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Relationship between infertility and psychiatric disorders

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Abstract
Introduction: Infertility is a serious health issue which affects millions of couples on the world. The dynamics of partnerships and social functioning, the effect of infertility on people's mental health, with a focus on family and gender disparities, are some of the most thorough literature evaluations.
Methods: This review was based on about 63 scientific publications from the last years including meta-analyses, original works and systematic reviews. The most important topics discussed: various mental disorders related to infertility and their consequences, partner relationships, impact of treatment, social and family functioning.
Conclusions: There is a clear correlation between infertility and increased psychological distress, specifically stress, anxiety, and depression symptoms. The length of infertility and the failure of reproductive therapies can cause the emotional strain to increase. Because long-term stress, worry, and depression can interfere with menstrual cycles, hormone control, and sexual function, psychiatric illnesses may also be a contributing factor to infertility. Assisted reproductive technologies [ART] can be a source of psychological stress as well as hope. The emotional fluctuations linked to ART highlight the necessity of ongoing psychological care during the course of treatment.

Keywords: infertility, psychiatric disorders, mental health, reproductive treatment, depression, anxiety, eating disorders, obsessive-compulsive symptoms

Introduction

For millions of couples, infertility is a serious issue. Primary infertility occurs when a woman never becomes pregnant, while secondary infertility occurs after a woman becomes pregnant at least once [1, 2]. Most medical professionals describe infertility as the failure to conceive following a year of consistent, contraceptive sexual activity. Approximately 8–12% of couples in the world who are of reproductive age suffer with this illness, with possibly greater incidence rates seen in developing nations.

In terms of their shared etiopathogenetic circumstances, infertility, infertility therapy, and mental disorders are intricately linked. Fertility may be impacted by the presence of mental diseases, and the diagnosis of infertility may influence the emergence of mental disorders associated with stress or issues with adaptation. Additionally, there was a favorable correlation between mental health conditions and infertility [3]. Gynecologists frequently observe that a tiny but noteworthy percentage of their infertility treatment patients are so impacted that they spend more time and energy thinking about the issue, which negatively impacts other areas of their lives and their ability to enjoy life. As duration of infertility treatment lengthens and patients experience repeated failures to conceive, psychological distress is likely to increase [4]. Using the MINI scale [a short structured diagnostic interview, developed jointly by psychiatrists and clinicians in the United States and Europe, for DSM-IV and ICD-10 psychiatric disorders, a cross-sectional observational research of patients attending infertility clinics at three referral hospitals in Riyadh revealed that mental illness was present in 30 percent of male and 36.9 percent of female infertile patients. For both sexes, anxiety [21.2%] and depression [21.7%] were the most prevalent diagnosis [5]. Several psychologic illnesses, such as depression [2, 4], obsessive-compulsive symptoms, psychoticism[3, 6], anxiety [4, 7, 8], and substance misuse [9], have been associated with infertility in addition to the inability to conceive [10]. Couples' decisions to have children can also be influenced by mental health conditions, such as decreased quality of life, anxiety during pregnancy, or worries about raising a kid [11]. It's unclear whether the psychological symptoms evaluated are a result of the stress of infertility and its treatment or if they have something to do with the patient's psychological health prior to therapy [10].
The incidence of psychiatric symptoms among infertile people and the influence of mental health on reproductive outcomes are summarized in this study. It also looks at the gender-specific, hormonal, and social factors that affect this relationship.

Women Facing Infertility

Even if a woman's infertility is resolved by a successful pregnancy, mental health difficulties are linked to infertility [10].
Previous research indicates that mood disorders, including unipolar and bipolar disorders, may be linked to lower reproductive rates [12]. Bipolar illness, eating disorders, anxiety, and depression are all more likely to develop in women who are infertile due to genetic factors. For depression, the correlation in the opposite direction - that is, the impact of mental illnesses on infertility - was less evident but somewhat supported [13]. According to a meta-analysis by Lujan et al., anxiety affects up to 40% of women taking fertility treatments, whereas depression affects about 30% [14].
According to Domar et al., women who were infertile experienced depression at levels similar to those of people who had long-term conditions like cancer [15]. Depressive symptomatology is exacerbated by the chronic nature of infertility, recurrent treatment failures, and social shame [16]. Compared to women with infertile male partners or fertile controls, the prevalence of adjustment disorders with mixed anxiety and depressed mood was significantly higher among infertile women with "functional" [which had negative results for all the examinations performed], anatomic and endocrine infertility.

Infertile women with "functional" infertility and endocrine infertility [such as polycystic ovaries] were far more likely to suffer from binge eating disorder than were infertile women with anatomic infertility, women with infertile male partners, or fertile controls (P=.02) [10]. Crucially, the Baldur-Felskov study did see a marked rise in hospitalizations for drug and alcohol dependence among people with PCOS and infertility [17]. According to a statewide study carried out in Finland, women without children who had experienced infertility were significantly more likely to suffer from anxiety disorders (OR: 2.67) and had a risk of dysthymia (OR: 3.41) that was more than three times higher than that of those who had not [18].

Compared to female patients without psychiatric problems, female patients with psychiatric disorders showed a considerably higher number of years of desire to have children [19].

The prevalence of mental health disorders is higher among infertile women than among those without the condition. Social determinants influence the severity of these disorders; women with higher levels of education, employment, personal or family income, private health insurance, social support, stronger religious beliefs, and spiritual well-being reported better mental health outcomes [1].

Fertility can be affected by mental health disorders, especially those linked to dysregulation of the hypothalamic-pituitary-adrenal (HPA) axis [20]. In women with anorexia, bulimia, and other eating disorders, the menstrual cycle is disrupted and there are no periods (amenorrhea), which can cause issues with conception [11]. Amenorrhea can be a result of significant weight loss and hormonal imbalance. The lack of estrogen and other sex hormones makes conception difficult. Ovulation inhibition may result from weight loss below a specific threshold, typically less than 85% of total weight. Although it may not cause as severe issues as anorexia, bulimia (a disease characterized by binge eating and the use of harmful weight-control techniques like vomiting or laxatives) can also have an impact on fertility and the hormone system. Women who suffer from bulimia and anorexia may develop metabolic abnormalities, such as osteoporosis, which raises the chance of infertility issues [21].

Infertility treatment should take into consideration the fact that women are more prone than males to face psychological issues [22]. Compared to healthy women with infertile spouses, infertile women had higher levels of stress, anxiety, and sadness [23]. Infertility is frequently attributed to women, which makes treatment more stressful for them [24]. According to Matthiesen et al., decreased pregnancy rates were associated with greater levels of anxiety and despair [25]. It has been demonstrated that stress-reduction techniques enhance psychological health and fertility outcomes [26]. More over half of infertile men's partners did not exhibit any signs of despair, 37.5% did not exhibit any signs of anxiety, and 55% had minor stress [27].

Infertility can result in societal rejection, marital discord, and a decrease in self-esteem in pronatalist society [28]. Suicidality and depression were significantly more common in women than in men [5].

Men Facing Infertility

Approximately 15% of couples worldwide experience infertility, with male factors accounting for almost half of these occurrences [29]. Male infertility is common, although it is frequently stigmatized and not sufficiently discussed in mental health literature. Feelings of social isolation, humiliation, and inadequacy are common characteristics of the emotional burden of infertility among men [30]. Of the partners of infertile women, 42.5% had moderate stress, 40% experienced mild depression, and 45% experienced mild anxiety [27]. Men without children who experienced infertility reported a far lower quality of life than males who did not [18].

Male infertility and subclinical obsessive-compulsive disorder were positively correlated. Compared to organic male infertility or fertile controls, this diagnosis was more prevalent in "functional" male infertility (P=.009). Male infertility and subclinical social phobia were shown to be significantly correlated (P=.05) partner or in fertile controls. Compared to men who had an infertile partner or fertile controls, organic and "functional" infertile guys were more likely to exhibit subclinical social phobia [10]. Bipolar disorders and substance-related disorders were substantially more common in men than in women [5]. The duration of infertility was positively correlated with psychiatric illness.

Compared to infertile patients whose reproductive issues lasted less than two years, those whose issues lasted two years or more had a higher chance of receiving a diagnosis of adjustment disorder with depression (11% vs. 5%; P=009) [10]. Compared to their fertile counterparts, males who are infertile report higher levels of psychological suffering. Prevalence estimates for anxiety and depression range from 15% to 25%, and these conditions are frequently documented [16, 31]. Cultural background, length of infertility, and treatment results all affect psychological impact [25].

Lower semen quality, as shown by semen volume, sperm count, and motility, is linked to higher levels of anxiety and sadness [11, 13, 32]. Furthermore, prolactin and cortisol levels are positively correlated with anxiety and depression, which may have an impact on the hypothalamic-pituitary-gonadal axis's ability to procreate [13]. Obesity and a negative pregnancy test result are separate risk factors for mood disorders [33].

Stress, anxiety, and depression were more prevalent in infertile men than in healthy men who had infertile relationships and sadness [34]. Undiagnosed cause of infertility is an independent risk factor for depression in case of man [33]. Affected men frequently experience stress, worry, and depression, which may have a reciprocal influence on fertility. Holistic treatment methods that incorporate psychological assistance into fertility services are desperately needed [35].

Impact of in vitro treatment

Infertility is far more than just a physical condition, as anyone who has gone through it will tell you. It significantly affects a person's identity and mental health. Strong emotions of loss, grief, humiliation, and melancholy can result from living with infertility [36].

The cost of IVF is startling, and many people are not prepared for it. The psychological and physical toll is also significant. Although 85% of women thought their spouses supported them, 65% believed they bore the most of the fertility burden rather than their partner.

46% were preparing for unforeseen expenses related to the process of trying to conceive.

59% of women or their partners worked more hours to cover the cost of reproductive treatment.

11% said that fertility issues ended their relationship, while over half said they had a negative effect on it. It's simple to see how fertility procedures like IVF can strain relationships and, in certain situations, even cause them to end given these all-encompassing impacts [37].

Many couples feel isolated from other couples and experience collective feelings of shame and stigma about their inability to conceive. This can lead to considerable strain within the relationships and can impact communication, trust, resilience, and more [36].

Infertile individuals may be particularly vulnerable to mental health problems. For instance, studies have shown that over 40% of infertile women suffer from clinical anxiety or depression. One Research on the impact of infertility on men's mental health is scarcer, although a 2023 study indicated that between 14% and 23% of infertile men suffer from depression. Communication breaks down when a couple is having trouble conceiving. As the relationship navigates challenging emotions, communication may occasionally even stop completely. One may believe that their partner is less concerned with the result than they are, or vice versa, if they are undergoing more reproductive testing and therapy. After receiving a fertility diagnosis, the person may feel that their spouse is holding them responsible for their shared struggles [36].

'Sadness' at the infertility diagnosis and 'worry' during treatment were the most prevalent feelings. During the trip, emotions varied in type and intensity. Women often expressed envy of others who were able to conceive. 44.1% (n = 857) of respondents sought mental health support, and over half of respondents (60.4%; n = 1174) felt that their infertility journey had affected their mental health. Compared to partners, more patients (49.3%, n = 447) experienced mental health consequences. According to one in three responders, the infertility diagnosis had negatively impacted their relationship. 55.0% (n = 409) of those surveyed strongly felt that infertility was emotionally taxing. Patients reported a negative influence on their everyday activities more frequently than their partners did. The majority of respondents agreed with statements about a "effect on work-life balance." The percentage of respondents who reported having mental health problems and those who sought mental health assistance differed. This suggests that support services that are adapted to the various stages of treatment are necessary [38].

According to Drosdzol and Skrzypulec, female sex, age over 30, poorer educational attainment, absence of work activity, male infertility with a diagnosis, and infertility lasting three to six years are risk factors for sadness and anxiety in infertility [39]. Karakosta M, et al. claims that high levels of tension and anxiety were experienced by women receiving IVF treatment, particularly in the event of treatment failure and lengthier therapy duration. Better quality of life and reduced stress throughout the IVF process were linked to older age, more education, and no prior miscarriages [40].

Because anxiety and depression may interact in infertile couples, counseling for both conditions should be provided concurrently, and supportive psychotherapy should be provided to their spouses as well [41].

The influence of family on psychological well-being during infertility treatment

Infertile women with Ovarian Hyperstimulation Syndrome who require hospitalization have stress related to the transition from health to sickness, and the stress of hospitalization causes damage to their families. The findings show that when a wife is hospitalized for moderate to severe Ovarian Hyperstimulation Syndrome, there is a need to manage the effects of family stress, which span the domains of individual, marital, family, and social relationships [42].

According to a systematic review of the research, women who are infertile are more likely to experience anxiety, sadness, and a lower quality of life as a result of societal stigma and a lack of family support. Social isolation and low self-esteem are correlated with high levels of stigma [43]. The effect of family functioning on the degree of depression in infertile women is also evaluated in a Nigerian study. The findings suggest that infertile women may have worsening symptoms of depression as a result of dysfunctional families [44]. According to the findings of a meta-analysis looking at the psychological effects of infertility in Iranian women, infertility can cause worry, despair, and issues in family connections, which can impact not just the woman but also those closest to her [45]. Infertility is a severe life problem that impacts relationships, mental health, and family ties. Compared to men, women are more likely to feel stress, anxiety, and depression. Infertility clinics should offer psychological assistance to partners and loved ones, according to the authors [46]. Relationships inside the family may suffer as well as the individuals who are directly impacted by infertility. Families frequently struggle to provide assistance for their loved ones, which can cause conflict and emotional detachment [47]. According to an Indian study, infertile couples' psychological stress levels were considerably raised by overbearing family involvement and irrational expectations. Compared to women who did not disclose treatment specifics to their families, those whose families were unduly involved in the procedure reported three times as much stress [48]. According to a Turkish study, 15% of infertile couples felt alone and less desirable in society, while 38% of them felt socially alienated. Women's mental health deteriorated because they were more likely to encounter unfavorable sentiments from their families [49]. According to a Jordanian study, infertile couples received little social support from friends but moderate support from family. These couples' psychological health and social isolation are exacerbated by Arab culture, which frequently blames women for infertility [50].

Risk of suicide/suicide attempts during infertility treatment

9.4% of 106 women receiving IVF therapy reported having suicidal thoughts or making an attempt at suicide. The absence of children, extreme despair, and the adoption of coping mechanisms such self-blame, social disengagement, and denial were risk factors. According to the authors, women receiving infertility treatment ought to have their risk of suicide and depression regularly evaluated [51]. According to a cohort study of 51,221 Danish women who were assessed for infertility between 1973 and 1998, the risk of suicide was more than twice as high for those who had not given birth following a fertility evaluation (HR: 2.43; 95% CI: 1.38–3.71) as for those who had [52]. Taking into account the reason for infertility, a study that compared 30 women who had PCOS-related infertility with 30 women who had infertility from other causes discovered that PCOS-related women were more likely to be depressed, impulsive, and to commit suicide [53].

According to a Ghanaian study, infertility has a detrimental impact on psychological health, communication, and marital relationships. Additionally, there was a substantial correlation between participants' educational attainment and suicide thoughts [54]. In Indian study, 15% of 100 women receiving infertility treatment had suicidal thoughts or made an attempt at suicide. Furthermore, 25% of the patients experienced dysthymia, and 50% of them satisfied the criteria for major depressive illness. The control group, which consisted of fertile women, did not experience any such incidents [55]. Men with an infertility diagnosis had a decreased risk of dying by suicide (HR: 0.69; 95% CI: 0.50–0.94) than males without such a diagnosis, according to a study of 43,598 infertile men conducted in Sweden [56].

Conclusion

Mental disorders can both result from fertility problems and be their cause. Research suggests that people with mental health conditions such as depression, anxiety, sleep disorders or addiction may have difficulty conceiving. Stress, which is common in people with mental disorders, can negatively affect the hormonal system and the functioning of the reproductive system [11]. Infertility and depression, anxiety, ADHD, and neuroticism were discovered to have significant positive genetic associations, indicating that mental diseases and fertility may share biological causes [57].

Individuals who never accept their infertility and pursue treatment endlessly may be more susceptible to psychological issues. Psychiatric treatment improves reproductive capability in cases of depression that occur before the onset of infertility that cannot be explained [58, 59].

When attempting to conceive, those with psychological problems should think about getting help from a therapist. They can lessen their stress and better manage their treatment if they realize that their mental health issues may be linked to their infertility issues [11]. According to Frederiksen et al., psychological therapies such as support groups, mindfulness, and cognitive-behavioral therapy (CBT) have demonstrated effectiveness in lowering distress and enhancing quality of life [60]. There is growing support for the integration of mental health services into fertility clinics [61, 62].Both partners' mental health is impacted by infertility, but women are more likely than men to suffer from stress, anxiety, and sadness [34, 63]. Furthermore, compared to spouses of infertile women, wives of infertile men experience higher levels of these mental health issues. The findings imply that infertility has an impact on the psychological well-being of both the infertile person and their partner in addition to being a physical issue [34]. Individuals with infertility and their partners experience mental health issues in addition to physical health issues [27].

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Author's contribution

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