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ANXIETY AND STRESS AMONG WOMEN UNDERGOING IN VITRO FERTILIZATION

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ABSTRACT

Introduction: Infertility is a complex issue often accompanied by psychological distress, emotional stress, and physical pain. Assisted Reproductive Technologies (ART), including In Vitro Fertilization (IVF), has become a common solution for those facing infertility. Understanding the psychological impact of IVF on women is crucial for improving mental well-being and treatment outcomes.

Aim: The study aimed to explore the anxiety and perceived stress of women undergoing IVF treatment.

Methods: This study collected data on anxiety and stress through interviews with 80 women undergoing IVF at the International Fertility and Healthcare Clinic in Jaipur, using the Spielberger state-trait anxiety questionnaire and Cohen's perceived stress scale.

Results: Findings revealed that anxiety and stress peaked during the result waiting period (T3 phase) and on the day of stimulation (T1 phase). Women who received support from their husbands, experienced lower infertility stress, or were undergoing treatment for the first time reported lower anxiety and stress levels.

Conclusion: Addressing psychological stress in infertile women is vital for improving treatment outcomes. This study emphasizes the importance of integrating mental health support in fertility clinics, recommending targeted interventions to reduce anxiety and stress, thereby enhancing the IVF experience and increasing success rates.

Keywords: Anxiety, Assisted reproductive techniques, Infertility, In vitro fertilization, Stress, Women

1 INTRODUCTION

According to the World Health Organization, “infertility is a condition of the male or female reproductive system marked by the failure to become pregnant after 12 months or more of consistent, unprotected sexual activity” (WHO).

The United Nations World Fertility Prospects indicate a significant and swift decrease in the global Total Fertility Rate (TFR) over the past six to seven decades. It's projected to continue declining, potentially dropping below 2.1 by 2050 in numerous countries, India included (United Nations World Fertility prospects). Approximately 186 million people worldwide experience infertility (Inhorn, and Patrizio 2), with India accounting for 15-20 million of those cases (Katole and Saoji 337). The incidence of primary infertility in India is 11.8 percent (WHO 15). India's current fertility rate in 2025 is 2.105 births per woman, which is a decrease of 0.8 per cent from 2024 ("India Fertility Rate 1950-2024").

In all societies, issues with pregnancy, birth of a child, and becoming a mother are complicated in nature. It is more of a social status than a medical condition, especially in patriarchal settings (Schmidt 93). It is undesired and intended to be a social embarrassment for women in particular to "not have a child." It is seen as a taboo and a life crisis, and its repercussions can be grave. Natural infertility or inability to procreate may gradually cause psychological issues like stress, anxiety, rage, depression, sexual dysfunction, social isolation, and low self-esteem (Deka and Sarma, 32; Wischmann, 761).

In other situations, it could have a bad effect on their plans for the future, their sense of self-worth, their marriage, and their sexual life (Hocaogulu 2).Women who are unable to conceive now have a glimmer of hope because to assisted reproductive technologies (Rizk et al. 315). Some feminism assert that by separating sex from reproduction, medical and assisted reproductive technologies (ARTs) have given women a wide range of options and chances that have allowed them to escape their predetermined destiny as mothers (Broker 435). An egg and sperm are united outside the body during in vitro fertilization, one of the artificial reproductive techniques used for assisted reproduction ("in glass"). Monitoring and encouraging ovulation in a woman is required before removing an ova or ovum from her ovaries and letting sperm to fertilise them in a liquid in a lab. In order to generate a successful pregnancy, the fertilised egg (zygote) is implanted in the uterus of the same or a different woman after undergoing embryo culture for 2–6 days (Sangeetha 106).

Childless couple got a new hope after the birth of first in vitro baby in 1978. Today, assisted reproductive technology is available to most of the civilised world. Because of developments in laboratory technology and clinical practice, in vitro fertilization has become a medical procedure that is efficient, secure, widely accessible, and inexpensive. (Wang and Sauer 355). As a result, there are now much more clinics using assisted reproductive technologies worldwide (Malhotra et al. 235). There are currently 72.4 million infertile women, and 40.5 million of them are actively looking for infertility treatment (Boivin 1509). Since the birth of the first child conceived through Assisted Reproductive Technology (ART) in 1978, an estimated 10 million babies have been born using these techniques over the past four decades. (Adamson et al. 2025).

Although this method is becoming more and more popular virtually everywhere in the globe, India has undoubtedly seen the biggest expansion in centers for assisted reproductive technology, and the number of cycles carried out with this technology has consistently increased over the past ten years worldwide (Malhotra et al. 235). In recent years, IVF has seen rapid growth in developing countries, with India alone hosting more than 500 clinics (Inhorn, and Patrizio 5). The social pressure on women to have children has made it possible for the industry of assisted reproductive technologies in India to flourish quickly (Broker, 434).

In addition, in vitro fertilization operations have significantly contributed to the exponential expansion of medical tourism in India. The procedure is extremely low cost is one of the main drivers of the increase in in vitro fertilization tourism in India (“IVF Helps Growth of Indian Medical Tourism”). Regarding women receiving in vitro fertilization therapy, there are two different points of view. One that views assisted reproductive technologies as emancipatory instruments and argues that they not only improved procreative options but also have the potential to give women control over their bodies and reproductive selves. The opposition to assisted reproductive technology, on the other hand, is founded on women's lived experiences of oppression and exploitation. These contradictory views of reproductive technologies provide various and important insights to comprehend how women, technology, and reproduction interact (Broker 437). When other infertility treatments fail, this technique gives infertile couples new hope for conception (Rizk et al. 315), but it also carries the risk of lowering self-esteem and endangering an intimate relationship (Zarif Golbar Yazdi et al. 69), and stress and anxiety are the likely reactions in any threatened situation (Deka and Sarma 32). The level of stress and worry experienced by women undergoing in vitro fertilization therapy varies depending on the stage of the procedure. Women at the first stage (T1), where a few injections are required to trigger the development of follicles, are apprehensive and stressed about the quantity of injections required, the physical discomfort involved, the likelihood of success, and the recommended nutritional regimen (Sharma et.al. 5).

The women are anxious about the treatment's progress, the quantity and quality of their eggs, and the embryo during the second stage of embryo transfer (T2). During the third stage, which is the two-week waiting period following embryo transfer (T3), the women are anxious about the treatment's outcome (Robinson and Stewart 170).

1.1 State and trait anxiety

Trait anxiety or state anxiety could occur during *in vitro* fertilization for a woman. State anxiety is a transient disorder that depends on the extreme emotional distress of the medical contact, according to the subject's ephemeral emotions and mental state. State anxiety is connected to both the rate of successful pregnancy and the rate of live birth in *in vitro* fertilization patients (An et al. 35). Contrarily, trait anxiety represents consistent personality features that cause every individual to react to potentially dangerous occurrences with significant emotional reactions, regardless of the environment they are in (Spielberger). The degree to which one perceives certain circumstances in their life as stressful is known as perceived stress. Measurement of anxiety and perceived stress among women receiving *in vitro* fertilization treatment is the goal of the current investigation. The study's findings would aid medical professionals and counselors in determining the type of assistance the patient needs at each stage.

Objectives

- To study the overall anxiety experienced by women undergoing *in vitro* fertilization during each of the three stages of the treatment
- To find out the impact of factors on level of anxiety among women undergoing *in vitro* fertilization treatment
- To investigate the level of perceived stress among women undergoing in vitro fertilization

2 METHODS

2.1 Research Design

An observational, cross-sectional study was carried out in the International Fertility and Healthcare *in vitro* fertilization Clinic, Jaipur, after obtaining approval from the Director of International Fertility and Healthcare *in vitro* fertilization Clinic, Jaipur. The husband's support, female infertility factors, attempts at *in vitro* fertilization (IVF), and infertility stress were all predicted to have the potential to affect the childless women's anxiety levels.

2.2 Participants

The sample consisted of 80 women who were recommended for *in vitro* fertilization treatment at the International Fertility and Healthcare *in vitro* fertilization Clinic and who met the following criteria for inclusion: they had an interest in *in vitro* fertilization, were over 18 and under 40, could fill out the scales, and could read and sign the written consent form. In order to exclude potential sources of bias, women with co-morbidities such as cancer, hypertension, diabetes mellitus, or diseases related to assisted reproductive technologies were not included in the sample. Women who were getting antioxidant therapy and people who had any kind of psychopathology at the time of the study were also excluded.

2.3 Tools

The amount of anxiety in the study sample was determined using the state-trait anxiety questionnaire, which Spielberger created in 1968. The scale comes in two different versions; one measures state anxiety (Form X; a state that only occurs temporarily in certain situations related to passive reproductive technology), while the other measures trait anxiety (Form Y; a tendency to view situation as dangerous in general). There are 20 statements in each segment. There are four possible results on a Likert scale, ranging from "not at all" (scoring 1) to "extremely" (score 4). Total scores can vary from 20 to 80; greater numbers suggest higher degrees of anxiety, both trait and state.

The second tool was the perceived stress scale (PSS), which Cohen et al. created in 1988. It evaluates the level of stress that people believe they are going through. On a scale of one to four, the 10-item Perceived Stress Scale (PSS) was used to gauge participants' impressions of the unpredictability, uncontrollability, and overload in their lives over the previous three months (never, rarely, often, very often). The information related to factors causing anxiety among women undergoing *in vitro* fertilization was collected with self-prepared checklist.

2.4 Data collection

A pilot study involving three to four clinic patients was conducted to assess the viability of the research issue. All assistive reproductive technology participants received an informed consent form that was written in both English and Hindi, and the patient consent form was used to collect their voluntarily consent for participating in the study. Building a relationship with the sample under research was the first step in data gathering. The data at all the stages of treatment that is T1, T2, and T3 were collected in a quiet hospital room, and their confidentiality was upheld. The data was then

assessed based on the tools' established scoring methodology. In a data collection form, the women's demographics, length of infertility, and factors affecting fertility such as age, support from the husband, attempts to the treatment etc. were all noted.

2.5 Statistical Analysis

Means and standard deviation were used as descriptive statistics, whereas analysis of variance, the Student's t-test, and multiple linear regressions were used as inferential statistics. Through the use of multiple linear regressions, the effects of a few independent variables on the state and trait anxiety ratings were examined. p Values of less than 0.05 were accepted as statistically significant. Informed consent was obtained from the participants before the study was carried out after being reviewed and approved by the directors of the International Fertility and Health Care, Jaipur. All moral rules were followed when this work was being done.

3 RESULTS

The women undergoing IVF taken in the sample were from 24 to 45 years' age. 58.8 per cent of them were in the age group of 33-40 years, 23.8 per cent of 24-32 years and 17.5 per cent were of between 40-45 years. 63.8 per cent of women were having primary type of infertility whereas, 36.3 per cent were having secondary type of infertility.

78.8 per cent of women undergoing the IVF treatment were educated upto higher secondary that is upto class XIIth and only 21.3 per cent were educated till Vth class that is primary level.

As the cost of IVF treatment is high so no women from low-income group were found taking the treatment. Most of them (50 per cent) were from middle income group and 30 per cent of them were from higher-income group.

100% of the women coming for treatment had undergone test for infertility. 33.8 per cent women reported female related factor 8 per cent male related factors, 21.3 per cent combined male and female related factors as the cause of infertility, whereas the factors related to infertility was unexplained by 35 per cent women taking the treatment. Most of the women (93.8 per cent) were undergoing the treatment for the first time. Only 6.3 per cent of women were coming for the second or third time for the treatment.

Table 1: Total anxiety (State &Trait) scores at the three stages (T1, T2, and T3) of in vitro fertilization treatment

Treatment Stage	n	Mean±SD	Minimum	Maximum	SE
Total anxiety at T1 Level	80	101.75±8.71	85.00	120.00	0.975
Total anxiety at T2 Level	80	88.86±4.16	80.00	99.00	0.466
Total anxiety at T3 Level	80	117.03±4.19	109.00	126.00	0.469
(T1 = day of Stimulation and oocyte pick-up, T2 = transfer of embryo, T3 = 10 days post embryo transfer					

The mean value (Mean = 117.037; SD = 4.19899) shows highest level of overall anxiety at T3 level followed by T1 level (Mean = 101.7500; SD = 8.7175). In between these two stages that is at T2 level, least anxiety was observed (mean = 88.8625; SD = 4.1666).

Table 2: ANOVA for total anxiety at all three levels of treatment

		Sum of Square	df	Mean Square	F	Sig.
Total Anxiety at T1	Between Groups	4745.28	33	143.79	5.25	<.001
	Within Groups	1259.71	46	27.38		
	Total	6005.00	79			
Total Anxiety at T2	Between Groups	809.88	33	24.542	2.01	.014
	Within Groups	561.60	46	12.20		
	Total	1371.48	79			

Total Anxiety at T3	Between Groups	748.30	33	22.67	1.618	.065
	Within Groups	644.58	46	14.01		
	Total	1392.88	79			

One-way ANOVA was conducted to compare the total anxiety at three levels of treatment among women undergoing *in vitro* fertilization treatment. An analysis of variance shown in table no. 2 indicates that at T1 level of treatment, that is on the day of stimulation, the total anxiety felt by women was significant at 0.05 level of significance, F = 5.25, p= <.001. It can be inferred that there is a statistically significant difference in the mean anxiety scores of women going through *in vitro* fertilization treatment at T1 level. However at T2 (F= 2.01, p=.014) and T3 (F= 1.61, p=.065) level, the total anxiety felt by women was not found significant at 0.05 level of significance.

Table 3: State and Trait anxiety of women at the three levels of in vitro fertilization treatment

Level of Treatment	Anxiety Type	n	Mean±SD	t value	Sig
T1	State Anxiety	80	51.6±7.6	1.71	0.91
	Trait Anxiety	80	50.12±3.2		
T2	State Anxiety	80	44.7±3.28	1.40	0.16
	Trait Anxiety	80	49.00±2.85		
T3	State Anxiety	80	59.96±3.21	5.27	<.001*
	Trait Anxiety	80	50.07±3.23		

Significant at 0.05 level of significance

The t value shown in the above table number 3 indicates the significant difference in state and trait anxiety at T3 level of treatment (t = 5.27, p= <.001), whereas at T1 and T2 level the difference was found non-significant. The mean value score shows higher level of state anxiety than trait anxiety at T1 (Mean [state anxiety] = 51.6, Mean [Trait anxiety] = 50.12) and T3 (Mean [state anxiety] = 59.96, Mean [Trait anxiety] = 57.07) level of treatment. However at T2 level of treatment women were found to experience more trait anxiety as compared to state anxiety T1 (Mean [state anxiety] = 44.7, Mean [Trait anxiety] = 49.00). It may be because in the earlier stage of treatment that is T1, the patient was scared about the number of injections, and pain. Similarly at final stage of treatment that is at T3, the patient was anxious about the success of the treatment. Women's attitudes towards *in vitro* fertilization ranged from perceiving it as a gamble to considering its success to be reliant on their personal luck and the will of God. Going through this process not only affects their general routine, but also have adverse impact on their work or sexual life (Assisted Reproductive Technologies" 2187).

Table 4: Factors having impact on state anxiety scores in women undergoing in vitro fertilization

Dependent Variable: State Anxiety					
Independent Variables	B	SE	Beta	t	p
Age	-.694	1.172	-.048	-.592	.555
Level of Education	-.586	1.662	-.026	-.353	.725
Attempts to IVF	9.630	3.002	.251	3.208	.002
Infertility stress	5.666	1.445	.299	3.920	.000
Support from Husband	10.022	1.947	.519	5.148	.000
Duration of Infertility	1.655	1.341	.121	1.234	.221
Female related factors for Infertility	-.359	2.065	-.019	-.174	.862
N=80; R= 0.793; R^2= .629; Adjusted R^2= .593 .					

The state anxiety score of women, who were satisfied with their husbands' support before and during the treatment, had lower infertility stress and attempting this treatment for the first time was found significantly lower. The two main causes of stress that were brought up were fear of growing old alone and envy of families with children. The value of R

(0.793) indicates a good level of prediction of state anxiety among the women taking IVF treatment. These factors explain 62.9 per cent (R^2= .629) of the variability of state anxiety in those women.

Table 5: Factors having impact on trait anxiety scores in women undergoing in vitro fertilization

Dependent Variable: Trait Anxiety					
Independent Variables	B	SE	Beta	t	p
Age	-.269	.996	-.035	-.270	.788
Level of Education	1.252	1.413	.103	.886	.379
Attempts to IVF	3.920	2.553	.190	1.535	.129
Infertility stress	.476	1.229	.047	.387	.700
Support from Husband	-2.260	1.656	-.218	-1.365	.177
Duration of Infertility	-.016	1.140	-.002	-.014	.989
Female related factors for Infertility	-.361	1.756	-.036	-.205	.838
N=80; R= 0.265; R^2= .070; Adjusted R^2= -.020 .					

The trait anxiety score among the women receiving IVF treatment was not significantly affected by any of the above mentioned factors. The high levels of trait anxiety are maintained throughout all phases of the treatment regardless of age, level of education, infertility stress, and support from husband, duration of fertility and female related factors for infertility. The value of R (0.265) indicates a poor level of prediction of trait anxiety among the women taking IVF treatment based on these factors. These factors explain only 7.0 per cent (R^2= .070) of the variability of trait anxiety in those women.

Table 6: Perceived stress among women at all the three stages of in vitro fertilization treatment

Level of Treatment	**Mean±SD**	**Minimum**	**Maximum**	**SE**
Perceived stress at T1 level	19.65±2.90	15.00	24.00	0.325
Perceived stress at T2 level	16.52±2.12	13.00	21.00	0.237
Perceived stress at T3 level	17.87±2.70	13.00	22.00	0.303

The Perceived stress felt by women going through *in vitro* fertilization treatment was more at T1 stage (mean = 19.650; SD = 2.9083), followed by T3 stage (mean = 17.875; SD = 2.7066), and T2 stage (mean = 16.525; SD = 2.1227). Standard deviation at the level of T1, T2 and T3 nearly same, indicate data is more consistent of mean.

Table 7: To study the ANOVA and Multiple comparisons in the perceived Stress at all the three stages

Perceived Stress	**Sum of Square**	**df**	**Mean Square**	**F**	**Sig.**
Between Groups	393.03	2	196.51	29.056	0.000*
Within Groups	1602.9	237	6.76		
Total	15482.25	239			

ANOVA was used to examine the interaction effect of total perceived stress at all three stages. The results revealed a significant difference in perceived stress at all three stages, with *F* (29.056) and P (0.0000)<.05.

4 DISCUSSION

Around the world, 186 million people struggle with infertility (Inhorn, and Patrizio 2). Infertility was caused by female-related reproductive issues in just 37% of infertile couples (Walker and Tobler), while male and female variables contributed to infertility in 35% of cases. However, infertile couples more often blame women for their inability to have children (Sharma et al. 2). It turns into the most upsetting experience of a woman's life (Griel 1682) since it causes numerous traumatic psychological issues, including stress, rage, despair, marital issues, a sense of worthlessness,

anxiety, and ultimately depression (Hajela, et al. 941). (Deka and Sarma 32). Such women submit themselves to the drawn-out and frequently dangerous processes of in vitro fertilization in the hopes of having children with assisted reproductive technologies. The rising number of fertility clinics in both rural and urban areas around the world provides further insight into the rising popularity of these technologies and their upbeat portrayal in women's life (Broker 473). Their decision to undergo in vitro fertilization is not the end of their stress and worry, but rather the first step toward realizing their long-awaited dream (Lambert 3012). The entire course of treatment causes them tension and anxiety over the outcome.

It was observed during this study that women receiving treatment showed a significant desire to become mothers. The overall anxiety level of those women was found to be high at all three levels of *in vitro* fertilization treatment which is similar to the findings of the studies conducted by (Lykeridou et al. 229–231) and (Fatoye et al.1443-1446). The level of anxiety was found higher at T1 level (day of stimulation) as compared to T2 level (day of embryo transfer). When the time comes for them to begin the injection phase of artificial reproductive technology, the first-timers who have never done so experience terror (Awtani et al. 49). For individuals with limited experience, the fear of the forthcoming phase of injections and recollections of the past exacerbate their anxiety (Awtani et al. 49). They have completed the majority of the treatment process by the time they reach T2, and at that point, they are more comfortable around the hospital, the doctor, and the other staff members. They thus have greater confidence in the therapy, which reduces their anxiety (Convington). According to this study, anxiety levels peak at T3. The hardest part for the patient was to wait to find out if they were pregnant or not following embryo transfer. They feel a lot of anxiety because there is so much ambiguity. Women long to be mothers and are anxious to become parents, thus they find it difficult to wait for the outcome. With each stage, the level of tension, worry, and eagerness increases until it reaches its pinnacle during the waiting time (Lancastle and Boivin 2299). They become anxious when they consider "what if it doesn't work," not only for their own goals and expectations but also for those of their friends and family. They were even concerned about the money they have invested throughout the waiting period. (Convington).

When trait and state anxiety at each level was examined, the same conclusion was reached. While trait anxiety (a general tendency to view circumstances as hazardous) was shown to be higher at T1 and T3 levels compared to state anxiety (a momentary felt in certain circumstances), the difference was only found to be statistically significant at the T3 level of treatment. In all three levels of treatment, the study by (Seibel et al. 367) discovered a higher degree of state anxiety. In the study by (Harlow et al. 275), it was discovered that the levels of state anxiety and the concentrations of prolactin (levels increased from 229 mIU/l at baseline to 457 mIU/l) and cortisol (levels rose from 278 nmol/l to 496 nmol/l) were higher throughout the course of treatment. However, there was no connection between elevated anxiety, hormone levels, and the success of the pregnancy. The fact that state anxiety changed but trait anxiety barely changed suggests that it was the treatment itself that made women more apprehensive. The research study's accuracy was maintained since there was little to no change in the trait anxiety and because it was conducted without bias or prejudice.

Women are clearly eager to endure any form of medical treatment in order to become parents, regardless of the potential financial, psychological, and physical difficulties involved, given the social stigma associated with infertility and childlessness. They do this to support the socially constructed view of womanhood that presupposes a straight line from marriage to motherhood (“Assisted Reproductive Technologies” 2186).

The day the patient began their treatment with assisted reproductive technology (T1) was determined to be the most stressful for them, followed by the level at which they must wait for the results (T3). After attempting every natural method of conception, they had given up on the idea of becoming parents organically like the rest of their family and friends. They are aware that they must have the treatment and that there is nothing they can do to stop it. One of the primary causes of stress during treatment is the lack of societal support for the treatment and genuine information of in vitro fertilization (Awtani et al. 51). When questioned, it was discovered that entering the treatment itself was not as stressful as the elements we associate with the treatment. These elements were, respectively, internal and external. Feeling out of control, admitting their infertility, worrying about people's emotions, which makes them furious and upset, feeling guilty, and worried that they won't be able to offer happiness to their husband and their family are a few of them. (Awtani et al. 51). Women seeking treatment already deal with a great deal of stress related to social scrutiny, and the pressure they feel for the treatment to be successful increases this stress during infertility treatment (“Assisted Reproductive Technologies” 2187). Women undergoing in vitro fertilization treatment may experience stress as a result of the treatment's negative effects. Weight gain, weariness, increased micturition, mood fluctuations, giddiness, skin rashes, fevers, hot flashes, and a sense of bloating are the most common side effects (“Assisted Reproductive Technologies” 2187). Women undergoing in vitro fertilization therapy typically worry about getting a negative pregnancy test, exposing the procedure, and their own infertility problem (Schaller 1141).

Technology has the power to de-embody this reproductive act and relieve women of the weight of pregnancy, which is repressive to women by nature. In vitro fertilization therapy would not only free women from forced reproduction but also give infertile people, gays, lesbians, and disabled people new reproductive options, enabling them to overcome their obstacles and realize their desire for a biological child. It is believed that assisted reproductive technologies can

be used to eliminate persistent gender inequities and dichotomies like male/female, culture/nature, and machine/human in order to free women from oppression (Bauer 118). This technology has the ability to liberate people from the biological chains that have serious effects on women's life (Beauvoir 141). But to lessen or reduce their perceived infertility-related stress, women who passively participated in infertility therapy should receive expert, customised psychological assistance (Lykeridou et al. 234; Domar et al. 810; Matsubayashi et al. 968). Reducing worry and tension during therapy may reduce the number of treatment cycles required to achieve pregnancy, may help the couple prepare for an initial treatment failure, or may even eliminate the need for more intrusive procedures (Campagne 1653).

Women's anxiety and stress can be decreased by controlling system factors and human factors. Information provision, clinic and employee competency, coordination and integration, accessibility, continuity and transition, and physical comfort are all system components. Women undergoing in vitro fertilization therapy may benefit psychologically from the staff's attitude and relationship with them, as well as from communication, patient involvement, privacy, and emotional support (Dancet et al. 831). Women visiting infertility clinics may experience significant therapeutic advantages from professional psychological interventions (Boivin 1511). The treatment plan should include measures to lessen the effect of stress on reproductive outcomes because state anxiety scores are positively correlated with serum norepinephrine and cortisol values, which may negatively affect the clinical pregnancy rate of in vitro fertilization treatment (An et al. 37).

5 CONCLUSION

According to the results of the current study, women experience stress and anxiety during the in vitro fertilization process. The level of stress and anxiety varies across different stages of the treatment and it was found highest at the time when women must wait for their pregnancy results followed by the day of getting stimulation. Knowing about their infertility itself can be a huge hardship for women and they experience significant agony and suffering. To deal with their stress and anxiety, patients must get counseling and support right from the moment they plan for the infertility treatment. There is recognition that it is desirable to integrate psychological interventions into routine practice at infertility treatment clinics, even though the majority of in vitro fertilization facilities have specific standards for psychological counseling for patients with infertility. Stress brought on by infertility has a long history. There is still some debate over how stress affects treatment outcomes. However, it is evident that psychological therapies for infertile women can reduce anxiety and sadness and may even increase pregnancy rates dramatically. Dealing with the psychological stress of infertile women is crucial for the treatment process and helps to enhance treatment outcomes, along with the advancement of infertility treatment technologies.

STATEMENTS ON COMPLIANCE WITH ETHICAL STANDARDS

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Disclosure of conflict of interest

No potential conflicts of interest were disclosed by the author(s) with regard to the research, writing, or publication of this paper.

Statement of ethical approval

The ethics review committee of the International Fertility and Healthcare in vitro fertilization Clinic, Jaipur and Fortis Bloom IVF, Mohali, India approved this study on 22nd November, 2021. Written informed consent for inclusion in this research was obtained from the participants prior to data collection.

Statement of informed consent

Informed consent was obtained from the participants before the study was carried out after being reviewed and approved by the directors of the International Fertility and Health Care, Jaipur. All moral rules were followed when this work was being done.

Author contributions statement

Dr. Archana kumari conceived the study design, led data collection, performed the primary data analysis and provided critical insights for the interpretation of the results. Dr. Sukanta Kumar Mahapatra contributed to the literature review, manuscript drafting, and revisions to improve the intellectual content. All authors read and approved the final manuscript

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