

THE ROLE OF MIND HEALTH IN AFFECTING INFERTILITY: Literature Review

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Abstract. Infertility is defined as a couple's inability to conceive for one year or more with regular sexual intercourse without contraception. The World Health Organization (WHO) also estimates that around 50-80 million married couples (1 out of 7 couples) have infertility problems. In Indonesia, the infertility rate reaches 20% of couples, with a description of infertility in men at 1,712 people and infertility in women at 2,050 people, spread over the ages of 30-34 years reaching 15%, ages 35-39 years reaching 30% and ages 40-44 years reached 55%. (Perfitri, 2019). Infertility is not only physical and it is time to recognize that mental and emotional components play an important role in creating conception, but feelings, emotions, worry, stress, frustration, and anxiety, are the main factors in this. It is believed that the mind has a role in influencing fertility. Literature review from various research journals that have been validated on an international scale from 2010-2022 in a total of 11 journals. The state of well-being of the mind affects the fertility of a woman or a couple who is struggling to get fertility or offspring. A connection between the mind, body, and soul affects the occurrence of infertility in women. So we need a therapy that covers the whole (holistic) to help optimally treat infertility. Infertility is not only related to physical problems but also psychological problems and requires a type of therapy that involves the mind, body, and soul as a whole.

Keywords: [Infertility, Mind health]

INTRODUCTION

Infertility is the inability to become pregnant after 1 year of unprotected sexual intercourse (6 months if the woman is over 35 years old) or the inability to carry the pregnancy into a live birth (Centers for Disease Control and Prevention, 2016). The World Health Organization (WHO) also estimates that around 50-80 million married couples (1 out of 7 couples) have infertility problems and every year there are around 2 million infertile couples. In Indonesia, the infertility rate reaches 20% of couples. The chance of getting pregnant per reproductive cycle in healthy young couples is around 20-50%. The cumulative chance of getting pregnant within the first 6 months is 60%, 84% within the first year, and 92% within 2 years with regular sexual activity (Perfitri, 2019). About 85% of couples who are infertile have an identifiable cause. The most common cause of infertility is dysfunctional ovulation, male factor infertility, and tubal disease. The remaining 15% of infertile couples have the term "unexplained infertility". (Perfitri, 2019). Many factors influence the occurrence of infertility, namely psychological problems or mental problems which include readiness, stress, or pressure in a woman/partner.

METHODS

The research method uses a design Literature Review by collecting and taking the essence of previous research and analyzing some overview experts written in the text. The process of searching for article data is carried out extensively through a database of research journals that have been validated on an international scale, namely PubMed, Science Direct, Pro Quest, and Google Scholar.

The research was conducted qualitatively and quantitatively with quasi-experiments, case studies, comparative studies, and case control. The deadline for the publication of research journals to be analyzed and synthesized in the last twelve (12) years of research, namely 2010-2022. The keywords used are infertile, infertility, mental health, and stress.

Literature Review

The search criteria are guided by the inclusion and exclusion criteria as follows:

1. Inclusion criteria

Inclusion criteria are requirements that must exist for each member of the population that can be included in the sample. The inclusion criteria in this study were as follows:

1). Articles use English and Indonesian.

- 2) Articles published within the last 15 years.
 - 3) Articles can be accessed free of charge.
 - 4) Research articles on hypnosis and the factors that support fertility.
2. Exclusion Criteria

Exclusion criteria are characteristics that cannot be present so they cannot be included in the sample. The exclusion criteria in this study were:

- 1) The article does not examine safety in the healthcare sector
- 2) The article is in the form of an abstract

Article Analysis

There were 68 research articles obtained, which were then written in narrative analysis and synthesis in a tabular format containing the researcher and year, research title, research subject, research objectives, research instruments, and research results. Article search chart as shown in the following image: 68 titles/abstract.

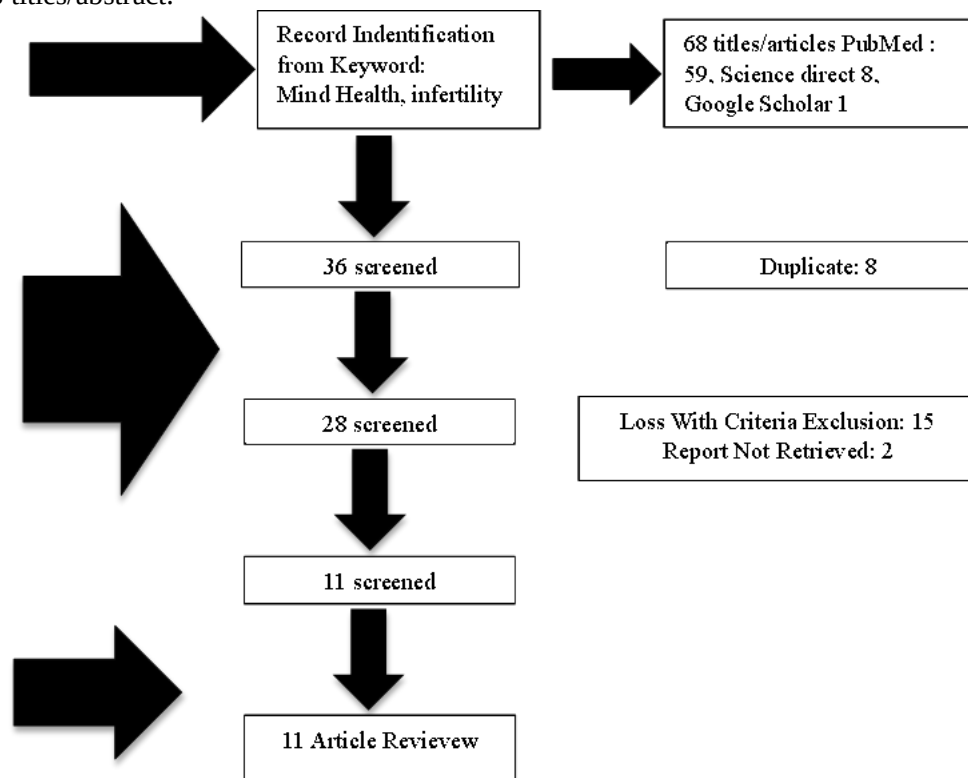


Figure 1. Article Search chart

RESULTS AND DISCUSSION

The following are the results of a review of the journals taken:

Table 1. Review of the Journal

No	Title, year, researcher	Method, Number of Respondents	Results/Factors taken	Analysis
1	Psychological aspects of infertility: A systematic review Filip Szkodziak, Jaroslaw Krzyzanowski and Piotr Szkodziak 2020	<i>Systematic review</i> A total of 106 articles published between 1955–2019 are included.	1. Stress 2. Depression 3. Sleep disorders 4. Eating disorders 5. Addiction	Mental disability modifies endocrine gland and immune system function at the tissue and cellular levels and is negatively related to female and male fertility.

2	<i>Diagnosis and Management of Infertility: A Review</i> Sandra Ann Carson, MD, Amanda N. Kallen, MD 2021	Systematic review A total of 71 articles, including 5 clinical trials, 31 systematic reviews, 29 meta-analyses, and 6 practice guidelines.	Same	344 infertile men compared with 293 fertile men for matched age found that infertile men scored worse on the predictive 10-year mortality index than controls
3	<i>The relationship between stress and infertility</i> Kristin L. Rooney, BA, 2018	A total of 25 studies were in the meta-analysis.	Depression, Anxiety, and Distress	Interventions have more impact on reducing negative affect than interpersonal functioning. Group interventions that include the acquisition of actual skills are more effective than counseling interventions. Men and women benefit equally
4	<i>Emotional stress and reproduction: what do fertility patients believe?</i> Olivia Negris, 2021	cross-sectional A total of 5000 patients	Emotional Stress	Of the sample, 28.9% believe that emotional stress can cause infertility, 69.0% believe that emotional stress can reduce the success of fertility treatments, and 31.3% believe that emotional stress can cause miscarriage, with evidence of a significant racial difference. Less than a quarter (23.8%) of the sample believed that emotional stress had no impact on fertility. Lower household income and educational attainment are associated with a greater belief in emotional stress as a causative factor in reproduction infertility, fertility treatments, and miscarriage.
5	Anxiety and depression among infertile women: a cross-sectional survey from Hungary Enikő Locksmith, 2017	Cross-sectional participation of 225 (134 primary infertile women and 91 fertile women), recruited in clinical and online settings.	Anxiety and depression and related stress quality of relationship with their mother, financial stress, and illness	Symptoms of depression and anxiety in infertile women are associated with age, social attention, sexual concern, and maternal relationship stress. Trait anxiety is also associated with financial stress. Our model was able to explain 58% of the depressive symptom variance and 62% of the trait anxiety variance.
6	Addressing the needs of fertility treatment patients and their partners: are they informed of and do they receive mental health services? Pasch LA, Holley SR, Bleil ME, Shehab D, Katz PP, Adler NE, 2016	Cohort study A total of 352 women and 274 men searched For infertility treatment	Depression, anxiety	56.5% of women and 32.1% of men scored within the clinical range for depressive symptoms on one or more assessments and 75.9% of women and 60.6% of men scored within the clinical range for anxiety symptoms on one or more evaluations.
7	The complex relationship between infertility and psychological distress (Review) Gabriela Simionescu, 2020	Literature Review	stress	Of 112 women with infertility, some type of psychiatric disorder (eg, anxiety and depression) was indicated in 40% of participants.

8	Psychotherapeutic intervention with hypnosis in 554 couples with reproductive failure. Vyas R, Advanikar G, 2013	Study Comparative sample of 554 pairs in Trust Hospital (for 28 years)	stress	Infertility stress was seen in 100% of women and other life stressors in marriage were identified as causes of infertility. Hypnotherapy is targeted at relieving stress and is considered to bring success in the occurrence of pregnancy with a success rate of 71.67%.
9	Infertility and Psychological and Social Health of Iranian Infertile Women: A Systematic Review Haniye Zarif Golbar Yazdi, 2020	Systematic Review and Meta-Analysis (PRISMA) 1999- 2018 353 to 53 papers for investigations, 27 (51%) were published in Iranian journals, while the rest 26 papers (49%) issued by International journal. sample size in this study ranged from 15 to 1506 participant.	quality of life, depression anxiety, social support, violence, and sexual functioning.	51 papers are descriptive, 1 qualitative, and 1 clinical trial. In addition, 18 studies were conducted in Tehran (34%), 5 in Mashhad (10.5%), 4 in Isfahan (7.5%), and the rest were conducted in other cities. Furthermore, 26 papers (49%) used random sampling methods (eg, simple, grouped, and systematic), while the papers used 27 nonrandom sampling methods papers (eg, convenient, voluntary, directed, and constant).
10	Relationships between psychological well-being, lifestyle factors and fertility Enikő Locksmith, 2015	Cross-sectional 194 women (115 infertile and 79 fertile)	anxiety; depression	Shows that women struggling with infertility are in a worse psychological state than their fertile counterparts.

There is a relationship or connection between the physical body, mind, and spirit. Many publications have established an indisputable physiological (mind-body) link as the cause of reproductive failure and studies further prove the reversal in the form of better outcomes through psychotherapy and hypnotic interventions. Emotions are the body language of reproduction. Physiologically evident psychological disturbances with irregular menstrual cycles, irregular cycles or anovulation, development of polycystic ovarian disease, failure of fertilization and nidation, irregular fallopian tube peristalsis which can lead to ectopic pregnancy, failure to sustain the resulting embryo. Even the quality of spermatozoa depends on mental conditions, such as impotence, oligospermia, and impaired sperm motility (Rajni Vyas, 2013).

There are 40% of women with infertility experience various mental disorders (Katibali, Mammadzada, & 5 Hajiyevea, 2012). Pregnancy is also often associated with psychological disorders such as stress, anxiety, and depression (Marc et al., 2011). Other studies that support the relationship between psychological/emotional disorders and infertility include: Research by Chen (2004), as many as 122 women were interviewed before their first infertility clinic visit and the results were surprising; 40% of women are diagnosed with anxiety, depression, or both. Volgsten (2008), found a prevalence of 31% of psychiatric symptoms, the most common being major depression. In one of the largest studies of 2016 (Pasch LA) 352 women and 274 men were assessed at an infertility clinic in northern California. It was determined that 56% of women and 32% of men reported significant depressive symptoms and 76% of women and 61% of men assessed reported significant symptoms of anxiety. Not surprisingly, recent studies have documented that infertility patients consistently report significantly more symptoms of anxiety and depression than fertile individuals.

Lakatos E (2017) In Anxiety and depression among infertile women: a cross-sectional survey from Hungary, a recent study of suicide in 106 women with infertility, 9.4% of women reported having suicidal thoughts or attempts. According to Shani C (2016) conveying about the prevalence of psychological symptoms in infertility concluded that 25% to 60% of infertile individuals reported psychiatric symptoms and that their levels of anxiety and depression were significantly higher than the fertile control group.

The studies that have been conducted, describe the effectiveness of hypnosis in the treatment of various medical conditions. More doctors and healthcare professionals are starting to recommend hypnosis as an adjunct to medical procedures or as an alternative when medical therapy fails to produce

the desired effect. In 2006 (Levitas), published an article on the impact of hypnosis during embryo transfer (ET) on IVF (In Vitro Fertility) outcomes. Levitas reported that out of 98 cycles, the intervention group resulted in 52 clinical pregnancies (53.1%) with an implantation rate of 28%, whereas the control group, which did not include hypnosis, achieved 29 (30.2%) clinical pregnancies within 96 cycles and implantations. rate of 14.4%. This research recommends

8

Integrating hypnosis during ET/IVF can significantly improve the outcome of IVF cycles for women in terms of improved implantation and clinical pregnancy rates. The study results encourage further research on the implementation of hypnosis in improving fertility through various assisted reproductive technologies.

Emotions are the body language of reproduction. Negative emotions create a shortage of messenger molecules or can lead to the production of reverse-type molecules, such as tumor necrosis factor (TNF/ Tumor Necrosis Factor), etc. These messenger molecules will influence the physiology of hormonal cycles which will throw off all modes of reproduction when relationships, personal, social, and environmental are conditioned by constraints and reservations. Physiologically evident psychological disturbances with irregular menstrual cycles, irregular cycles or anovulation, development of polycystic ovarian disease, failure of fertilization and nidation, irregular fallopian tube peristalsis which can lead to ectopic pregnancy, failure to sustain the resulting embryo. Even the quality of spermatozoa depends on mental conditions, such as impotence, oligospermia, and impaired sperm motility (Rajni Vyas, 2013).

The brain records every experience from intrauterine life to adulthood and consciously or unconsciously stores it in long or short-term memory. Negative emotional responses are transmitted by the brain biochemically and electrically. These messages are released directly into the bloodstream and passed on to the hypothalamic/pituitary/gonadal (HPG) axis, which has hormonal responsibility in reproduction (Gilbert S, 2013).

The hypothalamus is responsible for the induction of germ cells such as sperm and ovum, and regulation of hormonal balance [8]. Messages originating from emotions are sent to the brain via receptors, to the autonomic nervous system. They are then transmitted to the anterior pituitary lobe [9]. The hypothalamus has no direct neural connection with the pituitary but is connected to the pituitary via blood circulation. During emotional stress, it transmits stress hormones to the pituitary by hypothalamic signals, and at the same time reduces the secretion of Gonadotropin Releasing Hormone (GnRH) (Gordon JD, 2003).

If there were similar messages in past experiences, these messages are also activated in the right and left hemispheres. It transmits a chemical response to messages to the anterior pituitary in an efferent manner. When it is transmitted to the anterior pituitary, the GnRH released into the blood decreases, the release of LH and FSH from the anterior pituitary, and the release of estrogen and progesterone from the ovaries decreases. Corticotropin-Releasing Hormone (CRH) is also released when stimulation travels from the hypothalamus to the anterior pituitary (Gordon JD, 2003). This causes the release of Adrenocorticotrophic Hormone (ACTH) and β -endorphin from the anterior pituitary (Buckley, 2015). β -endorphin increases cortisol release. ACTH also stimulates the adrenal cortex, epinephrine, and cortisol. Vasoconstriction occurs and blood flow to the ovaries decreases (Forshee, 2010).

CONCLUSION

Infertility causes psychological trauma for many women and has been called one of the most stressful events in life. Various studies describe the effectiveness of hypnosis in stress management, anxiety reduction, and relaxation induction (Spiegel, 2007). By reducing the anxiety they experience and thereby lowering their stress levels, hypnosis can increase women's feelings of control and facilitate their mental health (James, 2009). Further research has proven that hypnosis is as effective in reducing anxiety as 1 mg of alprazolam (Spiegel, 2013). Becoming mentally and emotionally healthier further enhances a woman's physical health, which increases her ability to endure pregnancy.

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