



A COMPARATIVE STUDY TO ASSESS ANXIETY AND ITS STRESSORS AMONG ANTENATAL WOMEN WHO CONCEIVED NATURALLY AND THROUGH IN VITRO FERTILIZATION IN SELECTED HOSPITALS OF DELHI.

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ABSTRACT

Background: Pregnancy is a transformative period for women, often accompanied by significant psychological challenges. Anxiety and stressors during pregnancy differ between women who conceive naturally and those who conceive through in-vitro fertilization (IVF). **Objective:** The study aimed to: (1) assess and compare anxiety levels among antenatal women who conceived naturally and through IVF, (2) evaluate and compare stressors affecting both groups. **Methods:** An analytical cross-sectional study design was employed, involving 200 primigravida women (100 per group) between 8–20 weeks of gestation from Indira IVF and Holy Family Hospital, New Delhi. Participants were selected through purposive sampling, and data collection was conducted via structured interviews after obtaining ethical clearance and informed consent. The study utilized the modified Leigh and Milgrom Biopsychosocial Model as a conceptual framework. Data were analyzed using descriptive and inferential statistics. **Results:** Demographic analysis revealed that most women in the IVF group were aged 29–39 years, while the natural conception group primarily fell into the 18–28 years range. Educational attainment was higher in both groups, with a greater prevalence of homemakers among the IVF group. Nuclear family structures were more common in IVF-conceived women, and higher income levels were observed in the natural conception group. Anxiety levels were similar between groups, with mild and moderate anxiety being predominant. Severe anxiety was slightly more prevalent in the IVF group. Stressors also varied: IVF-conceived women faced more stress related to family support, medical procedures, and finances, while naturally conceived women reported higher stress linked to healthcare services. **Conclusion:** The findings emphasize the need for tailored, holistic care to address the distinct psychosocial challenges faced by antenatal women, particularly those undergoing IVF. Targeted interventions, including counseling and stress management programs, are crucial for improving maternal mental health and pregnancy outcomes.

KEYWORDS

Anxiety, Stressors, Antenatal Women, In-vitro Fertilization (IVF), Natural Conception.

INTRODUCTION

Pregnancy is one of the most significant events in a woman's life. It is a period of rapid progression during which various emotional experiences e.g., physical, and psychological changes occur. Even though it's a time of expected happiness and joy, it can also be a time of emotional changes. Women are largely affected by mood and anxiety disorders, especially in the childbearing age, and mental illness often worsens or emerges during pregnancy.¹ Evidence underscores how pregnancy anxiety not only impacts maternal health but also influences labor outcomes like preterm delivery and caesarean birth, with prevalence varying across trimesters (14–54%).² A systematic review found that anxiety during pregnancy affects 1% to 26% of pregnant women in low- and middle-income countries.³

Pregnancy is a natural phenomenon in women, but sometimes they may not conceive for various reasons, and this is termed Infertility. Assisted reproduction techniques (ART) have revolutionized the field of reproductive medicine, offering hope and solutions to individuals and couples facing fertility challenges. These advanced medical procedures encompass a range of technologies designed to assist in achieving pregnancy when natural conception is difficult or impossible. In vitro fertilization (IVF) stands out as a prominent ART method, involving the fertilization of an egg with sperm outside the body before implanting the resulting embryo into the uterus. In vitro fertilization (IVF) can be done in two ways: stimulated or unstimulated. Stimulated IVF uses drugs to make the ovaries produce more eggs, while unstimulated IVF collects the one egg that matures naturally. Stimulated IVF has a higher chance of success, but unstimulated IVF is less invasive and more natural. The best option depends on the woman's age, fertility, and preference.⁴ Anxiety and stress during pregnancy are common phenomena, significantly impacting maternal and fetal health. These psychological stressors can arise from various factors, including hormonal changes, concerns about fetal well-being, and personal or socioeconomic stressors. Understanding the specific stressors and levels of anxiety among different groups of antenatal women is crucial for tailoring effective interventions and support systems⁵. The IVF process itself is physically and emotionally demanding, involving numerous medical procedures, hormonal treatments, and often a prolonged period of uncertainty and waiting. Consequently, these women may experience heightened levels of anxiety and stress both during the treatment process and the subsequent pregnancy⁶.

Objectives

To assess and compare anxiety among antenatal women who

conceived naturally and through in-vitro fertilization.

To assess and compare stressors among antenatal women who conceived naturally and through in-vitro fertilization.

MATERIAL & METHODS

Research Design: The Analytical Cross-sectional design is used to describe variables and to examine differences in variables in two or more groups that occur naturally in a setting for the present study, an analytical cross-sectional design was adopted to assess anxiety and its stressors among antenatal women who conceived naturally and through in-vitro fertilization in selected hospitals in Delhi.

Variables Under Study: A research variable is any characteristic, number, or quantity that a study can measure or control. Variables can be independent, dependent, or confounded in nature. The research variables identified in the present study are as follows: the presence of anxiety and stressors among the antenatal women conceived naturally and through IVF.

Study Area: The setting is the physical location and conditions in which data collection takes place in a study. The selection of an appropriate setting is important because it can influence the way people behave, feel, and respond. The research setting selected for the present study was two private hospitals in New Delhi: Indira IVF and Fertility Centre Patel Nagar and Holy Family Hospital Okhla.

Population: In the present study, the population comprised of prime gravida women with 8-20 weeks of gestation.

Sample And Sampling Technique: The sample of the present study comprises primigravida women between 8 to 20 weeks of gestation in a selected hospital in New Delhi. For the present study, the purposive sampling technique was used for selecting primigravida women between 8 to 20 weeks of gestation in the selected hospitals in New Delhi. According to Polit & Hungler (1991), "Purposive sampling is a type of non-probability sampling method in which the researcher selects subjects for the study based on personal judgments about which one will be most representative or productive".

Sample Size: The sample size is a part of the population chosen for a survey or experiment. In the present study, samples consisted of try-outs, the tools were administered to 5 antenatal women in Aveya Hospital and Rainbow Hospital New Delhi, and for the pilot study, a total sample of 15 ante-natal women (15 in each group).

Sample Size Calculation
Cochrane Formula

$N = z^2 Pq / e^2$
N= sample size,
z=1.96, (Confidence level)
P=16% (proportion of the population) q=1-p= (5%)
e=0.05 allowable error
Calculated sample size by applying correction formula Antenatal women -200(100 in each group)

A sample of 200 antenatal women. 100 antenatal women conceived naturally and 100 antenatal women conceived through IVF, to assess anxiety and its stressors.

Data Collection Tools And Techniques

The most important aspect of any investigation is the collection of appropriate information, which provides the necessary data to answer the questions raised in the study. Data collection instruments are the devices or techniques that a researcher uses to collect data. A valid and reliable data collection is important to yield high-quality data. According to Best & Khan (1992), "Interview is particularly appropriate when dealing with illiterate or people with low education". Based on the objectives and the conceptual framework of the study, the following instruments were developed to generate the data: -

Table: 1. Description Of Data Collection Tools And Technique.

S.N	TOOL	PURPOSE	TECHNIQUE
Too I	Structured interview schedule to assess demographic socio-economic variables.	To assess the selected demographic socio-economic variables	Interviewing
Too II	Structured interview schedule to assess anxiety	To assess the anxiety among the antenatal Women who conceived naturally and through IVF.	Interviewing
Too III	Structured interview schedule to identify the presence of stressors	To identify the presence of stressors among the antenatal women who conceived naturally and through IVF.	Interviewing

RESULTS

Table: 2. Frequency and Percentage Distribution According to Age, Educational Qualification, Spouse Educational Qualification, and Women's Occupation, Among the Antenatal Women. (Conceived Naturally and Through IVF) N=200

S. No.	Variables	Through IVF		Conceived Naturally	
		Frequency	Percentage	Frequency	Percentage
1. AGE (year)					
1.1	18-28	29	29	44	44
1.2	29-39	42	42	48	48
1.3	40 and above	29	29	8	8
2. EDUCATION OF WOMEN					
2.1	Illiterate	3	3	2	2
2.2	primary education	13	13	7	7
2.3	Middle	5	5	7	7
2.4	Secondary	25	25	29	29
2.5	Senior secondary/diploma	18	18	7	7
2.6	Graduate and above	36	36	48	48
3. EDUCATION OF SPOUSE					
3.1	Illiterate	2	2	-	-
3.2	primary education	1	1	-	-
3.3	Middle	9	9	5	5
3.4	Secondary	9	9	4	4
3.5	Senior secondary/diploma	36	36	21	21
3.6	Graduate and above	43	43	70	70
4. OCCUPATION OF WOMEN					
4.1	Homemaker	56	56	68	68
4.2	Private job	25	25	17	17
4.3	Government job	7	7	8	8
4.4	Self-employed	12	12	7	7

Table: 3. Frequency & Percentage Distribution of Women

According to Spouse's Occupation, Women's Habitation, Monthly Family Income, And Duration of Marriage Among Antenatal Women (Conceived Naturally and Through IVF) N=200

S. No.	Sample Characteristics	Through IVF		Conceived Naturally	
		Frequency	Percentage	Frequency	Percentage
5	OCCUPATION OF SPOUSE				
5.2	Private job	51	51	62	62
5.3	Government job	30	30	23	23
5.4	Self-employed	19	19	15	15
6	WOMEN'S HABITATION				
6.1	Nuclear	48	48	41	41
6.2	Joint family	38	38	42	42
6.3	With Parents	9	9	14	14
6.4	Alone	5	5	3	3
7	FAMILY INCOME PER MONTH In Rs (kuppuswamy scale 2022)				
7.2	106468-212928	6	6	8	8
7.3	79648-106467	23	23	22	22
7.4	53234-79647	28	28	48	48
7.5	31938-53233	34	34	19	19
7.6	10662-31937	9	9	3	3
8	DURATION OF MARRIAGE				
8.1	1-3 year	18	18	56	56
8.2	>3-5year	36	36	31	31
8.3	>5-7 year	26	26	8	8
8.4	More than 7 years (Specify)	20	20	5	5

Table: 4. Frequency and Percentage Distribution of Antenatal Women Conceived Naturally and Through IVF According to Level of Anxiety N=200

S. No.	Level of Anxiety	Naturally (n=100)		IVF (n=100)	
		Frequency	Percentage	Frequency	Percentage
1.	Mild anxiety	10	10	04	04
2.	Moderate anxiety	80	80	79	79
3.	Severe anxiety	10	10	17	17

The data presented in Table no: 4.3 depicted the level of anxiety among antenatal women who conceived naturally and through in-vitro fertilization. The data reveals that 10% of both the naturally conceiving and IVF groups experience mild anxiety, indicating a universal baseline anxiety level associated with pregnancy. The majority, however, exhibit moderate anxiety, with 80% in the natural conception group and 79% in the IVF group, suggesting that the primary emotional challenge during pregnancy is moderate anxiety, irrespective of the conception method. Severe anxiety is comparatively rare among the participants, affecting 10% of the naturally conceiving group and 17% of the IVF group.

Table: 5. Comparison of the Anxiety Score among Antenatal Women Conceived Naturally and through In-Vitro Fertilization N=200

S. No.	Group	Mean	SD	MD	't' value	df	P value
1.	Naturally	17.33	4.85	0.390	0.588	198	0.557 ^{NS}
2.	IVF	17.72	4.52				

MD=Mean difference, df=degree of freedom, NS=Non-significant, Significant level at 0.05.

Table: 6. Mean, Standard Deviation, and 't' test Value of Selected Stressors among Antenatal Women Conceived Naturally and through IVF N=200

Sr. No	Type of stressors	Group	Mean score of stressors	S.D of stressors	't' value	df	't' critical value
1	Lack of Family Support	Conceived naturally	1.54	1.2	1.068 ^N	198	1.97
		Conceived through IVF	1.82	1.56			
2	Related to Medical Procedures	Conceived naturally	3.14	1.47	2.302 ^S	198	1.97
		Conceived through IVF	3.64	1.60			
3	Lack of	Conceived	2.87	1.87	3.689 ^S	198	1.97

	Financial Support	naturally					
		Conceived through IVF	3.74	1.43			
4	Related to Health Care Services	Conceived naturally	3.38	1.20	1.563 ^N	198	1.97
		Conceived through IVF	3.12	1.15			
5	Related to Employment	Conceived naturally (N=32)	2.34	1.42	2.90 ^S	74	1.99
		Conceived through IVF(N=44)	2.57	1.48			

DISCUSSION

The data presented in Table 2 depict the sample characteristics of antenatal women conceived naturally and through IVF, including age, educational qualification, spouse's educational qualification, and women's occupation. A significant majority (44%) of antenatal women conceived naturally belonged to the age group of 18 to 28 years, while the remaining 48% and 8% were in the age group of 29-39 to 40 and above. In antenatal women conceived through IVF, the majority (42%) were in the age group of 29 to 39 years, remain (29%) in the age group of 29-39 and more than 40 and above. The educational background of most (48%) antenatal women conceived naturally indicated a level of graduation or higher, 7% having senior secondary/diploma level education, 29% secondary level education 7% middle, 7% primary level of education and 2% women are illiterate. Similarly, most antenatal women conceived through IVF had graduation or higher-level education, with 18% having senior secondary/diploma level education, 25% secondary level education, 5% middle, 13% primary and 3% women are illiterate. In naturally conceived antenatal mothers, the majority of spouses (70%) possessed a graduate-level education or higher, 21% had senior secondary/diploma 4% secondary 5% spouse had middle level education. Regarding occupation, the majority of women conceived naturally identified as homemakers (68%), while 17% were employed in the private sector, 8% held government jobs, and 7% were self-employed. In contrast, among women conceived through IVF, the majority (56%) were homemakers, 25% had private jobs, 7% had government jobs and 12% were self-employed. The present study revealed that 48% of naturally conceived women fall within the 29-39 age range. This finding aligns with Abegaz M.Y. (2022), who reported that the majority of women (45%) in their study were over 30 years old. These results suggest a trend where a significant proportion of women are conceiving naturally in their late 20s to late 30s¹.

The data presented in Table 3 depict the sample characteristics of antenatal women conceived naturally and through IVF, such as spouse's occupation, women's habitation, monthly family income, and duration of marriage. The majority of spouses (62%) were engaged in private jobs, whereas 23% were employed in the government sector, and 15% were self-employed. In IVF women's spouse-the majority of spouses (51%) were engaged in private jobs, whereas 30% were employed in the government sector, and 19% were self-employed. women who conceived naturally 42% of women were residing in Joint family and, while 41% were living in a nuclear family, 14% were residing with their parents and 3% living alone. In approximately the majority of women who conceived through IVF 48% were living in nuclear family, 38% of women were residing with joint family, 9% were residing with their parents and 5% living alone. Family income of antenatal women, 48% reported an income ranging from Rs. 53234-79,647. Additionally, 22% of families had an income falling within the range of Rs. 79648-106467, 19% reported 31938-53233, 8% of women's family income were 106468-212928 and 3% reported 10662-31937 in women who conceived naturally and in women conceived through IVF family income of antenatal women, 28% reported an income ranging from Rs. 53234- 79,647. majority are reported 34% reported 31938-53233, 23% of families had an income falling within the range of Rs. 79648-106467, 9% reported 10662-31937 and 6% women's family income was 106468-212928. in terms of marriage duration among the antenatal women conceived naturally the majority (56 %) had a marital duration exceeding 1-3 years, whereas 31% reported a marriage duration of >3-5 years, and percentage (8%) had a marriage duration exceeding 5-7 years and 5% reported more than 7 year of marriage duration. In antenatal mothers conceived through IVF the majority (36 %) had a marital duration exceeding >3-5 years,

whereas 26% reported a marriage duration of >5-7 years, and a percentage (18%) had a marriage duration exceeding 1-3 years and 20% reported more than 7 years of marriage duration. The present study showed that the majority (48%) of the naturally conceived women and 70% of their spouses were graduates. The findings were seen similar to the study done by Mahini E. et.al.(2023), which found that (37%) of women and their spouses (68%) were graduates¹⁰.

The data presented in Table no: 5. depicted the naturally conceiving group exhibited a mean anxiety score with a standard deviation is 17.33±4.849, while the IVF group had a slightly higher mean score but a standard deviation is 17.72 ±4.524. The mean difference was 0.390. Here Independent 't' test was applied as a result (t198=0.558, p=0.557) indicating a non-significant difference at 0.05 level. Thus, the method of conception natural or IVF does not significantly affect the anxiety levels among antenatal women, with both groups showing similar levels of anxiety within the context of this study. The present study's findings, which are consistent with the study conducted by Stevenson E.L. et al. (2022). In Stevenson's study, the mean anxiety score was slightly higher, at 20.49. This similarity underscores a prevalent issue of heightened anxiety among IVF patients¹¹.

The data presented in Table 6 depicted that the stressors related to lack of family support had a mean score of 1.54 for women who conceived naturally, which was lower than the mean score of 1.82 for women who conceived through IVF. The 't' test value was 1.068, with degrees of freedom (df) of 198, indicating no significant differences between the two groups.

On the other hand, the stressors related to medical procedures had a mean score of 3.14 for women who conceived naturally, which was lower than the mean score of 3.64 for those who conceived through IVF. This yielded a 't' value of 2.30, which was statistically significant and indicated a significant difference between both groups. Similarly, the stressor related to lack of financial support had a mean score of 2.87 for naturally conceived women, which was lower than the mean score of 3.74 for women who conceived through IVF. This resulted in a 't' value of 3.689, which was statistically significant and indicated a significant difference between the two groups. In contrast, there was no significant difference between the two groups in terms of stressors related to lack of healthcare services, with a mean score of 3.38 for naturally conceived antenatal women and 3.12 for those who conceived through IVF. The 't' score value was 1.563. Finally, stressors related to employment had a mean score of 2.34 for naturally conceived antenatal women, which was lower than the mean score of 2.57 for women who conceived through IVF. The 't' value was 2.99, indicating significant differences between the two groups. The present study showed that there is no significant difference between the level of anxiety in both the groups (naturally conceived antenatal women and through IVF). The study conducted by Vislava Globevnik Velikonja et al. in 2015 further reinforced these findings by also noting the absence of discernible anxiety variations between women who conceived through IVF and those who conceived spontaneously¹².

CONCLUSION:

The study highlights varying stressors among antenatal women conceived naturally and through IVF. Lack of family support, related to medical procedures, and financial support are more pronounced in the IVF group, while healthcare service-related stressors are higher for natural conception. Both groups share moderate stress in present employment, emphasizing nuanced challenges across conception methods.

Limitations: The study was limited to two settings and focused on primigravida women in early pregnancy. Future studies should include diverse populations and extended periods of observation across pregnancy trimesters.

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