

THE MENTAL HEALTH EFFECTS OF ASSISTED REPRODUCTIVE TECHNOLOGY

by

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by

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Background

Assisted Reproductive Technology (ART) is defined as reproductive assistance that handles either eggs or embryos to increase fertility rates (*Assisted Reproductive Technology*, 2022). In vitro fertilization (IVF) is and has been the most popular and successful ART treatment since its first successful embryo transfer in 1978. Little did Louise Jay Brown know that her birth in Manchester, England in the later 1970s would jump start an entirely new field of medicine. IVF is a medical process used to assist in the conception of a child in women. The procedure consists of removing the egg from a female's ovary and fertilizing it with a male's sperm outside of the body to form the embryo.

According to the Centers for Disease Control and Prevention (CDC), infertility is defined as “not being able to get pregnant (conceive) after one year (or longer) of unprotected sex” (2021a). Infertility affects approximately 9% of married women between the ages of 15 and 49 within the United States (CDC, 2019b). In previous research studies, infertility and mental health have been linked, stating that infertility is associated with numerous multidimensional stressors that may lead a decline in mental health, such as depression and anxiety (Greil, 1998). There have been numerous studies relating infertility and mental health in three main ways: (1) psychosocial problems triggering infertility, (2) infertility triggering psychosocial problems, (3) and an interactive causal relationship between mental health distress and infertility (Wright, 1989). This research project will be diving into understanding more about the relationship between Assisted Reproductive Technology (ART) and its effects on women's mental health including depression, anxiety, postpartum depression, and post-traumatic stress disorder (PTSD).

Previous research surrounding ART and emotional distress has produced conflicting research. In 2011, Boivin conducted a meta-analysis of studies assessing emotional distress

before ART and the levels of emotional distress following successful and unsuccessful infertility treatment. This particular study concluded that “emotional distress caused by fertility problems or other life events co-occurring with treatment will not compromise the chance of becoming pregnant” (Boivin, 2011, p.342). Contradictorily, another 2011 research study led by Matthiesen and colleagues conducted a similar study and concluded that although small, there was still a significant association between mental distress and reduced fertility possibility with ART (Matthiesen et al., 2011). Research has shown depressive symptoms play a role in an increase in sexual dysfunction in approximately 25% to 75% of reported cases of loss of libido, erectile dysfunction, and reduced vaginal lubrication (Stanhiser & Steiner, 2018). Knowing natural conception is affected by negative mental health symptoms, there needs to be further research into how ART affects mental health.

There is a present gap in recent literature as more and more medical advancements are being made surrounding infertility treatments. Through the years, researchers have been able to grow their understanding of various ART treatments, which has improved the fertility success rates. Unfortunately, this research lacks conclusive supported information on the potential negative mental health effects of ART treatments. There needs to be more of an emphasis on the importance of not only being physically healthy during ART treatments, but also maintaining a healthy mental health status throughout the difficult fertility processes.

In this research project, I explored how mental health and undergoing ART are intertwined. Through a literature review, published researched about mental health and its relation to ART was reviewed to find key information regarding the mental health effects of ART. Following the literature review, interviews were conducted with seven women to gain a better understanding of their lived experiences undergoing ART treatments. The purpose of this

study was to learn more about the lived experiences of women who go through fertility treatments and how the journey through infertility and trying to conceive a child influences their mental health.

Methods

Study Design and Approach

Literature Review. A literature review was conducted of all available research exploring the mental health effects of Assisted Reproductive Technology (ART). The key search term strategy for this review was “(“Artificial Reproductive Technologies” OR ART OR “in-vitro fertilization” OR IVF OR “Intracytoplasmic sperm injection” OR ICSI OR “Gamete intrafallopian transfer” OR GIFT OR “Zygote intrafallopian transfer” OR ZIFT) AND (“Reproductive health” OR infertility) AND (Depression OR Anxiety OR “Post-Traumatic Stress Disorder” OR PTSD OR “Postpartum Depression” OR “Post-Partum Depression” OR PPD)”. Using this search term strategy on 1/27/2022 in PubMed and Google Scholar, eight out of 26 articles were deemed relevant for the review process. Of the eight selected, none were conducted within the United States.

Semi-Structured Interviews. Once the literature review was complete, the interview recruitment process began. Fifteen women expressed interest in participating in the study and five completed the interview process. I chose to use interviews as the qualitative inquiry approach because it allowed me to collect primary data that provided context to the quantitative studies obtained during the literature review. The interviews were all conducted one-on-one because sensitive information was discussed, and I wanted the women to feel as safe and comfortable discussing their fertility journey as possible. Each interview lasted anywhere from

30 minutes to one hour. The interviews were conducted via WebEx to try to alleviate the risk of COVID-19 exposure and to allow women to participate regardless of where they were located.

The interviews were conducted between February and March 2022.

Study Population & Recruitment

There were two inclusion criteria required to be included in the study: (1) identifying as a woman who has used ART as a form of infertility treatment; and (2) expressing a commitment to participate in a one-on-one interview about their experience with infertility and infertility treatments. Reasons women were excluded from the study included: (1) not being a biological female; (2) never used ART as a treatment for reproductive infertility; (3) not able to attend one virtual interview; and (4) did not wish to discuss infertility, Assisted Reproductive Technology, and/or experiences throughout the treatment and pregnancy. Participants were recruited using purposeful sampling and snowball sampling. A virtual recruitment poster was created using Canva and distributed via social media platforms and email. Participants were encouraged to share the recruitment poster with those who may be eligible, and this produced seven total participants who were available for an interview. Participants included my family members, family friends, and those contacted through previously interviewed participants. Participants ranged in locations including North Carolina, Florida, and California. This research study received Exempt IRB approval by the University and Medical Center IRB on February 2, 2022, at East Carolina University.

Data Collection

Data collection was achieved through the literature review process, followed up by the data collected during the interviews. The literature review provided the framework for the types

of questions to be asked during the interview. The interviews provided primary data to be collected, whereas the literature review provided secondary data collection. Once the participants agreed to participate in the study, they were emailed a link to a DocuSign document to review the informed consent. The participants were instructed to review the entire informed consent and to provide a signature at the end if they wish to continue on to the interview. The interview questions covered topics such as experience with infertility, ART treatment, pregnancy, and other relevant questions to better understand the mental health effects of going through ART. Due to the time limit restriction, the goal was to interview as many women as possible to ensure enough data was collected for main themes to be developed. A goal was set to interview at least five women of diverse background to reduce this characteristic of the research being a limitation. This goal was achieved and a total of seven women were interviewed from around the United States with some variation in regard to ethnicity and economic background. Participants received a \$30 incentive, in the form of a Greenphire debit card, to compensate them for the time of the interview. Once the interviews were completed, the information was transcribed to move forward to the development of main themes. Following the transcription of the recorded interviews, the video recordings were destroyed. I, Shae Malham, transcribed every video and was responsible for providing anonymity for the participants. The final form of the data analyzed was the transcribed interviews on a Microsoft Word document.

Analysis Approach

The data analysis used for this qualitative research involved a process of transcription of the interviews conducted and development of key themes accumulated to increase the understanding of the mental health effects of ART. Once the data was transcribed, commonalities were discovered and worked toward four main themes of the research. The data

was all analyzed using Microsoft Word using highlighting and tracking tools to identify commonalities.

Findings

In total, seven biological females who have previously been through ART treatment were interviewed for the purpose of this research project. The ethnic demographic interviewed was primarily Caucasian with one Asian-American participant. Household income of the participants varied from \$50,000 to over \$150,000 annually. Through the use of interviews, four main themes were developed. The first key theme found was that continued failure with ART or miscarriages increased depressive symptoms and negatively influenced the women's pregnancy journey. This was the most commonly expressed concern addressed by the women interviewed. Participant one stated "Why would I get to take this baby home? I've never had to take one home." This quote was in reference to her past experience with multiple rounds of IVF producing a positive pregnancy test, followed by a miscarriage. She went on to discuss how these previous experiences with false hope of having a child led to a negative experience when she finally conceived and delivered her first child. The second theme identified was that the cost associated with ART treatments increased the stress experienced by the women and their partners.

Participant two stated I think like, not only like the mental side, but also, the cost side of it can be mentally draining as well. Like, how are you going to pay for it every month? And, I mean, I did IUI, and it isn't as expensive as IVF but when you're planning down the road this is what I might have to do and 99% of insurance probably don't cover it." This was an additional cause of stress that was not beneficial to the women's mental health during their infertility treatments. The third theme developed was that despite the negative emotional and physical experiences with ART treatments, all women declared that they would use ART treatment again if required. The fourth

and final theme was that the ART treatment journey can be isolating, even when the women stated they had supportive spouses/partners. Participant three was quoted saying “Because when it happened to me, I felt like 1 in a million with no one to talk to and no one who understood.” Statements like this were quite common during the interview process regarding how the women felt while going through treatment and following treatment. The lonely process led to women feeling secluded and correlated with feelings of depression and anxiety by the women.

Discussion

In summation, the four main themes developed from this research project were that continued failure with ART or miscarriage increased the depressive symptoms experienced by the women and negatively influenced their pregnancy journey, the costs associated with ART treatments increased stress experienced by the women and their partners, despite the negative emotional and physical experiences with ART treatments, all of the women stated they would use ART again if required, and lastly, the ART treatment journey can feel isolating. Numerous changes are hoped to come from this research exploring the mental health effects of Assisted Reproductive Technology in the future. The finding that the cost associated with ART treatments increased the stress experienced by the women and their partners supports a need for change in the current medical insurance coverage to offer insurance plans that include coverage of ART treatments. This will in turn help reduce the monetary stress placed on the women and their spouses/partners during and following ART treatment. Failed ART treatments can lead to feelings of fear and uncertainty with a positive pregnancy test. These feelings need to be addressed prior to ART treatments. This can be achieved by the physician informing the patient considering beginning ART treatments of all possible negative mental health side effects correlated with fertility treatments. When the women discussed their experience with ART, they also included

suggestions for those considering ART treatment such as finding Facebook support groups and a mental health specialist outside of their partner/spouse prior to and during treatment to help with the negative emotions that could arise during ART treatment. This would aid in reducing the feelings of isolation and providing a vast support system to lean on if the women begin to experience any of these negative mental health symptoms associated with involvement of fertility treatments. Compared to the research explored during the literature review, these findings seem to align well with the limited research into the topic discussed in the background section. There is a need for more research in this area to provide more definitive answers and solutions to the problem.

The limitations of this study were the short time ability to conduct the research and the lack of more ethnically diverse participants. Numerous women of minority populations were contacted to participate, but due to schedule conflicts and unavailability, they were not able to take part in the study. This may have negatively impacted the findings but could not have been avoided during this timeframe. The strength of this research was the amount of information obtained from the women during the interviews. Majority of the seven women interviewed were very open and vulnerable about their experience with infertility and the infertility treatment journey. It was because of this, that four key themes were able to be developed with such support from the quotes retrieved from the participants.

Hopefully, this research will inspire other researchers to explore the mental health effects of ART on a larger scale, with more diverse participants so it may become more generalizable. In the long-term sense, it is hoped that this research will provide support for a change in current medical insurance coverage policies so there is one less limitation for these women to be able to conceive a child.

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