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## A study to assess the stress level among primary infertile women undergoing intrauterine insemination

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**Abstract**

Infertility is often equated with pain and stress in our society and a woman without child is considered as "Barren". Inability to have children is undeniably a very distressing experience, which can lead to psychological disturbances. With the objective to assess the stress level among primary infertile women undergoing intrauterine insemination and to determine the association of stress level with sociodemographic variable, this study was conducted in infertility clinic, PGIMER, Chandigarh. The samples were selected by total enumeration technique. The data was collected in the period of July – September, 2015 by using tools – Sociodemographic profile proforma, Clinical profile proforma and Newton's fertility problem inventory. A total of 102 subjects were enrolled for the study. Stress level of primary infertile women related to infertility was assessed and recorded. Stress level assessment was done before intrauterine insemination. As per Newton's fertility problem inventory findings, 35% of the subjects had very high stress, 39% had moderately high stress and 29% had average stress level.

**Keywords:** Primary infertility, stress level, intrauterine insemination

**1. Introduction**

Pregnancy and motherhood are the most beautiful and significantly life altering events in a woman's life. The desire to have children is one of the basic human instincts, because in all couples fertility is an important matter to complete their male or female characters, identification, and their final goal of life. Globally around 8 to 10% of couple's experience of infertility in their reproductive lives.<sup>1</sup> Infertility is defined as failure to conceive within one to more years of regular unprotected sexual intercourse<sup>[2]</sup>. or the one year of unprotected intercourse without conception<sup>[3]</sup>. Primary infertility denotes to those women who never conceived<sup>[4]</sup>.

Prevalence rates showed that 40-55% of infertility is primarily attributing to females. According to FIGO manual, female causes are- tubal and peritoneal factors (25-35%), ovulatory factors (30-40%) and endometriosis (1-10%). Males also attribute 30-40% because of low sperm count, impotence and the 10% is estimated to an interaction between the two partners, remaining 10% is unexplained<sup>[4]</sup>.

Infertility is often equated with pain and stress in our society and a woman without child is considered as "Barren". Inability to have children is undeniably a very distressing experience, which can lead to psychological disturbances. Odden BJ *et al* reported, bodily disparagement, lack of femininity, shame and self-blame among the infertile women<sup>[5]</sup>.

Approximately 75% of couples diagnosed with infertility will seek some type of treatment. Of those who seek medical treatment, it is estimated that 50% to 60% will eventually conceive, compared to only 5% who would conceive if they did not seek medical interventions<sup>[6]</sup>. Assisted reproductive technology (ART) procedures have been used to overcome infertility since 1978. These procedures include those infertility treatments in which eggs and sperm are handled in the laboratory for the purpose of establishing a pregnancy. Different methods of Assisted reproductive technologies (ART) includes- *In vitro* fertilization and embryo transfer (IVF-ET), Gamete intra-fallopian transfer (GIFT), Zygote intra-fallopian transfer (ZIFT), Peritoneal oocyte and sperm transfer (POST), Intracytoplasmic sperm injection (ICSI).<sup>[7]</sup> Infertile women view infertility and its treatment as extremely stressful<sup>[8, 9]</sup>. The procedure of diagnosis and treatment of infertility is time consuming, economically and psychologically burdening, and physically difficult for the

patient without pregnancy guarantee. *In vitro* fertilization (IVF) is the last resort for infertile women who fail in natural conception, ovulation induction, and intrauterine insemination [10]. Being childless and going through various ART procedures also imposes considerable stress on the couple, and childlessness is often perceived as a life crisis, where the emotional strain equals that found for traumatic events [11, 12].

Intrauterine Insemination is a type of artificial insemination used for fertility treatment that involves placing washed sperms inside the woman's uterus to facilitate fertilization. [13] It involves injection of washed sperm into the uterus with a catheter, after 2 to 3 days of abstinence. An abstinence interval of 3 days or less was associated with higher pregnancy rates following intrauterine insemination [14]. Insemination is performed at the time of ovulation, usually within 24-36 hours after LH surge is detected, or after the injection of hCG. The optimal resting time for woman after an intrauterine insemination is of 15 minutes to increase pregnancy rate [15]. Bed rest for 10 and 20 min after intrauterine insemination has a positive effect on the pregnancy rate [16].

## 2. Material and methods

The study was conducted at Infertility clinic (Obstetrics and Gynae out Patient Department), Post Graduate Institute of Medical Education and Research (PGIMER), Chandigarh. Non Experimental Quantitative research approach was adopted to assess the stress level of primary infertile women. Total 102 infertile women were enrolled by Total enumeration technique. Formal approval for the study was taken from the head of department of obstetrics and gynecology, PGIMER, Chandigarh. The tools for the present study developed were based on review of literature, consultation from experts. The tools included Socio demographic profile proforma, Clinical profile proforma and Newton's Fertility Problem Inventory. Primary infertile women were enrolled for the study that was planned for the intrauterine insemination procedure (IUI). The subjects were informed about the purpose of study & written consent was taken from each woman. The subjects were given full autonomy to take decision for the participation or withdraw from it any time. After baseline assessment, Stress level was assessed by using Newton's Fertility Problem Inventory.

## 3. Results

Analysis was done for the 102 samples. In descriptive statistics, percentage, mean- standard deviation, median-range were used to describe the data. Findings of the study are presented here with the help of tables and figures. Kruskal wallis test was used to assess the association of stress level with the sociodemographic variables of the subjects.

The socio-demographic profile of the 102 infertile women who were undergone IUI is summarized in the table number 1 above. The data was described with the help of percentage.

The mean Age $\pm$ SD of subjects was 31.73  $\pm$ 4.41 (Range 22-40). Comparing the religion of the subjects, More than 70% of the subjects were Hindu by religion, other were Sikh, Jain and Muslim. More than 50% of subjects belong to joint family. The majority of the subjects had 1601-8009 monthly per capita income.

**Table 1:** Socio Demographic Profile of subjects. N= 102

Variables	n (%)
AGE (years)	Mean $\pm$ S.D 31.73 $\pm$ 4.41
20-25	7 (6.9)
26-30	37 (36.3)
31-35	36 (35.2)
36-40	22 (21.6)
Religion	
Hindu	71 (69.6)
Sikh & others*	31 (30.4)
Family Type	
Nuclear	46 (45.1)
Joint	56 (54.9)
Per Capita Income (Monthly )	
1601 – 8009	66 (64.9)
8010 - 16019	11 (10.8)
$\geq$ 16020	25 (24.4)

\*Others – Muslim and Jain

**Table 2:** Educational and Occupational status of subjects. N=102

Variables	n (%)
Education	
Up to High	26 (25.5)
secondary	20 (19.6)
Graduate & above	56 (54.9)
Occupation	
Housewife	72 (70.6)
Employed	36 (29.4)

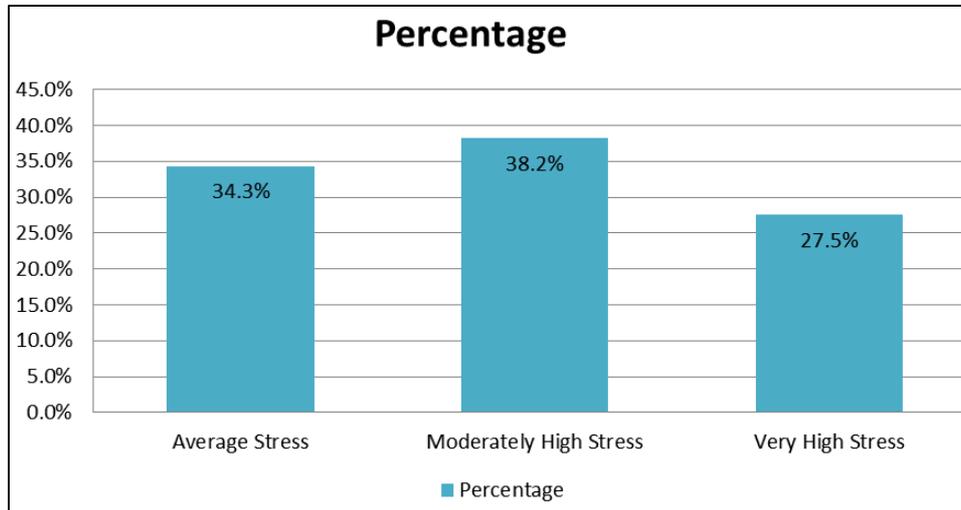
Table 2 depicts that 26 (25.5%) of subjects were educated upto high standard. 20 (19.6%) were educated upto secondary and 56 (54.9%) subjects were graduate and above. Majority of subjects were housewife.

**Table 3:** Clinical Profile of subjects. N=102

Variables	n (%)
Age At Marriage (in Years)	
17-20	23 (22.5)
21-25	45 (44.1)
26-30	27 (26.5)
31- 35	7 (6.9)
Duration of Marriage(in Years)	21 (20.6)
1-4	50 (49)
4-8	16 (15.7)
8-12	
$\geq$ 13	15 (14.7)
Menarche (in yrs.)	
$\leq$ 13	43 (42.2)
$\geq$ 14	59 (57.8)
Menstrual cycle	
Regular	76 (74.5)
Irregular	26 (25.5)
Years of Infertility (in Years)	
1-4	43 (42.2)
5-8	34 (33.3)
9-12	15 (14.7)
$\geq$ 13	10 (9.8)
Treatment taken for infertility (in Years)	
1-4	64 (62.7)
5-8	23 (22.5)
$\geq$ 9	15 (14.7)

### 3.1 Clinical Profile of subjects in Experimental and Control Group

Table 2 depicts more than 40% of subjects were married at age between 21-25 years and 49% subjects were married since 4-8 years. More than 60% of subjects were taking infertility treatment since 1-4 years.



**Fig 1:** Stress level among primary infertile women. N=102

Figure 1 depicts that 34.3% of subjects have average stress, 38.2% have moderately high stress and 27.5% very high level of stress among the infertile women.

**Table 4:** Stress level related to various concerns in primary infertile women. N=102

Stress level	Stress level related to social concern n (%)	Stress level related to Sexual concern n (%)	Stress level related to relationship concern n (%)	Stress level related to Rejection of Childfree Life concern n (%)	Stress level related to Need for parenthood concern n (%)
Low stress	1 (1.0)	0	3 (2.9)	1 (1.0)	1 (1.0)
Average stress	56 (54.9)	44 (43.1)	55 (53.9)	39 (38.2)	49 (48)
Moderately High Stress	40 (39.2)	38 (37.3)	41 (40.2)	59 (57.8)	40 (39.2)
Very High stress	5 (4.9)	20 (19.6)	3 (2.9)	3 (2.9)	12 (11.8)

Table 4 represents the stress level of infertile women related to various concern, more than 50% of women have Average stress related to social concern, more than 40% of women have Average Stress level related to Sexual concern, more than 50% of women have average level related to relationship concern, more than 50% of women have Moderately High Stress level related to Rejection of Childfree Life concern, more than 40% of women have average stress related to Need for parenthood concern.

**Table 5:** Association of Stress score with age and education of subjects.

Stress score	Median (IQR)	Kruskal Wallis test (df) p value
<b>Age</b>		
20-25	175 (220-137)	17.18 (3)
26-30	163 (137-104)	<0.05
31-35	188 (242-111)	
36-40	200 (242-143)	
<b>Education</b>		
Up to High	184 (242-107)	1.52 (2)
secondary	188 (234-111)	0.467
Graduate & above	173 (134-104)	

Table 5 depict that there was significant association between the Age and stress score of subjects and there is no any significant association between the Education level and stress score of subjects.

**Table 6:** Association of Stress score with Duration of Marriage and years of infertility OF Subjects.

Stress score	Median (IQR)	Kruskal Wallis test (df) p value
<b>Duration of Marriage (in Years)</b>		
1-4	165 (224-104)	18.95 (3)
4-8	172 (234-134)	<0.05
8-12	198 (242-111)	
≥ 13	202 (242-143)	
<b>Years of Infertility (in Years)</b>		
1-4	168 (224-104)	18.67 (3)
5-8	181 (234-130)	<0.05
9-12	206 (242-111)	
≥ 13	202 (242-143)	

Table 6 depicts that there is statistical significant association of Stress score with Duration of Marriage and years of infertility among the subjects. (*p* values <0.05) by using Kruskal Wallis test.

#### 4. Discussion

Infertility causes psychological and emotional tension in couples and makes severe stress on them. Deep breathing exercises are one of the method, that reduces stress and balance the human emotions. Studies examined the psychological consequences of infertility have shown that infertility leads to emotional distress such as depression, anxiety, guilt, social isolation, and decreased self-esteem in both men and women [17].

Present study was conducted in infertility clinic, PGIMER Chandigarh, with the objective to assess the stress level of primary infertile women undergoing Intrauterine Insemination. A descriptive design was employed for the study. Newton's fertility problem was used to assess the stress level. Samples were enrolled by total enumeration technique once they met the inclusion criteria. Informed consent was taken from the subjects. Stress level assessment was done before intrauterine insemination.

In the present study, Result analysis of sociodemographic variables were analysed by calculating the frequencies, Mean±S.D. Majority of subjects were graduate and above among the subjects. Clinical profile of subjects showed that majority of subjects were taking treatment for infertility since 1-4 years and majority of subjects were married since 4-8 years. Leiblum *et al* [18]. Reported that many couples presenting for infertility treatment have high levels of psychological distress associated with infertility, the process of assisted reproduction itself is also associated with increased levels of anxiety, depression and stress. Psychological interventions have a beneficial effect on negative emotions [19].

Our study shows that as per Newton's Fertility Problem Inventory, 34.3% of subjects have average stress, 38.2% have moderately high stress and 27.5% very high level of stress among the infertile women this is supported by Alhassan A *et al* [20]. Study (2013), which showed prevalence of depression among infertile women was 62%. Peterson BD *et al* [21]. (2014) also reported 11.6% and 4.3% severe depressive symptoms among women and men respectively. Freeman *et al* [22]. (1993) found that half of the women in their sample rated infertility as the most stressful experience of their life. Verma P *et al* [23]. (2015) also reported that anxiety and depression is common among patients suffering from infertility and emphasized that measures should be taken to alleviate the anxiety and depression among infertile women. Several studies indicate that coping with infertility is associated with periodically heightened levels of psychological symptoms of distress, depression and anxiety [24].

It is found in present study that there was association of stress score with the age of women and duration of infertility among the subjects ( $p$  value <0.005) groups. This finding is similar to the study of Alhassan A *et al* [20] which was conducted to assess the prevalence of depression among infertile women, which was 62% and has positive correlation with the age of women and duration of infertility. Albayrak E *et al* [25]. (2007) also reported that, the trait anxiety scores among childless women increased with the duration of their marriage.

## 5. Conclusion

The objective of study was to assess the level of stress of primary infertile women undergoing intrauterine insemination. The findings of the study shows that as per Newton's fertility problem inventory, 35% of the subjects had very high stress, 39% had moderately high stress and 29% had average stress level.

## 6. Recommendations

- The study can be replicated in different setting with large sample for longer duration to support the findings.
- Experimental studies can be done to assess the effect of relaxation techniques on stress level.

- Similar study can be done on couples for assessing the stress level of both partners.

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