

A qualitative study examining transgender people's attitudes towards having biological children and pursuing fertility treatments in Greece

Polychronis Voultzos (✉ pvoultzos@auth.gr)

Aristotle University of Thessaloniki School of Medicine

Christina-Erato Zymvragou

Aristotle University of Thessaloniki Faculty of Health Sciences

M.V. Karakasi

Aristotle University Of Thessaloniki Faculty of Forestry and Natural Environment

P. Pavlidis

Democritus University of Thrace Department of Molecular Biology and Genetics

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Abstract

Background: Advances in biomedical technologies permit transgender individuals not only to achieve gender transition but also to experience parenthood. Little is known about this topic in Greece, a traditionally conservative country; however, Greece is changing at the legal level towards a greater recognition of transgender people's rights. This study aimed to investigate transgender people's attitudes towards having biological children and pursuing fertility treatments in Greece.

Methods: This is a prospective qualitative study conducted with adult individuals who identified as transgender men or transgender women between April 2019 and March 2020. Individual in-depth qualitative interviews were conducted with twelve participants. The interviews were carried out in person and were digitally recorded and transcribed verbatim. We performed an inductive analysis of the data.

Results: The inductive data analysis resulted in the identification of themes that represent key barriers to pursuing fertility preservation (FP) or the use of assisted reproductive technology (ART). Six major themes were clearly present in the findings (lack of adequate information and counseling, worsening gender dysphoria, increased discrimination against transgender people due to the rise of extreme far-right populism, low parental self-efficacy, high costs, and a less than perfect legal framework). Moreover, diverse cases were examined, and minor themes, such as the symbolic value of the uterus and pregnancy, the relationship between the type of gender transition and willingness to pursue fertility treatments, and transgender people's adherence to heteronormative patterns in the context of reproduction, were identified. Various reasons for transgender people's differing degrees of desire for parenthood were identified.

Conclusion: Our findings demonstrated contextual factors as well as factors related to transgender people themselves as barriers to pursuing transgender parenthood. Most aspects of our findings are consistent with those of previous research. However, some aspects of our findings (regarding aggressive behaviors and economic instability) are specific to the context of Greece, which is characterized by the rise of extreme far-right populism due to the decade-long Greek economic crisis and the deeply conservative traditionalist background. In that regard, the participants highlighted the (perceived as) less than perfect Greek legislation on transgender people's right as barrier to transgender (biological) parenthood.

Background

An increasing number of young transgender people today are using medical procedures such as gender-affirming hormonal or surgical therapies to achieve gender transition¹ [1,2]. Gender transitioning is 'the process of changing one's gender presentation and/or sex characteristics to accord with their internal sense of gender identity' [3]. Importantly, in the past, transgender young people never sought medical (i.e., hormonal) therapy as part of the transition process at earlier stages of development [1]. While research has shown that gender-transitioning people experience psychological benefits [4], the multifaceted process of gender transitioning with hormones or sex reassignment surgery may introduce a higher risk of significant long-term implications, including temporary or permanent loss of fertility [5,6]. Notwithstanding, recent advances in biomedical technologies have not only enabled gender transition but also made it feasible for transgender individuals to experience parenthood. Most transgender people who become parents do so through biological means [7]. At present, (FP) techniques include sperm banking for transgender women and oocyte, embryo, or ovarian tissue

banking for transgender men, while new FP techniques may be developed in the future. For instance, uterus transplantation may become available in the future (although not presently the foreseeable future) for transgender women.

Consequently, transgender people face complex and difficult decisions about whether to freeze sperm or eggs or use assisted reproductive technology (ART) [6]. The introduction of alternative means of achieving biological parenthood² through medical advances has, therefore, created new forms of families including (at least) one transgender person. However, 'the uptake of this option to date has been low' [8]. A few years ago, the academic literature suggested that little was known 'about how transgender people create their families and the issues involved in these decisions' [9]. More specifically, it was stated that 'little is known about their desire to have children and attitudes towards fertility preservation options' [10]. Moreover, it was argued that because there was little knowledge about the complex topic of 'medically assisted reproduction among transgender people', more clarification was needed [11]. However, there is now a substantive body of research on the creation of families by trans people, and there has been a significant increase in research on FP over the past few years [7, 12-19]. Recently, Sterling and Garcia conducted a systematic literature search of PubMed, Medline and Google Scholar and identified several publications related to the topic of interest [20].

This manuscript attempts to expand knowledge about transgender adults' attitudes and desires related to family formation and FP in Greece, as further empirical research is needed to provide a more nuanced exploration of transgender people's rights, including their right to equal access to healthcare services [21]. There is a lack of empirical evidence to support an understanding of what it is like for transgender people in Greece to make a decision about whether to pursue FP or ART. Greek society is traditionally conservative. However, within the recently changing legal framework that greatly strengthened transgender rights by allowing citizens to choose to legally change their gender identity, more transgender people are expected to use fertility clinics. If this is the case, fertility clinics will face an entirely new patient group (transgender people) 'whose reproductive futures were previously considered either impossible or undesirable [and] are now "anticipating infertility" and engaging in "family planning" as central parts of their lifecourse and medical engagements', as Payne and Erbenius (2018) wrote with respect to Sweden [22].

The legal status of transgender people in Greece

In Greece, transgender people are protected from discrimination, bullying, and harassment under the current legal framework. Since 2013, the Greek Criminal Code has punished gender identity discrimination and violence. This legal protection was enhanced by the anti-racism law, Law n.4285/2014. Nevertheless, over recent years, Greece adopted extreme austerity measures that led to the rise of far-right parties. Consequently, homophobic and transphobic violence and rhetoric have substantially increased [23,24]. More recently, Law n. 4491/2017 allowed citizens to choose to legally change their gender identity (from the age of 15). Importantly, this law improved transgender people's right to change their official gender registration according to their own understanding of their gender identity without requiring medical treatment. Under the new law, young people (between the ages of 15 and 17) can apply for legal changes in their gender identity after having obtained a certificate issued by a medical council (in Athens Children Hospital). The law brings Greek legislation in line with the legislation of most

EU countries [25]. Transgender Europe (2017) welcomed this law [26]. Undoubtedly, the law is an important step in improving transgender people's autonomy. As the new law allows citizens to choose to legally change their gender identity without requiring medical treatment, it paves the way for transgender parenthood. However, certain needs of transgender people remain unaddressed, as the autonomy of transgender people to choose their gender identity remains quite limited. First, a legal change in gender identity is granted to the applicant only after their appearance before a court. Second, transgender people must be single (perhaps against their will) to apply for a legal change in their gender identity. Third, transgender people who already have children when they apply for a legal change to their gender identity are presented on the registry certificates of their children according to their old gender identity (their sex assigned at birth), which may affect the relationships between transgender people and their children.

Unsurprisingly, legal amendments can hardly alter issues that are rooted in culture [24]. The Orthodox Church of Greece has profoundly shaped Greek people's moral and social attitudes for many years. The Orthodox Church of Greece stated that the law allowing citizens to change their gender identity was 'a satanic deed' that will lead to 'the destruction of social cohesion and the spiritual necrosis of man' [25]. Greek cultural values place considerable emphasis on heterosexual coupledom, promoting the view that it is a prerequisite for one's personal fulfillment [27]. Religion is a major factor that strongly influences Greek culture, particularly regarding sexuality and marriage.

In Greece, Laws n.3089/2002 and n.3305/2005 constitute a regulatory environment that is largely liberal compared to those of many other European countries and that allows citizens to access in vitro fertilization (IVF) techniques such as heterologous fecundation (assisted fertilization of a woman's oocyte with donor sperm), surrogacy, postmortem fertilization, cryopreservation and donation of gametes or zygotes. Under the current Greek legal framework, IVF is permitted only for strictly medical reasons, namely, for individuals 'unable to have children naturally' (Greek Civil Code, article 1455§1). Individuals who a) are not medically infertile, b) strongly desire a child, and c) are very unlikely to conceive through natural intercourse because their gender identity precludes this are not presently allowed access to IVF technology. Hence, access to IVF techniques is not granted to same-sex couples or single men. However, a lesbian trans woman can access IVF techniques only by presenting herself as a 'single woman' wanting a child (Law n. 3089/2002 in combination with Law 4491/2017). 'Trans women can opt for semen cryopreservation prior to their medical transition to retain the possibility to parent genetically related offspring' [28]. Trans women may seek surrogacy to achieve genetic parenthood.

Methodological Aspects

Instrument

The present work is a prospective qualitative research study centered on exploring the social realities of individuals who identify as transgender and their descriptions of their lived experiences and attitudes towards having biological offspring. Data were collected through semistructured in-depth interviews conducted in person with 12 individuals who identified as transgender men or transgender women between April 2019 and March 2020.

Research questions

The primary research question that defined the focus of this study was as follows:

What are the attitudes of adult transgender women and transgender men towards having biological children and pursuing fertility treatments in Greece?

The secondary research questions were as follows:

- a) What are the factors (if any) affecting transgender individuals' fertility decisions?
- b) What are the challenges (if any) that transgender people face in accessing fertility treatment or pregnancy and birth services?

We followed each of the items listed in the COREQ (COnsolidated criteria for REporting Qualitative research) Checklist [29].

Research team and reflexivity

Personal characteristics

C-E Z conducted the interviews. She is a psychologist who was pursuing a Master's in bioethics at the time of the study and has experience in conducting qualitative research interviews. PV is an Associate Professor of Medical Ethics, V-M K is a physician (psychiatry resident) and PP is an Associate Professor of Forensic Medicine.

Relationship with participants

No relationships between the interviewer and participants were established prior to the study commencement. The interviewer's reasons for doing the research as well as her interests in the research topic were reported to the participants.

Study design

Theoretical framework

Conventional content analysis (a widely used qualitative research technique in which coding categories are derived directly from textual data) was selected as the methodological orientation to underpin the study.

Participant selection

Purposive sampling was used to deliberately identify individuals who identified as transgender persons and potentially had experience with transgender parenthood and fertility treatment. Purposive sampling was used to select individuals willing to provide detailed information about their perceptions, attitudes and experiences of having biological offspring and pursuing FP and/or in vitro fertilization techniques. The participants represented a wide range of ages and diverse socioeconomic backgrounds. Initially, we approached people identified as transgender (but not nonbinary) persons using the interviewer's (C-E Z) personal contacts. Overall, twelve participants were recruited through community outreach and the interviewer's personal contacts. Potential participants were approached in person, by phone or by email and then contacted by phone to schedule an interview. None of the potential participants refused to participate or dropped out. Recruitment continued from April 2019 through March 2020, reaching a total of twelve participants. After first contact, all of the individuals were told that the purpose of the study was to understand the attitudes of trans people towards undergoing FP

and having biological offspring in Greece and that the interview should take between 30 and 60 minutes to complete. After agreeing to participate, the participants received a brief explanation of the objectives, anonymity, voluntary participation and confidentiality of the study. All interviews were conducted in Greek.

Setting

The interviews were conducted in neutral places of the participant's choice. All interviews were held in quiet places (mostly private rooms) with a comfortable environment. As phenomenological researchers, we were interested in describing the participants' experiences while maintaining a natural (normal, unreflective and effortless) attitude. No one else was present at the interviews besides the participant and interviewer.

Description of the sample

The selected study participants (N=12) were individuals who identified as transgender men and women and were in different transitioning stages; they were diverse in terms of age, gender identity, transition phase or type, place of residence, sexual orientation, and educational background. The age of the participants ranged from 23 to 60 years, with the majority between 27 and 45. The mean (standard deviation, SD) age of the participants was 40 (11) years. All participants were adults and had been Greek citizens for at least the last 10 years. All participants resided in urban areas. The participant characteristics are presented analytically in Table 1.

Data collection

The interviews were conducted one on one. The development of the interview guide was guided by a review of the relevant literature. As a first step, the interview guide was pilot tested. The guide was slightly refined based on the initial results from a few interviews to allow the participants to better understand the specific issues being asked about in the questions. Then, we developed an informal grouping of topics and questions that the interviewer could ask in different ways for different participants. The interview guide covered a number of topics to capture a wide range of the participants' lived experiences. These topics were related to a) making fertility decisions and b) accessing fertility treatment and health care services. The participants were encouraged to expand upon the examined topics. They were asked broad questions and encouraged to respond in a conversational way to express themselves. The interviews were semistructured and started with questions such as "What was it like to be a transgender parent, and what does it mean you?" (*a grand tour question to make the participant comfortable*), "How do you think other transgender people perceive having biological children?", "What would motivate or did motivate you to pursue or not pursue parenthood?", "What do you know about other transgender people's experiences or attitudes towards pursuing fertility preservation or in vitro fertilization techniques?", "Can you please describe in detail what types of barriers a transgender person needs to overcome to pursue fertility preservation or in vitro fertilization techniques?". The set of interview guide questions is presented analytically in Table 2. Additional questions were asked to elicit more detailed explanations and identify the essential themes of transgender people's attitudes towards having biological children and pursuing fertility treatments.

We did not carry out follow-up interviews. The interviewer audio-recorded the interviews to collect the data. In addition, field notes were made after the interview to record nonverbal behavior patterns, as well as procedural and contextual aspects of the interviews, which enabled deeper and contextual critical reflection on the data collected. The interviews lasted from 38 minutes to 55 minutes each (mean 44 min). They were digitally audio-

recorded and transcribed verbatim to preserve authenticity. We stopped data collection when we believed data saturation to be reached, namely, when no additional information was obtained from further interviews. The interview transcripts were not returned to the participants for their comments and/or corrections.

Data analysis

The research data were gathered by combining conversational interviewing and structured interviewing to yield insightful findings. The interviewer spent the first part of the interview gaining the participants' trust. For this reason, in all the interviews, the initial part was devoted to the apprehension phase of the interview process that follows the rapport-building phase [30]. This phase was largely devoted to topics not directly related to the research topic, such as gender dysphoria, social stigma and discrimination, and the gender transitioning process. Interestingly, this part of the interviews was found to be useful for improving the data interpretation in the thematic analysis.

Qualitative data were analyzed using thematic content analysis [31]. Themes were not identified in advance but were derived from the data. As transgender men's experiences of barriers in making fertility decisions or accessing fertility treatment or pregnancy and birth services had not been previously explored in the context of Greece, we were not already aware of the participants' probably responses. Therefore, we decided to use 'the actual data itself to derive the structure of analysis a data-driven analysis' (namely, an inductive approach), which is less biased and more comprehensive and flexible (though time-consuming) than a deductive approach, which involves analyzing data with a 'predetermined theory, structure or framework' [31].

Verbatim transcription of the audio-recorded narratives was performed. We followed [Gibbs' \(2007\)](#) [32] advice on demonstrating qualitative reliability. Using this perspective, we carefully examined, verified and repeatedly read the transcripts to obtain a good sense of the participants' narratives [31]. We constantly compared the data (as described by [Patton, 2002](#)) [33] to ensure that the codes were used consistently. The data obtained from the interviewees were thematically categorized and analyzed. Open coding was used to identify quotations related to our research questions. Three data coders coded the data. We did not provide a description of the coding tree. After summarizing these quotations in notes, we grouped phrases reflecting the same context to form categories and subcategories that might represent starting points for the results of the study. Then, the transcripts were reread and were constantly compared with the list of categories and subcategories to identify further phrases in transcripts that might help address the research questions. Therefore, we strived to capture and investigate in depth all aspects of the participants' narratives related to the research goal. Moreover, we coordinated communication and shared analyses.

A data management software program ([NVIVO, 2015](#)) was used to manage the data, namely, to secure and further refine the systematic character of the analysis. The participants did not provide feedback on the findings. Participant quotations are presented to illustrate the themes and findings. Each quotation is identified with the pseudonym of the participant. Furthermore, there is consistency between the data presented and the findings. Five major themes were clearly identified in the findings (lack of adequate information and counseling, worsening gender dysphoria, increased discrimination against transgender people due to the rise of extreme far-right populism, low parental self-efficacy, and high costs). Moreover, diverse cases are described, and minor themes (such as the symbolic value of the uterus and pregnancy, the relationship between the type of gender

transition and willingness to pursue FP and IVF, and transgender people's adherence to heteronormative patterns in the context of reproduction) are discussed.

Reflexive thinking was used throughout the research process to reduce unintentional personal bias. We strived to use reflection to increase awareness of their preunderstanding of the study phenomenon. A bioethicist (PV) conducted thematic analysis of the interview data. Each of us engaged with the other researchers to limit research bias.

Ethical considerations

The interviews were conducted in neutral places of the participant's choice, thereby ensuring privacy and confidentiality and minimizing environmental impact. Prior to participating in this study, the participants were given adequate information on the aim, procedure, nature and confidentiality of the study, and their oral consent to participate was obtained. The ethical principles of anonymity, voluntary participation and confidentiality were considered. The participants' anonymity and confidentiality were maintained throughout the study. To preserve their anonymity, pseudonyms were used to describe participants in this study. The interviews were registered and stored in a strictly confidential fashion. The study and consent procedure was approved by the ethics committee affiliated with Aristotle University of Thessaloniki, Faculty of Health Sciences, Department of Medicine (No: 2.128/27-02-2019).

Results

The inductive analysis of the study findings resulted in the identification of the following themes that represent key barriers to pursuing FP or ART: lack of adequate information and fertility counseling, worsening gender dysphoria (fertility treatment may be a challenge to the transition process or a result of it, with the strength of the desire for fertility treatment being crucial), increased discrimination against transgender people due to the rise of extreme far-right populism, low parental self-efficacy, high costs, and the less than perfect legal framework. Not all participants expressed a strong desire to have offspring. Various reasons behind transgender people's desire for parenthood were identified. A number of subthemes were grouped under the base themes, such as the symbolic value of the uterus and pregnancy, the relationship between the type of gender transition and willingness to pursue FP and IVF, and transgender people's (especially those in social transition) striking adherence to heteronormative patterns in the context of reproduction.

Lack of fertility counseling

None of the participants reported having received adequate FP counseling before starting their transition, while six out of twelve participants indicated that they had not been given adequate information about their FP options.

The participants Jessie (a 51-year-old trans woman who had completed the transition process³), Luis (a 28-year-old trans man still in transition), and Jonathan (a 27-year-old trans man still in transition) did not express regret about the missed opportunity for receiving further information from their psychologist/psychiatrist or endocrinologist about FP. However, the participants Fabiola (a 23-year-old trans woman at an advanced stage of the transition process), Edward (a 36-year-old trans man at an advanced stage of the transition process), and Patrick (a 29-year-old trans man who had completed the transition process) made clear complaints about being

deprived of the opportunity to make fertility decisions, namely, to have a choice about having children genetically related to them. Furthermore, the participants noted that when they were adolescents in the gender transition, they did not feel ready to make important and lifelong reproductive decisions at their age. However, they were forced to consider whether to preserve their sperm or eggs.

Fabiola (a 23-year-old trans woman at an advanced stage of the transition process) stated,

"...A health scientist should have informed me about it... and I went as early as 16... this is what I tell other youngsters, that, 'OK, you may not be interested in becoming a parent now, but you never know what might happen ten years from now'... no information is given to us..."

In the same vein, Edward (36-year-old trans man at an advanced stage of the transition process) said,

"...if I had known when I was 20 [about cryopreservation], I don't know what I might have done. Some people did not make this choice because they did not know about such an option, and they might have wanted to make such a choice later on..."

Jonathan, a 27-year-old trans man still in transition, stated that he was not provided with fertility counseling before starting gender transition because, in the healthcare context, he came across as being uninterested in having children. Reflecting on his experience, he said,

"They did not talk about this; it was not their priority for any reason... in the health system... They knew that this matter did not concern me..."

Fears of discrimination, bullying, and harassment as barriers to transgender parenthood

a) Bullying by the general population: Discrimination, bullying, and harassment during pregnancy

The participants expressed fears of discrimination ranging from subtle forms (such as social disapproval) to physical violence.

The fact that the phrase 'transgender parent' gives other people a negative impression was reported as discouraging to transgender people with regard to considering FP and assisted reproduction options. Patrick, a 29-year-old trans man who had completed the transition process, said,

"... it sounds bad... when you say 'trans-parent', they immediately think, as soon as they hear it, that it is very strange..."

Fabiola, a 23-year-old trans woman at an advanced stage of the transition process, stated,

"Imagine a trans-man pregnant walking in the town square... to start with, it is dangerous for the person themselves, for their physical integrity..."

Fay, a 52-year-old trans woman still in transition, believed that a transgender parent may be at high risk of being bullied by other people as long as she remains visible as a transgender person. However, the participant expressed fears of another form of bullying that may occur among transgender parents even if a transgender parent remains invisible as a transgender person. This form of bullying (the forced removal or separation of

children from their parents) occurs in a transgender parent's family context or is instigated by close relatives. Fay stated,

"Now, look! If you see a trans person in public who shows they are trans, if they go out with the child, they may be taunted, they may have to face many things, I believe. If it does not show, I believe they will not face any particular problem, unless there is a problem in their environment, their closer, family circle... the [family members] may set procedures in motion to take the child themselves or send him/her [the child] to an institution or something. All that matters is that the child should not be with the trans individual, which is the worst thing for them..."

The aforementioned participants expressed their fear of aggressive behaviors against them, highlighting the rising extreme far-right populism in the urban areas where they were living.

b) Bullying by health providers in birth settings

A trans man who goes to the hospital or a midwifery unit to give birth may commonly be the subject of bullying by health professionals. George, a 60-year-old trans man who had completed the transition process and was bisexual, expressed his fears:

"The only problem is society, when you go to a maternity clinic with a beard... You will have to be able to go for prenatal birthing classes; you need to receive treatment in an atmosphere of understanding at the hospital, not to be abused."

In the same vein, Fabiola, a 23-year-old trans woman at an advanced stage of the transition process, said,

"... and how would they be treated during delivery? Does such a person, in other words, have to be rich and go to a private clinic and pay so they are treated with dignity? This does not mean that there are not people in the public health system who do not treat you with dignity [she relates her experience]."

Unfortunately, health professionals were reported to be the originators of bullying behavior not only within reproductive healthcare contexts but also within other healthcare contexts. Two participants described negative experiences with health providers that reflected their providers' lack of willingness to offer appropriate healthcare to transgender patients. More specifically, they described instances in which health professionals demonstrated subtle (verbal and 'low-intensity') bullying-related behavior or at least a lack of empathy for the issues faced.

Fabiola, a 23-year-old trans woman at an advanced stage of the transition process, recalled,

"... When I visited a plastic surgeon for breasts, he had forgotten my problem; he was, like, 'Is a psychiatrist attending to you? Are you seeing any doctor? What kind of hormones have you taken? What other operations?' I felt, in a way, [that] I was being abused. Because there were other people present..."

In a similar vein, Edward, a 36-year-old trans man at an advanced stage of the transition process, detailed his experience:

"... access to the health sector is very difficult for us... and an unpleasant experience, right? How can you go to the hospital and hear them ask you, 'Now, what are you?' 'What is it that you've got under your knickers?'"

... [the health professional] hardly looked at my health booklet, although I had explained that I was a transsexual person... He took one look at the injection, and he went, 'Ah... testosterone... why are you having this shot?', in front of other people, and I go, 'I am going to tell you'..."

The transition process as a barrier to FP and assisted reproduction

a) FP as a challenge for the break with one's old gender

Jessie, a 51-year-old trans woman who had completed the transition process, was highly concerned that sperm storage would strongly challenge the (highly desired) break with her old gender identity. She explicitly declared that it would be distressing (for reasons related to gender dysphoria) to pursue FP and explained,

"... there was no such suggestion by anyone; even if there had been such a discussion, I would not have even stood to hear about it; I wanted to erase any trait left... It is out of the question that I would give my sperm for a biological child... I think this is because it would reduce my female substance (!)... I don't even remember myself... It's as if a roller shutter has come down, a curtain, and I cannot see the past... I try to remember me, and I cannot remember me..."

However, the participant said that if she had had the opportunity to undergo uterus transplantation at a younger age, it would have significantly contributed to the success of her transition. As the topic of uterus transplantation was not part covered in the interview guide questions, this mention of uterus transplantation came up as an emergent theme. The participant stated,

"... in other words, it would be continuing on the way to a sense of completion... 100%; I would have felt completed, but, OK, this did not take place when it should have..."

In a similar vein, Luis, a 28-year-old trans man still transition and was pansexual, expressed strong concerns about worsening his gender dysphoria by completing invasive FP (at least without strong countervailing reasons). He believed that going through the FP procedure (i.e., hormonal stimulation and egg retrieval) could be quite invasive and noted,

"... I am not going to subject my body [to this] and risk my mental health and serenity if it is not absolutely necessary... I don't know how it might affect my emotions because I am trying to break free from that gender; I would not like to go back to such symptoms..."

Jonathan, a 27-year-old trans man still in transition, made it clear that it could be distressing (having a negative impact on gender dysphoria) to delay gender transition to facilitate FP or to undergo invasive FP procedures while having to wait for the (medical) gender transition to start.

"I was thinking about doing this before I started the transition, but the procedure was truly difficult even before the transition because of the hormonal disorders... No way could I have had the physical or mental strength to put up with this; that's why I am looking forward to my hysterectomy, to be done with this matter once and for all."

Furthermore, oocyte storage may challenge the break with the transgender individual's old gender identity, even if the individual has completed the transition process. Patrick, a 29-year-old trans man who had completed the transition process, stated,

"... I think it is difficult to communicate this to the other person... to sit and tell him, 'You know, I have some [ova] stored ... and we can do it this way'... I don't know how easy that might be."

Fabiola, a 23-year-old trans woman at an advanced stage of the (endocrine) transition process, discussed her worry that treatment with testosterone to improve sperm quality would significantly challenge her process of (medical) transition and, hence, that the effort would not be worth it, as the success rate is very low and there is therefore no strong reason for doing it. She explained,

'A child of my own? I don't think this is possible anymore... because I have no intention to reverse my hormone treatment, so I am telling you, wittingly, THIS possibility is out of the question for me, i.e., to become a biological parent; I do NOT exclude becoming a parent, but I DO exclude the biological aspect of it. Because I would have to reverse the hormonal treatment, which I am not going to do... why should I give testosterone to my body? Whatever for? For something that is very unlikely to be successful? Because the chances they give you that my sperm will be OK are very low... This would take me way back in time, for my appearance as well...'

b) The highly symbolic value of pregnancy (considered strictly related to femininity) as a barrier to FP and assisted reproduction for individuals undergoing female-to-male medical gender transition

We found that trans men may be very unwilling to become pregnant, whereas they may be willing to become genetic parents.

Antonio, a 38-year-old trans man still in transition, reported his unwillingness to become pregnant, but he had a strong desire to have children and a family. He was willing to pursue FP and donate oocytes.

"...I am all for having a family and children. Hmmm... if my girl wants to get pregnant, if that is her intention [she is in a wheelchair]; I don't want to. I want to proceed with the removal, so this will never happen. Any kind of surgery to freeze my ova so that they may be fertilized, if this is possible..."

Nevertheless, John, a 45-year-old trans man in social transition, was much more willing to donate gametes (oocytes) than many other participants. Strikingly, he noted that he could not understand why many trans men are not willing to become pregnant, as the desire for parenthood may be stronger than the desire for gender transition.

"Yes, absolutely, yes, yes, yes, [I would like to donate an ovum]... this is why, if I am going to receive hormones, I will discuss it a lot with my doctor... after their transition, trans persons do not want to have children as... hmmm... using their body. If you ask me about it, I would say that they would like their boyfriend or girlfriend to do it with another person or to adopt... the question is what [do] you want more: to be a trans person or to be a father? To be a trans person or to be a mother?..."

Notably, however, some trans men believed that a trans man might get pregnant and give birth after the gender transition. George said, *'They say that I should have completed the transition and then had children... [If you get pregnant]... the only problem is society, when you go to a maternity clinic...not to be abused'*.

A range of reasons for transgender peoples' willingness (or unwillingness) to become biological parents

The participants reported several reasons for their willingness (or unwillingness) to become biological parents. We remarked on the differences in responses and attitudes related to fertility desire and in those related to having children during the interviews. The participants were not always clear about the reasons behind a transgender individual's willingness or unwillingness to have biological children, and the interviewer often needed to ask directly.

The participants in the present study indicated that the desire to have biological children has a deeper meaning than just a wish. While rationalizing transgender people's desire to have biological children, the participants discussed several reasons for this desire. For example, Patrick, a 29-year-old trans man who had completed the transition process, placed considerable emphasis on the value of genetic relatedness and biological resemblance between parents and children as the reason behind the desire for biological parenthood and stated,

"Simply because of the reasons anyone has: that they want to feel it is their own child, made with their own material... to see some features in this child... biological ones."

In a similar vein, Fay, a 52-year-old trans woman still in transition, believed that a transgender person's desire to have children is based on the innate human need for having children and noted,

"Someone who is a trans individual does not stop wishing they had a child... Just like with cis... I believe that [the wish to have a child] emerges purely from the biological need each individual has."

However, this participant thought that the strong desire for parenthood motivates a transgender person to pursue FP techniques and ART, and stated,

"Now, I don't know if a trans woman would undergo the procedure to have a biological child... only if she truly wants it..." "...I believe things are completely different for homosexuals..."

In a similar vein, Jenny, a 50-year-old trans woman in social transition, strikingly underscored the role of the so-called 'biological clock' in shaping the desire for biological parenthood and stated,

"Whether you are a trans-sexual or a bisexual or a heterosexual, aren't you going to have a kid? Therefore, don't you want to have a family and a home for this child?... You are beautiful yourself, why adopt? [Having a child] is a blessing from nature... For better or worse, when the biological clock ticks, everyone wants a child..."

The aforementioned participant, Jenny, was strongly in favor of the natural way of conceiving a baby. She strongly rejected the use of medically assisted reproductive techniques and said,

"Artificial insemination/cryopreservation? I really don't want any of all this, dear girl! In other words, I prefer more traditional things. Even a lesbian who wants to have a child could find a one-night stand and have a child... Frozen sperm? Yuck! Not for me!"

Surprisingly, the participant remained strikingly steadfast in her adherence to patterns of the dominant culture (based on naturalness/biology and heteronormativity), at least in the context of reproduction.

It is worth mentioning that Patrick, a 29-year-old trans man who had completed the transition process, highlighted the genetic relatedness between parents and children and conveyed the impression that if he had 'excellent DNA', it would constitute a strong reason for making him willing to pursue FP and donate oocytes to his partner. He stated,

"...Personally, I couldn't care less if the child is mine; ha, ha, OK [to donate, e.g., ova to his girlfriend to get pregnant]; I don't even believe that my DNA is anything special... so, this is what I believe."

Notably, however, this view may be a result of mechanisms such as ex post realization or the overgeneralization of hard-wired perceptions due to low self-esteem (which, in turn, may be due to internalized anti-trans prejudice). Further studies are needed to assess whether internalized anti-trans prejudice is associated with a weak desire for having biological children or an unwillingness to have children.

Fabiola, a 23-year-old trans woman at an advanced stage of the transition process, highlighted that the desire for biological parenthood is egoistically motivated and stated,

"[I would like a child] for the same selfish reasons any cis person does; I don't believe [there is] some biological clock... eh, the feeling has to do with selfishness..."

This view deviated from the dominant culture that highlights essentialism (biology and naturalness). However, on the other hand, the abovementioned participant took a clear stance in favor of biological ties between parents and children. Fabiola missed the opportunity to have her own children (due to a lack of information about FP options before starting her transition) and stated,

"... what I expect for the future is for my partner to have a child... it would be our child... because this would be my first thought before adoption..."

Not surprisingly, Richard, a 38-year-old trans man in the final (almost complete) stage of the transition process, did not emphasize the biological ties between parents and children. Interestingly, he believed that genetic and social parenthood should be thought of as having equal value while considerable emphasis should be placed on values such as love and affection between parents and children. This view clearly deviated from the essentialist reasoning regarding parenthood that highlights nature (biology), which is strictly associated with the dominant culture and ideology. The participant stated,

"Sharing ova [giving one of hers to her partner]? Hm, no... what I mean is, won't it be my child if I raise it? Is it necessary for the child to have my ova so that it is mine? The point is, if you have a child, whether biological or not, you have to love it. In other words, if it is not your biological child, you are not going to love it?"

In conclusion, the analysis revealed that transgender people are most likely to have the same basic reproductive needs as cis people. Some transgender individuals place great weight on the value of genetic relatedness.

Concerns related to transgender parenting and children's welfare as barriers

a) Transgender people's fears that their children will be affected by bullying

Fabiola, a 23-year-old trans woman at an advanced stage of the transition process, highlighted the social prejudice and discrimination faced by children with transgender parents and stated,

"...In the local community [reference to the name of the person's village of origin], even an adopted child is at times pointed to and called a bastard."

Interestingly, in the inductive data analysis, fear of social prejudice did not emerge as the main barrier to transgender parenthood related to a child's welfare.

Surprisingly, Jessie, a 51-year-old trans woman who had completed the transition process, took a clear stance against same-sex parenthood while being in favor of transgender parenthood and said,

"...I don't think that we are ready, as a society, let's say... children are very cruel at such ages and say to another child, 'I have a daddy and a mummy and you don't; you have two daddies or two mummies'..."

b) Concerns related to the role of the transgender parent (low parental self-efficacy)

Several participants showed positive attitudes towards transgender parenthood.

Antonio, a 38-year-old trans man still in transition, said,

"Whatever love is given, eh... by a straight couple is the same as the love that can be given by a trans person; in essence, eh, love or one's conduct does not change because of one's gender identity."

In the same vein, George, a 60-year-old trans man who had completed the transition process and was bisexual, said,

"...gender identity has nothing to do with wanting to have a child."

In the same vein, Edward, a 36-year-old trans man at an advanced stage of the transition process, noted,

"...Everyone is entitled to becom[e] a parent; what is necessary is for relevant legislation to be in place, as we said; what is necessary is to study the situation so some things are done correctly..."

Similarly, Jessie, a 51-year-old trans woman who had completed the transition process, said,

"This has nothing to do with gender; [both trans and cis] should have [a child], why not? They have love to offer, and many other things that everyone can give..."

However, some participants believed that they would not be able to perform parenting tasks successfully. They were afraid of taking responsibility because they were extra cautious about being responsible for someone else and doing things properly.

Luis, a 28-year-old trans man still in transition and was pansexual, said,

"...It's a very big responsibility to be responsible for someone else..."

Moreover, Patrick, a 29-year-old trans man who had completed the transition process, said,

"... [I would like] if something goes wrong, for example, that the child should be more my girlfriend's... but I think I generally prefer adoption."

Other participants explicitly expressed their belief that they did not have the qualifications to be a good parent.

Jonathan, a 27-year-old trans man still in transition, focused on his chronic depression and stated,

"...I don't believe that I will ever reach the psychological stage of my life when I am going to want to and be capable of raising a child (psychologically); I suffer from chronic depression, and I don't know how this may affect a child's life."

Jessie, a 51-year-old trans woman who had completed the transition process, focused on her characteristics and stated,

"...I think I would be overprotective and possibly authoritarian; I might not be able to fully control and fully manage that..."

Interestingly, some participants were afraid of becoming parents because they were extra cautious about potential dangers to their children (i.e., due to heredity or the toxicity of the use of hormones to embryos or fetuses)

The participants believed that even if they had children, it was likely that they would blame themselves for how their children's lives might turn out due to heredity or even the use of hormone replacement therapy. Luis, a 28-year-old trans man still in transition as a pansexual stated,

"... I am bipolar, OK? I don't know if it is passed down, if it is hereditary..."

"... but, if my child told my 'Dad, I am trans'... I would not like the child to be subjected to the procedure I have been through..."

While Fay, a 52-year-old trans woman who was in the transition process, believed that a child raised by LGBT parents would receive ample love and affection, she feared that the parent's hormone replacement therapy might negatively affect the health of the child.

"If you have taken hormones, then the child may be born with problems, which means it would have been better not to have had it... why bring a child with problems into the world, to suffer?"

c) Concerns about children's welfare related to a well-established transgender identity

Some participants considered that gaining a clear gender identity implicitly accepted by others is a prerequisite for becoming a transgender parent.

John, a 45-year-old trans man in social transition, believed that a transgender individual should gain unambiguous social acceptance of his new gender identity before becoming a parent. The participant stated,

"[In the past], I did not think of becoming a father, because... there were people who could not accept [my male name], and I had to fight... I believe that trans parents are also parents, but I think that for [a trans person] to start [the process of becoming a parent], everyone must have accepted this... trans person first."

In a similar vein, George, a 60-year-old trans man bisexual noted,

"... First of all, you need to feel OK with who you are, to know who you are and where you are going and then [have a child] ... They say that I should have completed the transition and then have children... And now, sometimes, they call me 'mamo'; my daughter [tells] her fiancé, 'My mother is not like others, she is a trans-man; this is how we live'..."

d) Concerns about children's welfare related to the fact that transgender parenthood diverges from heteronormativity (dominant sexual and gender norms)

Importantly (though not surprisingly), the participants perceived their adherence to heteronormative patterns of parenting (traditional parent figures) as their motivation for rejecting same-sex and transgender parenthood. Jessie, a 51-year-old trans woman who had completed the transition process, expressed her strong intuition-based prejudice against same-sex parenthood and stated,

"...I cannot fully ratify this; I may be wrong - should I call myself a racist? I don't know why, but there is something I don't like about it; I cannot fully decipher it... I don't know exactly what it is. Is it being old school?..."

Jenny, a 50-year-old trans woman in social transition, placed considerable emphasis on naturalness and explained,

"The child is going to see me as I am. What can I tell you? If I were in the child's place, I would like to have a mum and a dad!... Why should I do this? Isn't it selfish? ... It is a sacred thing, Christina!!! It is not only a social issue but also a matter of nature! How can I explain this to you? To your eyes, what is nicer? A photo with mum, dad, grandpa and grandma or a photo with two transvestites? What can I tell you? What seems nicer to you?"

Skiping fertility health care due to high costs

In this study, economic factors such as the cost of the FP procedure and the storage of gametes were reported as major barriers to transgender parenthood. More specifically, the participants Fabiola (a 23-year-old trans woman at an advanced stage of the transition process) and Edward (a 36-year-old trans man at an advanced stage of the transition process) highlighted that the costs of long-term cryopreservation of sperm and oocytes are so high that many transgender people choose not to pursue FP, provided that these storage procedures are not covered by health insurance (private or public). Furthermore, the costs of assisted reproductive technology procedures were found to be high by Luis (a 28-year-old trans man still in transition and pansexual). Moreover, Jenny, a 50-year-old trans woman in social transition, said,

transgender people have to be rich ('bourgeois') to raise children!

Legal framework perceived as less than perfect

Jessie, a 51-year-old trans woman who had completed the transition process, and Fabiola, a 23-year-old trans woman at an advanced stage of the transition process, focused on the fact that it is not possible under the current Greek legal framework for a child's birth certificate to be changed to include the transgender parent's revised name or legal gender. As a consequence, the current legal framework 'prevents' transgender parents from applying for legal changes to their gender identity.

Discussion

Lack of adequate fertility counseling

One of the problems that transgender people often face related to FP and assisted reproduction is the lack of information. Consistent with past literature, our study findings showed that a significant barrier to pursuing FP and/or assisted reproductive techniques was the lack of counseling about FP options. As described above, one of the participants reported having received adequate FP counseling before starting their transition, while six of the twelve participants indicated that they had not been given adequate information about their FP options. The participants Fabiola, Edward and Patrick expressed regret about missed opportunities for FP.

Over the last decade, many authors have highlighted the need for vulnerable populations of transgender adolescents and young adults to be provided with fertility counseling prior to the initiation of the medical transition process [8,9,11,34-36] ⁴. Fertility counseling should be highly prioritized as an ethical, interdisciplinary practice [37-41]. Despite multiple papers being written about the need for this issue to be addressed, almost all the participants in this study felt that FP had not been adequately offered. Previous literature has highlighted that transgender people should be provided with 'enough information, support and opportunity to make an informed decision about fertility preservation' [8] ⁵. Very recently, Sterling and Garcia (2020) argued that a 'lack of reliable information available from other and outside sources' is among the most common reasons for the discrepancy between reported high interest in FP and a very low utilization rate [20] ⁶. The authors stressed that physicians need 'better *training* about transgender patients in general, and FP options available to them' [20]. Petit, Julien & Chamberland (2018) also stated that physicians must be trained to be aware of transgender persons' specific challenges and to better support them [15].

Moreover, it should be highlighted that some children/pubertal children/adolescents/young adults may not yet be mature and competent enough to evaluate, on their own, whether to pursue FP [37]. Some of the participants described a point at which they should have received information about FP options, even though, due to being a minor at that time, they might have been unable to fully understand the implications of their reproductive decisions as well as their future attitudes towards having biological offspring many years later in their lives. This was the case with some participants (Fabiola and Edward). In such scenarios, questions may arise regarding decision-making authority [11].

Barriers related to discrimination and bullying

Barriers related to discrimination and bullying was one of the frequent themes and encompassed the subthemes bullying during pregnancy by the general population and bullying by health professionals in birth settings [42]. Five (Jessie, Fabiola, Edward, Patrick, and Fay) of the twelve participants in our study expressed intense fear of discrimination and bullying in transgender parenthood. Across the globe, transgender people are extremely

vulnerable to physical and sexual violence and experience epidemic levels of stigma, discrimination, harassment and social rejection in almost every aspect of their daily lives, including their access to health care services [43-46].⁷ The Greek participants in our study (especially the trans men, i.e., Edward and Patrick) expressed their strong fear not only of bullying or discrimination against them but also of aggression against them if they were to become pregnant or have biological children. Being a transgender parent is still heavily stigmatized in Greece. Kantsa (2014) argued that 'normative concepts of kinship ...are acquired through a heterosexual marriage 'blessed' with children' [27]. In addition, the rise of extreme right-wing populism (due to economic crises in both urban and rural areas) that is openly violent and racist seems to be a theme in the Greek political scene [47,48]⁸.

Our inductive analysis showed that stigma against pregnant trans men can occur in hospitals or midwifery units where pregnant trans men have to go to give birth. This finding is consistent with previous research. Societal attitudes 'erect barriers to openly being pregnant and giving birth as a transgender man' [13]⁹. Charter et al. (2018) stated that 'healthcare systems are not generally supportive of trans bodies and identities and trans men encounter significant issues when interacting with healthcare providers' [12]. This is consistent with many other studies [13, 18, 41, 49]¹⁰. Furthermore, Armuand et al. (2020) found that physicians said that they 'had little knowledge about the next step following FP as they only had vague knowledge about the transgender men's reproductive choices and legal rights' [42].

Regarding Greece, Giannou (2017) reported that in Greece, transgender people often experience discrimination by healthcare providers, ranging from disrespect or transphobic insults to outright denial of service, when accessing healthcare services [24]. This discrimination can be seen as a public health issue. Notably, Armuand et al. (2020) found that health care professionals 'experienced important challenges to their professionalism when their preconceived opinions and values about gender and transgender were confronted' [42]. Such challenges may contribute to an unsafe environment for transgender people undergoing FP through various procedures, which may heighten their distress¹¹.

Importantly, according to the narratives of the participants in our study, this prejudice was going 'underground' and was expressed in more subtle, indirect ways. This is not surprising, given the truth of the assumption that anti-homosexual prejudice is no longer exercised in the traditional, 'old-fashioned' form (openly related to adherence to 'naturalness') but rather in a modern, subtle, 'non-discriminative' form [50]. Furthermore, in the context of Greece, there may be an additional explanation for this phenomenon. Being a transgender person is stigmatized in Greece, a traditionally conservative country. However, recently, attitudes towards transgender people have been somewhat more positive. Because Law n. 4491/2017 allows citizens to choose to legally change their gender identity (from the age of 15), policy and *public opinion have given increased attention to transgender people* during the last few years. At any rate, the findings related to discrimination and bullying by health professionals call for efforts by the health service system to provide equal access to fertility and reproductive health services for transgender people. Armuand et al. (2017) argued that health professionals can 'alleviate distress by using gender-neutral language and the preferred pronoun' [51]. Riggs & Bartholomaeus (2020) highlighted the need for 'the continued development of trans reproductive justice' [16].

FP and/or IVF may worsen dysphoria and delay effective transitioning

The impact of FP and/or IVF on the worsening of dysphoria and the delay of effective transitioning was a significant theme. The participants raised important concerns about FP and IVF as barriers to achieving an

effective and timely gender transition. We perceived that transgender people who are willing to become parents may experience a dilemma because of equally (or almost equally) compelling reasons both for and against pursuing fertility treatment. Achieving a successful gender transition as soon as possible is a compelling reason against pursuing fertility treatment. The procedures required for FP (such as hormonal ovarian stimulation) as well as sperm or oocyte storage may challenge the transgender person's break with his/her old gender identity. Nevertheless, we recognized that participants were almost always clear about their choices.

Consistent with past literature, we found that among transgender people, there are unique barriers to FP related to gender dysphoria. Jessie, Luis and Jonathan believed that delaying the gender transition to facilitate FP could have a negative impact on gender dysphoria and hence could be distressing. Transgender adolescents face several obstacles that affect fertility decision making [36,37], including the invasiveness of procedures, individual experiences of gender dysphoria, and a desire not to delay the medical transition [36,52]. Indeed, under a first-order desire to remain childless, there may be a second-order desire to not delay the gender transition. De Sutter et al. (2002) found that while the vast majority of respondents thought that FP should be offered to transgender women, 90% of respondents believed that the loss of fertility was not a strong reason to delay the transition [53]. This is consistent with the statement of Chiniara et al. (2019) presented below in footnote [54].

Chen and Simons (2018) effectively explained, 'Transgender adolescents pursuing hormones may be at particularly high risk for prioritizing short- versus long-term outcomes, putting them in jeopardy for later experiencing regret' [6]. Importantly, FP methods 'might reinforce transgenders' old sex or make them feel it does not fit with their new gender identity' [11]. Interestingly, procedures required for FP (i.e., hormonal ovarian stimulation and transvaginal ultrasound, which is a genitalia-specific procedure), may be experienced by trans men as having a negative impact in worsening their gender dysphoria [51]. These procedures may heighten feelings of dysphoria, thus challenging transgender people's break with their old gender identity¹². This may partly explain the reluctance of trans men to get pregnant. Nahata et al. (2017) argued that 'more research is needed to understand parenthood goals among transgender youth at different ages and developmental stages and to explore the impact of gender dysphoria on decision-making about FP and parenthood' [55]. This was a significant theme that emerged from our data analysis because there were a large number of comments related to this category and considerable emphasis has been placed on this topic by the participants in our study..

Furthermore, transgender people's break with their old gender identity may be challenged by the fact that it cannot be ruled out that future children will be informed about their parent(s)' status as transgender persons [11]
13.

Moreover, we found that the highly symbolic value of pregnancy is likely a barrier to FP and assisted reproduction for individuals undergoing female-to-male medical gender transitions. Given that pregnancy is considered strictly related to femininity, it may negatively affect a trans man's gender transition by challenging his break with the old (female) gender identity. However, this is not always the case. It is argued that trans men use contraception and can experience pregnancy, even after having transitioned socially, medically, or both [56, 14]. Moreover, notably, one participant explained that the symbolic value of the uterus may effectively facilitate the gender transition process. Jessie's (a trans woman) navigation of the concept of trans womanhood revealed her perception of the symbolic role of the uterus in transitioning from male to female, most likely based on the

common acceptance that pregnancy is a women's affair and strongly related to femininity. Envisioning the (still experimental) future prospect of human uterus transplantation, Jessie said that a uterus transplant at a younger age would make her feel 100% a woman. The phenomenologist Svenaeus (2012), analyzing the changes in identity and selfhood experienced through organ transplantation, stated that 'in cases in which the organ in question is taken to harbor the identity of another person, because of its symbolic qualities..., the alienation process may also involve the otherness of another person making itself, at least imaginatively, known' [57]¹⁴. Not surprisingly, a trans woman may desire to have the woman-specific experience of gestation. However, such a right might be controversial [58,59].

Furthermore, it should be highlighted that two participants (George and John) believed a trans man might become pregnant and give birth after gender transition. Trans men may be more likely to become parents after gender transition [7]. Some transgender men retain their uterus [13]. Moreover, we found that John, a 45-year-old trans man in social transition, was much more willing to donate gametes (oocytes) than many other participants. John's willingness may have been partly due to the fact that he was not in the medical transition but in the social transition. In this vein, it is noteworthy that some participants (trans men Antonio, John and Patrick) were explicitly willing to donate their oocytes and become genetic parents. Many trans men participants in our study touched upon some aspect of oocyte cryopreservation. It is of great importance that little is known about transgender men's experience of FP procedures such as cryopreservation of oocytes due to a lack of previous empirical research on this topic [51]. Importantly, Insogna, Ginsburg and Srouji (2020) reported that 'adolescent transgender males who choose to undergo oocyte cryopreservation tolerate the process well' [60]. In our opinion, the aforementioned findings of our study give us the opportunity to formulate starting points for further research. These points are presented below in the section 'Implications for practice and further research'.

Reasons for a willingness (or unwillingness) to have biological children

Involuntary childlessness is associated with serious negative psychological effects: serious anxiety and stress, feelings of grief, social isolation, low self-esteem, and sexual dysfunction [61-63] Furthermore, according to a holistic positive concept of health, involuntary childlessness can be regarded as an unhealthy situation.

Reproductive desire was high among the majority of the participants in the present study. Prior studies have suggested that reproductive desire is as high among transgender people as it is in the general population [35,40,53]. However, among transgender adolescents, the utilization rates of FP and reproductive options are currently very low [10,55] but steadily rising [11,35]. In 2012, it was argued that 'research on transgender adults suggests that about half desire biological children..., and over a third would have considered FP had such technologies been available at the time of their transition' [35]. In our small sample, this percentage was much greater. The lack of adequate FP counseling may partly explain these low rates [10]. Riggs and Bartholomaeus (2018) argued that FP should be made available to all transgender people before they undergo gender transition treatment that could negatively affect their future fertility, although *not all transgender persons will be willing* to undertake FP [17]. Nevertheless, this topic seems to be much more complex [54,55,64,65]¹⁵.

Barriers related to parenting and the child's welfare

Barriers related to parenting and the child's welfare was a frequently recurring theme in our interview data analysis. Several participants in our study identified barriers to having children related to children's welfare. There were various types of reported barriers that can be categorized into the following three subthemes:

a) Barriers related to the social environment

(Prejudice against children)

Transgender people's children are vulnerable to discrimination and bullying. Although the best currently available evidence does not support the notion that there are inherent risks to the welfare of the child of a transgender person, there may be external risks to the welfare of the child based on social discrimination and stigma [11]. Having children is strongly related to heteronormative stereotypes.

b) Barriers related to transgender parents' perceived limited parenting capability

The majority of the participants in our study felt incapable of meeting the standards of adequate parenting or perceived themselves as potentially harmful to their children. From the analysis of their statements and their corresponding nonverbal behavior patterns, we sensed that they drew unfair conclusions about their parental capacity based on low self-esteem. Internalized transphobia may negatively impact self-esteem [66] and hence limit transgender people's (reproductive) autonomy [67]. This may be the real reason behind the unwillingness of transgender people to become parents. Transgender individuals' parental role is a complex issue. Petit et al. (2017) stated that '...trans parental identity appeared as a multidimensional, multidetermined, nonbinary, and fluid identity in a context of nonalignment between the sex assigned at birth and gender identity' [68]. This nonalignment may heighten feelings of parental incapacity.

c) Barriers related to transgender individuals' values (adherence to patterns of the dominant culture)

According to the findings of the present study, transgender individuals may have both new and old understandings of patterns related to parenthood, such as biological relatedness and parenting figures. This finding is consistent with past literature on issues of LGBT parenthood [69].

In conclusion, several of the aforementioned findings in the 'Concerns related to transgender parenting and children's welfare as barriers' section of the paper suggest that some transgender people have very low expectations about what kind of parents they would become; that is, they have low parental self-efficacy. Moreover, it is worth noting that we identified several subthemes grouped under the theme 'concerns related to child welfare'. In our opinion, the presence of several subthemes for this theme supports the assumption that transgender parenthood is a complex, complicated, and multidimensional issue.

Barriers related to economic instability

Four (Fabiola, Luis, Edward, and Jenny) of the 12 participants in the present study believed that economic factors are major barriers to transgender parenthood. This is not an unreasonable finding. The costs of FP are a significant barrier because these procedures are typically not covered by insurance companies [37]. Transgender people are particularly vulnerable to economic instability due to their high unemployment rate related to the mere fact of being transgender. Riggs and Bartholomaeus (2018) argued that while 'fertility preservation should be made available as an option to all transgender or non-binary people prior to undertaking treatment which may impact on fertility', 'not all people may be able to afford to' [17]. Very recently, Sterling and Garcia (2020) suggested that 'the considerable out-of-pocket costs' may be one of the common reasons why, despite a reported

high level of interest of transgender persons in FP, there was a very low utilization rate [20]. Furthermore, it should be noted that there are still high unemployment rates in Greece due to the Greek financial crisis.

Strengths and limitations

This research is important in that to our knowledge, it is the first to directly examine transgender people's attitudes towards the use of FP options or assisted reproductive techniques in Greece.

However, our study has two primary limitations. First, our findings cannot readily be generalized to larger populations because of the small number of participants. However, the findings of this study might be applicable to other transgender people. While qualitative studies may sometimes be criticised for their limited generalisability due to small samples, in our opinion they remain valuable as indicators of the range of views within the public and how these views may be influenced. Second, the participants in this study reflected on their past experiences, which, for some, had occurred more than 10 years prior to being interviewed. Recall bias may have distorted the recollections of their experiences of considering FP options or assisted reproductive techniques. In order to minimize recall bias, we attempted to establish a climate that enables the participants to recall their lived experiences and events that occurred many years before, related to having biological children and pursuing fertility treatments. Moreover, we spent more time with older participants to help them go back to their youth, when they had reproductive options. We provided some more details in the limitations section.

Implications for practice and further research

The results of our inductive analysis of the study data may have implications for both research and clinical practice. These results might provide guidance for professionals processing transgender people's applications for medically assisted reproduction and FP. We highlight the need for training for health professionals to establish a safe environment for transgender people who are willing to pursue FP or IVF, especially in places (in both urban and rural areas) where there is a high prevalence of extreme right-wing populism in the context of the Greek economic crisis.

Moreover, we emphasize that rigorous psychological evaluation is required. Careful, in-depth psychological evaluation would provide important information for understanding the primary reason behind a transgender individual's attitude towards fertility matters. In the short time frame of the interview, Patrick, a 29-year-old trans man who had completed the transition process, reported four reasons for his unwillingness to consider FP options or assisted reproductive techniques. The participant provided a basis for the assumption that these reasons (mentioned elsewhere in this paper) are equally strong. For instance, the participant's attitude might have resulted from mechanisms such as ex post realization or overgeneralization of hard-wired perceptions.

At any rate, our findings might heighten awareness of and stimulate debates about ethical topics related to our research questions.

Furthermore, based on the findings of our study, we provide some starting points for further research. For instance, the association between the type of transition and the willingness to become involved in procreation remains to be tested. Moreover, it remains to be further explored whether transgender individuals who are in social transition show greater adherence to the dominant culture than those in medical transition, at least in the context of reproduction. Last, we stress the need for further empirical research into transgender men's experience of FP procedures such as the cryopreservation of oocytes. In this vein, it would be interesting to investigate whether transgender people should be classified as a separate group of the LGBT community and whether data on transgender individuals should be analyzed separately.

Implications for health policy related to the COVID-19 pandemic

Finally, provided that in our qualitative research gender discrimination emerged as a major barrier to transgender people's fertility treatment, this barrier may become less permeable due to the COVID-19 pandemic. The COVID-19 pandemic puts additional limits on the individual right to procreate with technological assistance. During COVID-19 pandemic and given the fear of the virus transmittance to either sperms or oocytes and the scarce relative evidence, the American Society for Reproductive Medicine (ASRM) suggested, for all healthy subjects, the interruption of any ART treatment (including the gamete cryopreservation), while maintaining these services for cancer patients receiving gonadotoxic therapies [70]. Note however that while there is not pause in these services for cancer patients receiving gonadotoxic therapies, 'in practicality, loss of general IVF may impact practices' standard operations' [71]. In the same vein were the recommendations of the European Society of Human Reproduction and Embryology (ESHRE) [70] Note, however, that in European countries fertility preservation treatments remained available during the pandemic [72]. Nevertheless, these treatments in a given society may be distributed unevenly in the context of the strategies that have been developed in response to the COVID-19 crisis (i.e. due to priorities in limited resource settings or efforts to reduce the eventual burden on hospitals and the movement of people to fertility clinics). Moreover, the pandemic and the consequent suspension of fertility treatments represent an opportunity to exacerbate the long-standing debate over whether fertility treatments should be considered essential [73]. This may cast further doubt on transgender people's freedom to make meaningful decisions in reproductive matters. As a consequence, the barriers that transgender people face in pursuing biological parenthood may become stronger, provided that the COVID-19 pandemic give rise to (additional) structural discrimination. Sabatello et al. (2020) arguably state that in the US 'The COVID-19 pandemic 'gives a face to decades of segregation, racism and structural discrimination' and has 'disproportionate impact on historically marginalized communities' [74]. In all likelihood, the same holds for Greece. Installation of specific oncofertility programs adopting a social justice approach towards transgender individuals seems necessary in the context of the coronavirus (covid-19) pandemic. The discrimination against transgender people is expected to substantially increase in Greece, where, in addition to the traditionally conservative societal system there is a substantial rise of far-right populism over recent years.

Conclusion

The results demonstrate the importance of contextual factors (stigma, economic instability, and law), as well as factors related to transgender people themselves (gender dysphoria, the desire to become parents, and self-

trust). More specifically, the inductive analysis resulted in the identification of the following themes that represent key barriers to pursuing FP or ART: lack of fertility counseling; high costs and economic instability (due to the Greek economic crisis); concerns related to the child's welfare due to factors related to the context or transgender people themselves; a less than perfect legal framework on transgender people's rights; concerns about whether fertility treatment may negatively impact the gender transition process and fears of discrimination (by the general population or even health care providers); and bullying in the traditionally conservative Greek societal system, which embraces heteronormativity and is gradually emerging from a decade-long economic crisis that gave rise to extreme far-right populism. A number of subthemes were grouped under the primary themes. Various reasons behind the transgender participants' varying degree of desire for parenthood were identified. Furthermore, the results indicated the symbolic role of the uterus (important to trans women) and pregnancy-related body changes (important to trans men, as they act as a barrier to the gender transition process and give rise to discrimination against them). Moreover, the results allowed us to hypothesize that transgender individuals in social transition are much more willing to pursue FP or ART (or, for trans men, become pregnant) than those in medical transition. In addition, transgender individuals showed striking adherence to patterns of the dominant culture in regard to attitudes towards having children and low self-esteem.

Transgender people's willingness to pursue FP and/or IVF is a complex topic, and we highlight the need for rigorous individual psychological evaluation. Moreover, we stress the need to train health professionals to establish a safe environment for transgender people who want to undergo fertility treatment, become pregnant and give birth. Health professionals should be trained to develop trans reproductive justice.

The findings of this study call for efforts of the fertility and reproductive health service system to support and provide equal access to fertility and reproduction-related services for transgender people. Addressing the barriers to transgender parenthood that are documented in this article will require policy initiatives and a social justice approach towards transgender individuals' health and human rights. Health providers can play a crucial role in this process. Therefore, the need to establish standardized protocols and provide necessary training to physicians is highlighted.

Footnotes

¹ The term 'transition' is used to refer to all types of medical (endocrine or surgical) transition. The term 'social transition' is used to specifically reflect gender transition. The participants in 'social transition' opted not to undergo medical treatment, believing that a change in his/her gender role or behavior would itself be sufficient.

² In this study, the term 'biological child' means not only a child to whom transgender people are genetically related but also a child to whom trans men are related through gestational motherhood.

³ At the time of the interview, 'being still in transition' was 'being on the road to what the particular participant *perceived* as full transition'.

⁴ In 2012, Wierckx et al. remarked that transgender people's fertility issues were not adequately addressed [35]. This observation still applies in the present day. Chen et al. (2019) found shortcomings in fertility counseling and providers who highlighted the need for standardized counseling protocols [36]. Interestingly, their findings

indicated that transgender people could later regret not pursuing FP despite having previously received FP counseling.

⁵ Murphy (2012) argued that there is nothing objectionable that would justify removing parenting options for transgender people [39]. The American Society for Reproductive Medicine (ASRM, 2015) stated that “transgender persons have the same interests as other persons in having children” and that “providers should offer FP options to individuals before gender transition” [40]. The Ethics Committee of the American Society for Reproductive Medicine stated that transgender people’s gender identity cannot be grounds for unequal treatment and that professional autonomy is not a sufficiently strong countervailing reason to justify an exemption. Transgender people should be provided with ‘enough information, support and opportunity to make an informed decision about fertility preservation’, and the discussion should include ‘a consideration of interweaving factors, particularly costs...’ [8]. ‘Detailed information about every option in the absence of any form of coercion and with ample time is essential for a person to make complex, life-changing decisions’. [38]. The importance of genetic relatedness might be used as a ‘heuristic through which to provide fertility counseling to transgender people’ [41]. From the perspective of transgender people’s fertility counseling, health professionals communicate with transgender people about desires related to reproduction [9]. Furthermore, transgender people should be informed that ‘FP methods do not guarantee future access to medically assisted reproduction (due to the best evidence then available, i.e., concerning the child’s welfare) or successful reproduction’ [11].

⁶ Notably, however, that discrepancy may (partly) be because physicians feel most uncomfortable talking about transgender planned parenthood. Sterling and Garcia (2020) argued, ‘Transgender patients report using assistive reproductive services difficult, due to a lack of dialogue about fertility and the lack of information offered to them- presumably because their circumstances do not fit into a traditional narrative familiar to providers’ [20].

⁷ In Europe, the European Union Agency for Fundamental Rights (2014) reported that approximately 20% of all trans respondents who accessed healthcare services or social services reported that they had experienced discrimination for the same reason [43]. In Australia, although in 2013 the Sex Discrimination Act was amended, transgender individuals still experience discrimination and barriers to access to health care services [44]. Much of the same holds for Asia [45] as well as for Latin America and the Caribbean [46].

⁸ Therefore, according to many participants, the fear of violence against pregnant trans men or transgender parents was greater in urban areas (with a high percentage of extreme right-wing populism) although normally urban areas are more tolerant, open-minded, multicultural and less conservative and traditional than small towns or villages (provinces or rural areas).

⁹ A Canadian interview study found that transgender men face considerable discrimination throughout their pregnancy [49]. Riggs (2013) found that transgender men who go through a pregnancy negotiate complex intersections between their masculinity and child bearing, with their pregnant bodies being regarded by health care providers as female [41].

¹⁰ There are institutional barriers to transgender men receiving routine patient-centered perinatal healthcare services [13]. Trans men who are gestational parents 'seek to normalize their experiences of conception, while also acknowledging the specific challenges they face' [18].

¹¹ Health professionals should manage to rethink communication and maintain professionalism when encountering transgender people [42].

¹² However, this is not always the case. Some transgender people may use several coping strategies, 'such as focusing on the reasons for undergoing FP, reaching out to friends and family for support and the cognitive approaches of not hating their body or using nongendered names for their body parts' [51].

¹³ At any rate, it is crucial to bear in mind that 'presently little is known about the psychological effects of FP for transsexuals' [11], and the number of related studies is still limited.

¹⁴ Notably, however, Robertson (2017) argued that procreative liberty only supports a right to gestate when gestation is sought for genetic reproduction, and hence, the claim of a transgender woman desiring a uterus transplant to have the woman-specific experience of gestation is not strong enough to undergird a positive right [58]. Notwithstanding, Alghrani (2018) argued that procreative liberty does extend to a right to gestate [59].

¹⁵ A U.S. study found that only two of 72 transgender young people receiving fertility counseling prior to endocrine transition attempted FP [55], while a recent study with a Dutch cohort of trans girls found a much greater percentage attempting FP [64]. Persky et al. (2020) found that the majority of transgender youth were not willing to delay their hormonal transition for FP, as they 'did not find having biological offspring important' [65]. Chiniara et al. (2019) arguably hypothesized that fertility may be a low life priority for young transgender people. 'The majority wish to become parents but are open to alternative strategies for building a family' [54].

Declarations

Ethics approval and consent to participate

The study and consent procedure were approved by the ethics committee affiliated with Aristotle University of Thessaloniki, Faculty of Health Sciences, Department of Medicine (No: 2.128/27-02-2019).

Consent to publish

Not applicable.

Availability of data and materials

The transcripts of the full interviews that were collected and qualitatively analyzed in the current study are not available due to the ease with which study participants could be identified. The redacted transcripts used and analyzed during the current study can be made available from the corresponding author on reasonable request.

Competing interests

The authors declare that they do not have any conflicts of interest to disclose.

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Authors' Contributions

PV was responsible for the study conception, data analyses, ethical analysis of the findings, writing of the paper and reporting of the study. C-EZ interacted with the participants and performed the interviews, transcriptions, translations and initial analysis. M-VK and PP assisted in the data analysis and revisions of the paper. All authors have read and approved the final manuscript.

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Author information

Affiliations

1. Laboratory of Forensic Medicine & Toxicology, Department of Medicine, School of Health Sciences, Aristotle University, GR 54124, Thessaloniki, Greece.

Voultzos P., Zymvragou C.-E.

2. Laboratory of Forensic Sciences, Democritus University of Thrace, School of Medicine, GR 68100 Dragana, Alexandroupolis, Greece.

Karakasi M.V., Pavlidis P.

Corresponding author

Correspondence to [Polychronis Voultzos](#)

Abbreviations

FP = Fertility Preservation

ART = Assisted Reproductive Technology

IVF = In Vitro Fertilization

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Table

Demographic items: Counts and percentages.

Variable

Age (years)

<30	4 (33%)
30-50	5 (42%)
>50	3 (25%)
Mean (SD)	40 (11)
Minimum-maximum	23-60

Self-reported gender identity

Trans man	8(66%)
Trans woman	4(34%)

Place of residence

Athens	3(25%)
Thessaloniki	4 (33%)
Other	5 (42%) [including Northern Greece and Crete, one was from Cy

Type of transition

Medical	10 (83%)
Social	2 (17%)

Stage of the transition process

Incomplete	9 (75%)
Complete	3 (25%)

Children

Has children	1(8,3%), has 3 children from previous relationship
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Education

Less than high school	None
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High school graduate	10 (83%)
Post-high school education	2 (17%)

Sexual orientation

Heterosexual/Straight	10 (83,3%)
Homosexual/Gay	0
Bisexual	1 (8,3%)
Pansexual	1(8,3%)

Sex work

Yes	1(8,3%)
No	11(91,7%)

Table 2.

Interview Guide

1. What is it like to be a transgender parent, and what does it mean you? (*a grand tour question to make the participant comfortable*).

2. How do you think other transgender people perceive having biological children?

3. What would motivate or did motivate you to pursue or not pursue parenthood?

4. What do you know about other transgender people’s experiences or attitudes towards pursuing fertility preservation or in vitro fertilization techniques?

5. What are your lived experiences or attitudes towards pursuing fertility preservation or in vitro fertilization techniques?

6. Can you please describe in detail what types of barriers a transgender person needs to overcome to pursue fertility preservation or in vitro fertilization techniques?

7. Can you please describe in detail what kind of concerns might be associated with transgender parenthood (achieved through medically assisted reproduction)?

8. Please give me as *many details* as you can remember about your personal experiences (if any) with transgender parenthood and striving to achieve it.

9. What do you perceive to be the most important problems and challenges that transgender persons encounter in striving to achieve biological parenthood?

10. Of all what we have discussed, what is the most important issue in your opinion?

11. Is there anything else anyone would like to bring up?

Supplementary Files

This is a list of supplementary files associated with this preprint. Click to download.

- [INTERVIEWGUIDE.docx](#)