, anxiety, and hostility more often (Burns, 2007; Mitrović et al., 2021). This is not surprising, given that both diagnosis and treatment for infertility are more uncomfortable and more complicated for women than for men (Jordan & Revenson, 1999). Furthermore, social pressure is always more directed towards women. Motherhood in the majority of cultures is an essential factor in the identity of women. Therefore, achieving parenthood is an attempt at shaping a normative identity (Pashigian, 2002). From early on, through the process of socialization, girls adopt the role of mother as the binding role in a patriarchal society – to be a mother is a social obligation. There are discourses about the good mother who is socially rewarded and the bad mother who is socially sanctioned, as well as about women who cannot give birth (Johnston & Swanson, 2003; Kričković Pele, 2014). Therefore, it is not surprising that when it comes to reproduction, women are traditionally viewed as the partners responsible for it (Greil et al., 2011). Even when infertility is related to a problem in men, in many societies women are still

viewed as being responsible for the problem (Wischmann & Thorn, 2013). In patriarchal and traditional societies, the status and value of women are inextricably related to their fertility (De et al., 2017; Riessman, 2000). In certain societies, infertile women are exposed to violence twice as often as fertile women (Ardabily et al., 2011). Research in the Serbian context shows that the motivation for parenthood in couples in IVF is altruistic, but also concerned with the attitude that having offspring is one of the fundamental purposes of marriage and that motherhood is the fulfillment of the biological function of women (Bilinović Rajačić & Kričković Pele, 2019). In a review of research findings, Mitrović et al. (2023) emphasize that even though infertility is viewed as a problem faced by a couple, men and women probably cope differently with this problem. This is expected for two reasons: firstly, the diagnostics and treatment for infertility are more invasive, more demanding, and more stressful for women, and secondly, the social construction of infertility is related to gender roles, resulting in greater psychological and social pressure for women.

One of the ways to treat infertility is IVF, which is a kind of assisted reproductive technology (ART). One cycle of IVF consists of four stages. The first stage involves hormone stimulation. In this stage, the ovaries are stimulated with medications (pills or injections). The second stage is oocyte retrieval. The next stage is the fertilization stage, during which the egg is fertilized in the laboratory with prepared sperm. After fertilization, a few days are needed to determine whether embryos have formed and their quality. The fourth stage is embryo transfer, which involves returning the embryos to the uterus. After this phase, there is usually a 14-day waiting period, after which a pregnancy test and a blood test (beta HCG) determine whether pregnancy has occurred or not (Gaasbeek & Leiblum, 1997 as cited in Eugster & Vingerhoets, 1999). Most couples rate the two-week waiting period before determining pregnancy as the most stressful phase of IVF (Boivin & Lancastle, 2010).

When considering infertility treatment with IVF, it is important to note that this treatment does not have a high success rate. In fact, the average success rate of IVF procedures in European countries (based on reports from 21 European countries) in 2019 was 34.6% pregnancy rate (PR) per transfer, while the average delivery rate per cycle after IVF in the same year was 25.3%. Regarding the specific IVF method ICSI (Intracytoplasmic Sperm Injection), this report shows that in 2019, this IVF method was used more frequently than in 2018. The average PR per transfer in European countries in 2019 was 33.5%, while the delivery rate per cycle after ICSI in the same year was 17% (Smeenk et al., 2023). It should be noted that not all patients who begin IVF or ICSI, as a specific IVF method, reach the transfer stage within a single cycle due to the failure of earlier stages.

Studies show that IVF is quite challenging for one's mental health and that it can result in numerous emotional issues (Boivin & Lancastle, 2010; Ying et al., 2016a). Furthermore, a good portion of couples enter the IVF procedure partly, or to a greater extent, psychologically exhausted from prior diagnostic and treatment procedures. However, some research has found no differences between women before IVF and women without difficulty conceiving with regard to the presence and intensity of negative emotions, which is interpreted in terms of the positive expectations of the treatment and the initial enthusiasm (Malina & Pooley, 2017). Thia et al. (2007) found that the majority of women who participated in their research (70%) were moderately to

highly optimistic about their first IVF treatment. Callan and Hennessey (1988) showed that the level of optimism decreases as the number of IVF procedures increases. This is confirmed by research by Ni et al. (2021), which shows that patients who undergo their first cycle of IVF show a greater level of hope than those from the repeated cycle group. All patients had great expectations from the treatment; however, failure in the first cycle resulted in a rise in psychological pressure and a decrease in hope. This trend is also recognized in a qualitative study by Copp et al. (2020), in which all participants (22) who had been through at least 3 cycles of IVF rated their expectations about the successfulness of the treatment before their first IVF as unrealistic. These results show that the experience of the first IVF and subsequent ones is different.

Numerous studies have shown the effect of infertility on the frequency and intensity of negative emotions such as anxiety, depressiveness, and shame, but also its effect on identity, self-esteem, and quality of life (see Mitrović et al., 2023 for review). Infertility treatment is often described as an emotional rollercoaster. This metaphor points to the feeling of having a lack of control and an inability to leave the situation while the 'rollercoaster is moving', as well as the high speed of moving through the procedure, while the emotions experienced span from enthusiasm to disappointment (Palmer-Wackerly & Krieger, 2015; Van den Broeck et al., 2010).

A failed IVF cycle had long-term negative psychological consequences for both spouses (Ying et al., 2016b) and their dyadic adjustment (La Rosa et al., 2024). Although there are findings suggesting that this is not associated with mother–child bond (Yoshimasu et al., 2020), some studies do find that women who waited longer to become mothers report lower scores in the joy of interacting with their child after ART (La Rosa et al., 2024). Their notions and experiences of the motherhood role could be further complicated by other factors (such as disability, etc.; e.g. Commodari et al., 2022; Malacrida, 2009).

When it comes to IVF, there are significant sociocultural differences. In the West, the solution is offered through ART while in non-Western countries it is often the case that ART is available only to those of higher socioeconomic status. In these countries, it is also the case that seeking advice from a doctor or a psychotherapist is recognized as something shameful (Husain & Imran, 2021; Van Balen & Gerrits, 2001).

This study employs a social constructionist framework to explore how women facing infertility construct their notions of their first IVF. One reason for this is the prevailing social construction of infertility as problematic due to the dominance of pronatalism in the majority of cultures and the demanding nature of IVF (especially the first cycle of it). Another reason is the significance of this problem and its effects on the experience of self.

Studying the constructions of IVF allows us to understand the subject positions brought about by them. Subject positions further determine the experience of self, as well as one's thoughts and feelings (Willig, 2013), and therefore the study of these phenomena will lead to an understanding of how people react to infertility and its treatment.

Participants and Procedure

Design

Semi-structured interviews were conducted with women facing infertility undergoing their first IVF procedure. Thematic Analysis with a social constructionist epistemology

(Willig, 2013) was employed to investigate co-produced accounts of the first IVF treatment to address the research question.

Procedure

Before the interviews, the researchers obtained the approval of the ethical committee of the Clinical Center in Niš, Serbia. The research was conducted at a gynecology and obstetrics clinic, in a ward for infertility treatment, during April and May of 2023. Inclusion criteria for the participants (all women) were the following: over 18 years of age, infertility diagnosis, and undergoing their first IVF treatment. Before participating in the interviews, all of the women signed an informed consent form and were acquainted with the research goals. Semi-structured interviews conducted by four interviewers lasted between 20 and 70 minutes and were held in a separate room. All interviews were voice-recorded and transcribed. All data were anonymized and all participants were given a pseudonym.

Participants

Eleven women took part in this research. The sample is part of a larger study that involved 21 women. However, we included only a subsample of women preparing for their first IVF cycle (this means that the committee had approved the IVF procedure, medical analyses and partner examinations preceding IVF were in progress, and hormonal stimulation had not yet begun). The average age of the participants was 33 (age range 21–39 years). The study included women in heterosexual relationships, whose male partner's sperm will be used in IVF. Women in same-sex relationships or those using donor gametes (eggs or sperm) were not included in the study. When determining the sample size, we used the criterion of theoretical saturation, meaning that after analyzing the eleventh interview, themes began to repeat, and no new themes were identified.

The participants' characteristics are shown in Table 1.

Table 1. Participants' details.

Participant	Age	Education	Duration of trying to conceive before attempting the first IVF cycle (years)
Ana	33	Higher education	1.5
Milena	35	Higher education	2
Teodora	30	Professional/vocational school	5
Sofija	22	Professional/vocational school	2
Ema	34	Professional/vocational school	2
Iva	36	Professional/vocational school	2
Kristina	36	Higher education	5
Bojana	31	Professional/vocational school	3
Nina	39	Higher education	4
Marina	29	Professional/vocational school	5
Olivera	39	Higher education	7

Data analysis

Thematic analysis (TA) is a descriptive method that aims to develop a limited number of themes or categories to describe the data which, in short, involves the data, coding the data, and identifying the themes (Howitt, 2019). In this study, an inductive thematic analysis was conducted, and themes were identified at the semantic level (Braun & Clarke, 2006).

The data analysis was conducted following the steps described by Braun and Clarke (2006). Before coding, the researchers familiarized themselves with the transcribed material by reading through it and noting some initial ideas for coding. Then, they proceeded to identify elements of interest related to the research question, thus starting the production of initial codes. After determining the codes and linking them into themes, which was done independently by each researcher, they compared the thematic maps they had created. To increase the reliability of the conclusions drawn, the decision on the final themes was made through agreement. This involved rechecking the themes against all the data, analyzing the appropriateness of theme names, quotes, and comments. Through constant comparative analysis, the authors verified whether all responses related to the research question were covered by the identified themes. Existing disagreements, which were few, were resolved through discussion and consensus. The results were documented with quotes, allowing the reader to assess their validity.

Reflexivity

During the analysis process, the researchers reflected on their expectations and their impressions of the themes identified in which there was a balance between positive and negative representations of IVF treatment. Some of the researchers had their own experience with this kind of treatment. Sharing the same experience contributed to a better understanding of the participants' perspectives. At the same time, it allowed for a more cautious approach in interpreting their experiences. On the other hand, those researchers without IVF experience were more sensitive and more careful in their approach to the women during data collection and were also surprised by the participants' resilience.

Ethical statement

The study was conducted in accordance with the Declaration of Helsinki and was approved by an Institutional Review Board/Ethics Committee. The research was conducted as part of the InsideMe project, approved by the Ethics Committee of the Faculty of Philosophy, University of Niš. The research was also approved by the Ethics Committee of the Clinical Center in Niš (no. 3007/7 dated February 02, 2023). Informed consent was obtained from participants. See details under Methods.

Results

The subheadings in this section represent the identified themes: IVF as a helpful step toward success, IVF as a stressful journey into the unknown, IVF as a game of chance and IVF as something I (do not) ask about.

IVF as a helpful step toward success

Eight women in the study used the representation of IVF as a helpful step towards success, illustrated in the following data extracts.

Ana: Well, when I came here on a couple of occasions, I don't know how to put this, I was happy because this was a step towards success and I was happy to see the doctor and for her to examine me, and for me to come to this step.
Bojana: I couldn't wait to do this, for us to go into this process …

They talked about this step leading them to pregnancy which was not easily achievable, so their approach was one of eager impatience, causing positive feelings. Besides being a step toward success, IVF represented help in the process of achieving their goal.

Sofija: A help in achieving the goal, and this goal is a living and healthy baby.
Kristina: Yes. The immobility of his spermatozoa and, on the other hand, sometimes my ovaries, which are slow and which don't experience complete ovulation like other women, and then with all of that it turned out that the results are the way they are. So simply, I see this process as something that will give me a small push and help me to achieve my desired goal …
Ema: … This is some help for the women for, I guess, having this child …

In the cited data extracts, the tendency of the participants to define IVF as 'some help' or a small 'push' towards pregnancy can be seen. Participants were explicitly asked during the interviews whether they considered themselves infertile. None of the participants answered positively to this question, which leads to the conclusion that they perceive themselves as someone with reproductive potential, as someone who at that moment needed only a *little* help, to reach their goal that is, above all, attainable.

Some of the women had a tendency to romanticize the IVF process as one that leads to dreams coming true and fulfillment of one's purpose in life. This can be seen in the following data extracts.

Sofija: … In Vitro Fertilization, I think that it is a great help to all people, … something that is the best thing ever made which exists to help all married couples to achieve their greatest dream …
Milena: … Well, simply, self-realization, to become a mother, I mean the fulfillment of, I can't really say of dreams, but yeah, having a family and achieving the purpose of life and, simply, for me to have a family …

IVF as a stressful journey into the unknown

Five women use *a stressful journey into the unknown* representation of IVF. The following data extract illustrates this point.

Iva: Well, no. Uncertainty is present … This is the worst thing that … you are going, and you don't know where you are going, literally, unknown … It's difficult, difficult. But no one guarantees success. I mean, to be relaxed, I admire the ones who can be relaxed, but I can't.

Other participants report on the experience of fear, stress, and feeling unsettled.

Nina: If we start from the analyses I did regarding sterility, then everything that is required is all okay. So, I don't know, so, that's good, … so, the procedure itself,

> well, for me, I'm telling you, it's kind of stressful. I don't know why, I mean, I feel quite unsettled, and now [I'm asking myself] what they're going to give me there, what they are going to tell me …

In the statements by the participants, one can recognize the uncertainty of success as a source of stress. The question of success and failure, and the absence of guarantee (Iva) are the main generators of stress, and the participants' refusal to give up on the procedure highlights how important it is to them. At some point, those involved in IVF become aware that the IVF treatment is a risky investment. Stress caused by the uncertainty of success is illustrated by the following data extract.

> Ema: Sometimes, recently maybe it occurs to me: 'God forbid that something goes wrong'. There, only this occurs to me.
> Interviewer: What do you mean by this?
> Ema: Well, for it to fail. That's what I … that's what I fear …

The demands of the procedure, as well as the personal investment (in the case of infertility this investment is both emotional and physical) and the effort it requires affect the intensity of the stress. This is illustrated by the following data extract.

> Olivera: Well, I would describe it as demanding in the sense that a woman, primarily … I mean, a man also has … He is supportive, of course, but he has his results when they tell him to do it and he has way fewer obligations in all that. Therefore, a woman has to work on her patience and nerves … This is a long-term process and involves a lot, a lot … It also requires a lot of nerves and patience and good organization.

IVF as a game of chance

We recognized another way of constructing the IVF procedure in the participants' responses – *IVF as a game of chance*. This is not surprising given the nature of the IVF procedure and its rate of success. In the games of chance, luck is crucial and it does not depend on the person participating in the game.

> Iva: … I am aware that luck is crucial and that there are no rules. It's a game of chance, like everything in life …

In the second part of this statement, the participant generalizes her view of IVF to her general worldview. The presence of this theme implies the experience of a lack of control. Even after giving one's best, success is not guaranteed.

> Ema: … . you absolutely have no control because you can give your best, and I think that everyone who goes through IVF gives their best, and it could be the case that it never happens for you.

IVF as something I (do not) ask about

Six of the interviewees represented *IVF as something I (do not) ask about*. This construction of IVF represents the differences in health information-seeking behaviors before IVF. Given that our participants were facing something they considered as vitally

important for the fulfillment of their life goals, it is expected that they would need to gather information about the procedure. However, among our participants, two groups can be discerned in terms of styles of information-seeking behavior. The first one is those who actively gather information (medical sources of information such as doctors, medical associations, etc., or people with experience of IVF), and the second one is those who avoid seeking information, stating that they feel much more comfortable with less information about IVF.

Milena:	Yes, I did read and watch some videos about it. There are these beautiful animations, some medical societies have posted them (online). The doctor told me, I mean told us, about this procedure which we should do, the ICSI method and only this method, this is what I remember …
Ana:	I like to know everything and to be prepared …
Ema:	… Yes, that's maybe true. I call everyone because I don't know what's next. (laugh)
Interviewer:	You call everyone who had the procedure?
Ema:	Yes, those who have been through it [IVF], because when you ask them [medical staff] something, they do it so quickly and goodbye.

For these women, gathering information is a means of much-needed psychological preparation. This preparation is related to the need to predict what awaits them in the procedure. On the other hand, we encountered an entirely different kind of psychological defense which can be illustrated in the following data extract.

Bojana:	I don't want to burden myself because everyone on the Internet writes different stuff and I don't want to burden myself with this stuff, to read nonsense, to, again, make me feel bad, to not cope well with it psychologically, so, there … I need to tell you something, ever since I began this process, I haven't been on the Internet to search for anything, to read, I don't know, comments and the like because I think this is useless, that we should talk to the doctor, to see …

In the above statement, the participant clearly shows her style of not seeking information about the procedure, because she feels it will help her to endure the procedure more easily.

Discussion

This study aimed to understand the representations the women use to describe their first IVF treatment. Studies demonstrate that the IVF procedure is very psychologically challenging (Malina & Pooley, 2017). Having in mind the significance and consequences of infertility on personal as well as societal levels, we set out to explore how women who face infertility construct their first cycle of IVF.

In the majority of participant narratives, the representation of **IVF as a helpful step toward success** is an important theme. This way of constructing IVF makes available subject positions, which bring about positive feelings such as hope and enthusiasm, that probably stem from their appraisal of having a great chance of success. The goal is a healthy baby made possible by IVF, which is viewed as both a *little help* and the *best thing ever* (the instrument for fulfilling their greatest dream).

This finding is somewhat surprising. It is unexpected because IVF is a demanding medical procedure, especially for women. This is a procedure without a high success

rate (The average PR, calculated based on reports from 21 European countries in 2019, was 34.6% PR per transfer; Smeenk et al., 2023), and one which is the last chance for couples to have their offspring with their own reproductive material. Moreover, the majority of couples had been receiving treatment for infertility years before it (Boivin & Lancastle, 2010; Jordan & Revenson, 1999). However, there are findings regarding women before IVF not having higher levels of negative emotions than women without infertility, which is associated with their high expectations of IVF (Malina & Pooley, 2017). This is certainly also the case with our participants. When the meaning of IVF is constructed in this way, subject positions become available that allow the emergence of enthusiasm and the impression that this is the right course of action. Also, IVF does represent a step toward success, since it could make pregnancy possible, or at least give some space and the chance for a couple to hope for it.

Some women show tendencies towards romanticization of the IVF process as something that leads to the fulfillment of their wishes and dreams, which is not surprising given that over time, infertility can become a central problem for an individual, while other aspects of life become more and more neglected (Cousineau & Domar, 2007).

Some studies show that infertile couples show high levels of optimism, hope, and expectations regarding their first attempt at IVF (Ni et al., 2021; Thia et al., 2007), and that if it fails, there is a rapid decline in hope (Ni et al., 2021), while participants who undergo a greater number of IVF cycles themselves appraise their prior expectations of the first cycle of IVF as unrealistic (Copp et al., 2020). In popular narratives, infertile women who achieve pregnancy are represented as lucky women who are rewarded with pregnancy for their hope and optimism, while in the frame of these narratives of hope and promise IVF is represented as an innocuous solution (De Lacey, 2002; Franklin, 1990).

Furthermore, in the responses of our participants where this representation is found, there is a tendency of some of them to describe IVF as a little help. Therefore, if someone needs only a little help, this person can, in fact, reach the solution to the problem. All participants were asked during the interviews whether they considered themselves an infertile person, and all of them answered negatively to this question. Thus, they view themselves as having a reproductive capacity. The construction of IVF as a little help can be understood in the context of the meaning attributed to motherhood in the majority of societies (De et al., 2017; Greil et al., 2011; Riessman, 2000), including Serbian society (Bilinović Rajačić & Kričković Pele, 2019). The role of the mother in the majority of cultures represents the very essence of the identity of a woman, that a woman assumes as she grows up through the process of socialization and that represents a binding role for a woman in a patriarchal society (Johnston & Swanson, 2003; Kričković Pele, 2014; Pashigian, 2002). The woman is traditionally viewed as the one responsible for reproduction, even in the case of male infertility (Greil et al., 2011; Wischmann & Thorn, 2013). It is clear from what has been stated so far that the social construction of infertility is related to gender roles, which makes women more exposed to social and psychological pressure. For this reason, it is important for a woman to have the impression of doing the right thing, of contributing to achieving a normative identity, given that she had been frustrated previously on this road. In the context of the above, the construction of IVF as a little help perhaps represents the women's attempt to safeguard their self-esteem in their own value system and to regain the experience of control previously lost.

The next representation that we find in the narratives of our participants is **IVF as a stressful journey into the unknown.** Unlike the first mentioned representation, this construction of IVF makes possible subject positions associated with feeling upset, anxious, worried, and unable to relax.

IVF is stressful, especially because there are no guarantees for success, and because it brings with it a great level of uncertainty encountered by couples facing infertility during their treatment. In this way, the procedure is demanding and requires a lot of investment, again with no guarantees that a person will achieve pregnancy and have a healthy baby, regardless of the level of their investment.

It has been stated a couple of times before that infertility and the treatment of infertility are pretty challenging for one's mental health, that IVF initiates numerous negative emotions, and that these emotions are most intense at the beginning of IVF (Liu et al., 2021). Couples undergoing their first cycle of IVF are particularly prone to stressful reactions (Reis et al., 2013). These results are in line with the results of our study if we take into account that subject positions related to this representation of IVF may trigger stress-related reactions. What could be recognized as the generator of stress in the statements of our participants is the unknown, and the uncertainty of the 'journey' they are going through, especially the uncertainty of success. Palmer-Wackerly and Krieger (2015) identified the metaphor of a journey to describe infertility. These authors report that one of the reasons for the use of this metaphor is the participants' way of emphasizing that infertility is in fact a journey and identity that they did not choose. Our participants also imply that this is something they did not choose and that on this road they are mostly hit by the unknown and by uncertainty. (In)tolerance of uncertainty is the dispositional capacity of an individual to tolerate their own negative reaction caused by appraising the uncertainty of the outcome of a situation (Carleton, 2016), and as such it is related to the general distress in women in IVF (Mitrović et al., 2022). Therefore, it is not surprising that there are connections between the unknown, uncertainty of success, and stress in the statements of our participants. In the context of this theme, in one qualitative study, men describe IVF treatment as a risky investment, with a high cost and a low chance of success (Zaake et al., 2019). This high cost that was mentioned by the participants in the study is also mentioned by our participants who described the treatment as demanding and as something for which one needs patience. Therefore, in effect, the very thought of failure with these high costs inevitably leads a person to distress.

Another representation recognized in the narratives of our participants is **IVF as a game of chance**. Constructing IVF as a game of chance means that all participants have an equal chance of success, i.e. women with this construction ascribe themselves the possibility of being winners or losers. Just like the participants in De Lacey (2002), our participants used this rhetorical resource to represent themselves, and also other women, as gamblers. This metaphor suggests luck and continuation after losing, while it does not imply the difference as compared to other women without fertility difficulties. De Lacey (2002) emphasizes that this metaphor encompasses the following: those who are persistent, determined, and durable, and those who take the chance win – *Keep trying, it can happen to you* (De Lacey, 2002, p. 46).

In their statements, our participants describe the experience of a lack of control, as well as the lack of justice, which means that the outcome does not depend on the investment and, therefore, in a way implies helplessness. Palmer-Wackerly and Krieger (2015)

connect the inability to control the outcome of infertility with the metaphor of a game. These authors also note that persons who used this metaphor 'framed their experiences in terms of winning and losing, describing the odds and chances of success, cutting losses, feeling cheated, experiencing the luck of the draw, feeling that the "deck was stacked against us," and focusing on the winning prize' (Palmer-Wackerly & Krieger, 2015, p. 616). Also, these authors pay special attention to the tendency of the participants to use the game metaphor to illustrate their experience of lack of control over the situation and factors that influence the outcome of the treatment. It is the lack of control that is implied in the statements of our participants – one doesn't have control over IVF and yet they give their best for something that may never happen. Moreover, it is the impossibility of control that is specific to the infertility problem, so infertile couples cannot influence the outcome of the treatment with their behavior (Terry & Hynes, 1998). Some authors think that the lack of control over one's own life is the most severe consequence of infertility (Cousineau & Domar, 2007). However, on the other hand, the lack of control may also mean freeing one from personal responsibility and giving in to something else – chance. Such a construction may allow a person to endure a potential failure more easily, or encourage them with the thought that their luck may change in the second cycle, since luck is something that changes. It is also possible to discern a tendency among our participants to apply this construction to other important events in life – *Game of chance, like everything in life.* This, in a way, can represent a normalization of the experience of uncertainty that is always present in life, which allows one to endure the ongoing events more easily (infertility, treatment, IVF).

The final representation we were able to identify in the participants' narratives is **IVF as something I (do not) ask about.** It is expected that in situations that are of vital importance for the fulfillment of a person's goals, they need to gather information. In the context of infertility, Zillien et al. (2011) report that those experiencing it have high information needs. Lambert and Loiselle (2007) note that seeking health information is very important for psychological adjustment to illness. To better conceptualize the concept of health information-seeking behavior (HISB), these authors consider different aspects of this concept. They listed two principal dimensions of HISB: the information dimension and the method dimension. The first one refers to the amount of information gathered. People differ in this dimension, some search numerous sources of information and gather a great amount of information while others choose to get a smaller amount of information. Moreover, two styles of HISB were discerned among our participants: a group of those who gather information actively, and a group of those who avoid gathering information about the procedure. For our participants, both gathering and avoiding information could be ways to cope with the situation and a way of lowering anxiety. The second HISB dimension concerns the method, referring to actions, i.e. how an individual comes to the information and the sources they use. Information-gathering methods can include: direct or indirect investigation, asking for explanations, exchange of information with others, observation, reading, etc. A study by McMahon et al. (2024) on a sample of 217 women who had started IVF in 2018 or later, in Australia shows that almost all women (90%) said that consultations with the doctor were the most acceptable source of information on IVF. The study stated that participants frequently chose options/information sources such as nurses or the Internet, and half of them used all three mentioned sources. Therefore, in relation to the

sources of health information most people use, these are healthcare workers, but also other people with the same health issue (Lambert & Loiselle, 2007). Our participants confirmed this by stating that doctors and educational videos were their sources of information on IVF, but they also showed the tendency to ask other women with more experience with IVF.

The responses of the women who do not want to gather information specifically show a lack of desire to seek information online. This finding is not in line with the results of Zillien et al. (2011), who reported that the Internet is a significant source of information for infertile couples who search the Internet for additional information, getting emotional and social support, and seeking self-help. The participants' argument for avoiding information is their experience that this information increases stress, while some of them question the Internet as a veritable source of information.

Finally, we can say that the very existence of having a choice, i.e. the women's experience that they can do what they choose, can be seen as a possibility for regaining the control that had been lost. In both cases the woman is an active agent – in the first instance an active agent in gathering information, which significantly reduces anxiety, and in the second instance an active agent in avoiding information, which brings peace. To have a choice, to make a decision, and to do what they have decided to do probably means they have a sense of control.

The representations of IVF identified in the narratives of the women who took part in this research lead us to their subject positions that determine their thoughts, assessments, emotions, and behavior. The majority of the described constructions are linked to subject positions that open up a possibility for positive thinking and positive feelings. (IVF as a helpful step toward success, as a game of chance, as something I (do not) ask about). The construction of *IVF as a stressful journey into the unknown* is the only representation that allows for a subject position from which negative feelings and thinking may arise. Therefore, this study goes beyond just determining the level of negative or positive feelings but rather studies the different generators of these different emotions. Our results point to the fluidity of constructions of IVF in our participants. In other words, in the narratives of almost all participants, we encounter different even contradictory positions, e.g. IVF as something that one can barely wait to start but also something that makes one tense because of the uncertainty, lack of control, and lack of guarantees. The presence of different constructions is in a way not surprising, and it points to the changeable subject position and therefore the changeability of feelings and thoughts which is already contained in the metaphor that is frequently used to describe infertility and treatment of infertility – a rollercoaster. This also implies the changeability of feelings and thoughts – from high expectations and enthusiasm and hope to disappointment, suffering and sorrow (Van den Broeck et al., 2010). The results are significant for understanding how women in IVF represent this procedure and indirectly for understanding what women need in this demanding process. This information can be a significant guide for medical staff when choosing the style of communication with patients. It can also be used as a guide for a program of psychosocial support that is undoubtedly needed for women, men, and couples.

On the other hand, there are limitations to this research – only women participated, and some themes could have been (psychologically) more elaborated; also, the interviews were often limited in terms of duration, because the participants needed to attend the doctor's examination. The study focuses on representations of IVF at the initial stages

of the process but does not track participants over time. A longitudinal approach could offer a more in-depth understanding of how these representations may change throughout the IVF journey or once treatment outcomes are known.

Conclusion

In conclusion, we want to emphasize that in the narratives we recognized four representations that women used to describe the IVF procedure. These constructions of IVF allow us to better understand the subject positions, thoughts and feelings of women preparing for IVF. This insight allows us to come closer and get to know the needs of women facing infertility and to try to develop a system of treatment that is going to meet these needs and therefore prevent any complications in relation to the psychological consequences caused by this bio-psycho-social crisis.

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Data availability statement

Data are available on request due to privacy/ethical restrictions.

Author's contributions

MM, NĆ, IJ, and MSŠ contributed to the conception, design, data collection, analysis, and writing of the manuscript; all authors participated in the drafting and finalizing of the manuscript.

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References

Ardabily, H. E., Moghadam, Z. B., Salsali, M., Ramezanzadeh, F., & Nedjat, S. (2011). Prevalence and risk factors for domestic violence against infertile women in an Iranian setting. *International Journal of Gynecology & Obstetrics*, *112*(1), 15–17. https://doi.org/10.1016/j.ijgo.2010.07.030

Becker, G. (2000). *The elusive embryo: How women and men approach new reproductive technologies*. University of California Press.

Bell, A. V. (2009). "It's way out of my league" low-income women's experiences of medicalized infertility. *Gender & Society*, *23*(5), 688–709. https://doi.org/10.1177/0891243209343

Bilinović Rajačić, A., & Kričković Pele, K. (2019). Sociokultirna obeležja neplodnosti i prakse asistirane reprodukcije. In I. Mihić, & M. Zotović (Eds.), *Društveno, porodično i lično značenje neplodnosti: implikacije za pružanje pordške parovima* (pp. 9–29). Filozofski fakultet. [Sociocultural Characteristics of Infertility and Assisted Reproductive Practices. In: I. Mihić & M. Zotović (Eds.), *Social, Family, and Personal Meaning of Infertility: Implications for Providing Support to Couples*, pp. 9–29. Faculty of Philosophy, Novi Sad]

Boivin, J., & Lancastle, D. (2010). Medical waiting periods: Imminence, emotions and coping. *Women's Health*, *6*(1), 59–69. https://doi.org/10.2217/whe.09.79

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, *3*(2), 77–101. https://doi.org/10.1191/1478088706qp063oa

Burns, L. H. (2007). Psychiatric aspects of infertility and infertility treatments. *Psychiatric Clinics of North America*, *30*(4), 689–716.

Callan, V. J., & Hennessey, J. F. (1988). Emotional aspects and support in in vitro fertilization and embryo transfer programs. *Journal of In Vitro Fertilization and Embryo Transfer*, *5*(5), 290–295. https://doi.org/10.1007/bf01132180

Carleton, R. N. (2016). Into the unknown: A review and synthesis of contemporary models involving uncertainty. *Journal of Anxiety Disorders*, *39*(April 2016), 30–43. https://doi.org/10.1016/j.janxdis.2016.02.007

Commodari, E., La Rosa, V. L., & Nania, G. S. (2022). Pregnancy, motherhood and partner support in visually impaired women: A qualitative study. *International Journal of Environmental Research and Public Health*, *19*(7), 4308. https://doi.org/10.3390/ijerph19074308

Copp, T., Kvesic, D., Lieberman, D., Bateson, D., & McCaffery, K. J. (2020). Your hopes can run away with your realistic expectations': A qualitative study of women and men's decision-making when undergoing multiple cycles of IVF. *Human Reproduction Open*, *2020*(4), hoaa059. https://doi.org/10.1093/hropen/hoaa059

Cousineau, T. M., & Domar, A. D. (2007). Psychological impact of infertility. *Best Practice & Research Clinical Obstetrics & Gynaecology*, *21*(2), 293–308. https://doi.org/10.1016/j.bpobgyn.2006.12.00

De, D., Roy, P. K., & Sarkhel, S. (2017). A psychological study of male, female related and unexplained infertility in Indian urban couples. *Journal of Reproductive and Infant Psychology*, *35*(4), 353–364. https://doi.org/10.1080/02646838.2017.1315632

De Lacey, S. (2002). IVF as lottery or investment: Contesting metaphors in discourses of infertility. *Nursing Inquiry*, *9*(1), 43–51. https://doi.org/10.1046/j.1440-1800.2002.00126.x

Epstein, Y. M., & Rosenberg, H. S. (2005). Depression in primary versus secondary infertility egg recipients. *Fertility and Sterility*, *83*(6), 1882–1884. https://doi.org/10.1016/j.fertnstert.2005.01.098

Eugster, A., & Vingerhoets, A. J. (1999). Psychological aspects of in vitro fertilization: A review. *Social Science & Medicine*, *48*(5), 575–589. https://doi.org/10.1016/s0277-9536(98)00386-4

Franklin, S. (1990). Deconstructing 'desperateness': The social construction of infertility in popular representations of new reproductive technologies. In M. McNeil, I. Varcoe, & S. Yearley (Eds.), *The new reproductive technologies* (pp. 200–229). Macmillan.

Gameiro, S., & Boivin, J. (2017). The psychology of infertility in reproductive medicine and healthcare, c. 1940s–2000s. In G. Davi, & T. Loughran (Eds.), *The Palgrave handbook of infertility in history: Approaches, contexts and perspectives* (pp. 393–413). Springer Nature.

Glenn, E. N. (1994). Social constructions of mothering: A thematic overview. In E. N. Glenn, G. Chang, & L. N. Forcey (Eds.), *Mothering: Ideology, experience, and agency* (pp. 1–29). Routledge.
Greil, A. L. (1997). Infertility and psychological distress: *A critical review of the literature*. *Social Science & Medicine*, *45*(11), 1679–1704. https://doi.org/10.1016/S0277-9536(97)00102-0
Greil, A. L., McQuillan, J., & Slauson-Blevins, K. (2011). *The social construction of infertility*. *Sociology Compass*, *5*(8), 736–746. https://doi.org/10.1111/j.1751-9020.2011.00397.x
Greil, A. L., Slauson-Blevins, K., & McQuillan, J. (2010). The experience of infertility: A review of recent literature. *Sociology of Health & Illness*, *32*(1), 140–162. https://doi.org/10.1111/j.1467-9566.2009.01213.x
Howitt, D. (2019). *Introduction to qualitative research methods in psychology*. Pearson UK.
Husain, W., & Imran, M. (2021). Infertility as seen by the infertile couples from a collectivistic culture. *Journal of Community Psychology*, *49*(2), 354–360. https://doi.org/10.1002/jcop.22463
Johnston, D. D., & Swanson, D. H. (2003). Invisible mothers: A content analysis of motherhood ideologies and myths in magazines. *Sex Roles*, *49*(1-2), 21–33.
Jordan, C., & Revenson, T. A. (1999). Gender differences in coping with infertility: A meta analysis. *Journal of Behavioral Medicine*, *22*(4), 341–e358. https://doi.org/10.1023/a:1018774019232
Kričković Pele, K. (2014). *Vantelesna oplodnja: rodne i društvene kontroverze*. Zavod za ravnopravnost polova. [In Vitro Fertilization: Gender and Social Controversies. Institute for Gender Equality].
Lambert, S. D., & Loiselle, C. G. (2007). Health information—seeking behavior. *Qualitative Health Research*, *17*(8), 1006–1019. https://doi.org/10.2105/AJPH.2009.180521
La Rosa, V. L., Azzoina, F., & Commodari, E. (2024). Maternity through assisted reproductive technology: A cross-sectional study on psychological experiences, couple relationship, and mother-child attachment. *Italian Journal of Gynaecology & Obstetrics*, *36*(1), 10–21. https://doi.org/10.36129/jog.2023.143
Liu, Y. F., Fu, Z., Chen, S. W., He, X. P., & Fan, L. Y. (2021). The analysis of anxiety and depression in different stages of in vitro fertilization-embryo transfer in couples in China. *Neuropsychiatric Disease and Treatment*, *17*(2021), 649–657. https://doi.org/10.2147/NDT.S287198
Malacrida, C. (2009). Performing motherhood in a disablist world: Dilemmas of motherhood, femininity and disability. *International Journal of Qualitative Studies in Education*, *22*(1), 99–117. https://doi.org/10.1080/09518390802581927
Malina, A., & Pooley, J. A. (2017). Psychological consequences of IVF fertilization–review of research. *Annals of Agricultural and Environmental Medicine*, *24*(4), 554–558. https://doi.org/10.5604/12321966.1232085
McMahon, C., Hammarberg, K., Lensen, S., Wang, R., Mol, B. W., & Vollenhoven, B. J. N. (2024). What do women undergoing in vitro fertilization (IVF) understand about their chance of IVF success? *Human Reproduction*, *39*(1), 130–138. https://doi.org/10.1093/humrep/dead239
Mitrović, M., Opsenica Kostić, J., & Jestrović Enser, J. (2023). *Kada roda neće da sleti: Psihološki aspekti neplodnosti*. Filozofski fakultet Univerziteta u Nišu. [*When the Stork Refuses to Land: Psychological Aspects of Infertility*, Faculty of Philosophy, University of Niš] https://doi.org/10.46630/pan.2023
Mitrović, M., Opsenica Kostić, J., & Panić, D. (2021). Social support and relationship satisfaction as predictors of positive and negative affect in infertile woman during IVF treatment. *Facta Universitatis: Pshilosophy, Sociology, Psychology and History*, *20*(2), 123–136. https://doi.org/10.22190/FUPSPH2102123M
Mitrović, M., Opsenica Kostić, J., & Ristić, M. (2022). Intolerance of uncertainty and distress in women with delayed IVF treatment due to the COVID-19 pandemic: The mediating role of situation appraisal and coping strategies. *Journal of Health Psychology*, *27*(11), 2515–2528. https://doi.org/10.1177/13591053211049950
Newton, C. R., Hearn, M. T., & Yuzpe, A. A. (1990). Psychological assessment and follow-up after in vitro fertilization: Assessing the impact of failure. *Fertility and Sterility*, *54*(5), 879–886. https://doi.org/10.1016/S00150282(16)53950-8
Ni, Y., Huang, L., Tong, C., Qian, W., & Fang, Q. (2021). Analysis of the levels of hope and influencing factors in infertile women with first-time and repeated IVF-ET cycles. *Reproductive Health*, *18*, 1–9. https://doi.org/10.1186/s12978-021-01248-y

Palmer-Wackerly, A. L., & Krieger, J. L. (2015). Dancing around infertility: The use of metaphors in a complex medical situation. *Health Communication*, *30*(6), 612–623. https://doi.org/10.1080/10410236.2014.888386

Pashigian, M. J. (2002). Conceiving the happy family: Infertility and marital politics in northern Vietnam. In M. C. Inhorn, & F. V. Balen (Eds.), *Infertility around the globe: New thinking on childlessness, gender and reproductive technologies* (pp. 134–151). University of California Press.

Reis, S., Xavier, M. R., Coelho, R., & Montenegro, N. (2013). Psychological impact of single and multiple courses of assisted reproductive treatments in couples: A comparative study. *European Journal of Obstetrics & Gynecology and Reproductive Biology*, *171*(1), 61–66. https://doi.org/10.1016/j.ejogrb.2013.07.034

Riessman, c. K. (2000). Stigma and everyday resistance practices: Childless women in south India. *Gender & Society*, *14*(1), 111–135. https://doi.org/10.1177/089124300014001007

Slade, P., Emery, J., & Lieberman, B. A. (1997). A prospective, longitudinal study of emotions and relationships in in-vitro fertilization treatment. *Human Reproduction (Oxford, England)*, *12*(1), 183–190. https://doi.org/10.1093/humrep/12.1.183

Smeenk, J., Wyns, C., De Geyter, C., Kupka, M., Bergh, C., Cuevas Saiz, I., De Neubourg, D., Rezabek, K., Tandler-Schneider, A., Rugescu, I., & Goossens, V. (2023). ART in Europe, 2019: Results generated from European registries by ESHRE. *Human Reproduction*, *38*(12), 2321–2338. https://doi.org/10.1093/humrep/dead197

Terry, D. J., & Hynes, G. J. (1998). Adjustment to a low-control situation: Reexamining the role of coping responses. *Journal of Personality and Social Psychology*, *74*(4), 1078–1092. https://doi.org/10.1037/0022-3514.74.4.1078

Thia, E. W. H., Vo Thanh, L. A., & Loh, S. K. E. (2007). Study on psychosocial aspects and support of in vitro fertilisation programme in an Asian population. *Singapore Medical Journal*, *48*(1), 61–68.

Van Balen, F., & Gerrits, T. (2001). Quality of infertility care in poor-resource areas and the introduction of new reproductive technologies. *Human Reproduction*, *16*(2), 215–219. https://doi.org/10.1093/humrep/16.2.215

Van den Broeck, U., Emery, M., Wischmann, T., & Thorn, P. (2010). Counseling in infertility: Individual, couple and group interventions. *Patient Education and Counseling*, *81*(3), 422–428. https://doi.org/10.1016/j.pec.2010.10.009

Wichman, C. L., Ehlers, S. L., Wichman, S. E., Weaver, A. L., & Coddington, C. (2011). Comparison of multiple psychological distress measures between men and women preparing for in vitro fertilization. *Fertility and Sterility*, *95*(2), 717–721. https://doi.org/10.1016/j.fertnstert.2010.09.043

Willig, C. (2013). *Introducing qualitative research in psychology*. McGraw-hill education (UK).

Wischmann, T., & Thorn, P. (2013). (Male) infertility: What does it mean to men? New evidence from quantitative and qualitative studies. *Reproductive Bio Medicine Online*, *27*(3), 236–243. https://doi.org/10.1016/j.rbmo.2013.06.002

Ying, L., Wu, L. H., & Loke, A. Y. (2016a). The effects of psychosocial interventions on the mental health, pregnancy rates, and marital function of infertile couples undergoing in vitro fertilization: A systematic review. *Journal of Assisted Reproduction and Genetics*, *33*(6), 689–701. https://doi.org/10.1007/s10815-016-0690-8

Ying, L., Wu, L. H., & Loke, A. Y. (2016b). Gender differences in emotional reactions to in vitro fertilization treatment: A systematic review. *Journal of Assisted Reproduction and Genetics*, *33*(2), 167–179. https://doi.org/10.1007/s10815-015-0638-4

Yoshimasu, K., Miyauchi, N., Sato, A., Yaegashi, N., Nakai, K., Hattori, H., & Arima, T. (2020). Assisted reproductive technologies are slightly associated with maternal lack of affection toward the newborn: The Japan environment and children's study. *Journal of Obstetrics and Gynaecology Research*, *46*(3), 434–444. https://doi.org/10.1111/jog.14189

Zaake, D., Kayiira, A., & Namagembe, I. (2019). Perceptions, expectations and challenges among men during in vitro fertilization treatment in a low resource setting: A qualitative study. *Fertility Research and Practice*, *5*(1), 1–9. https://doi.org/10.1186/s40738-019-0058-8

Zillien, N., Haake, G., Fröhlich, G., Bense, T., & Souren, D. (2011). Internet use of fertility patients: A systematic review of the literature. *Journal für Reproduktionsmedizin und Endokrinologie-Journal of Reproductive Medicine and Endocrinology*, *8*(4), 281–287.