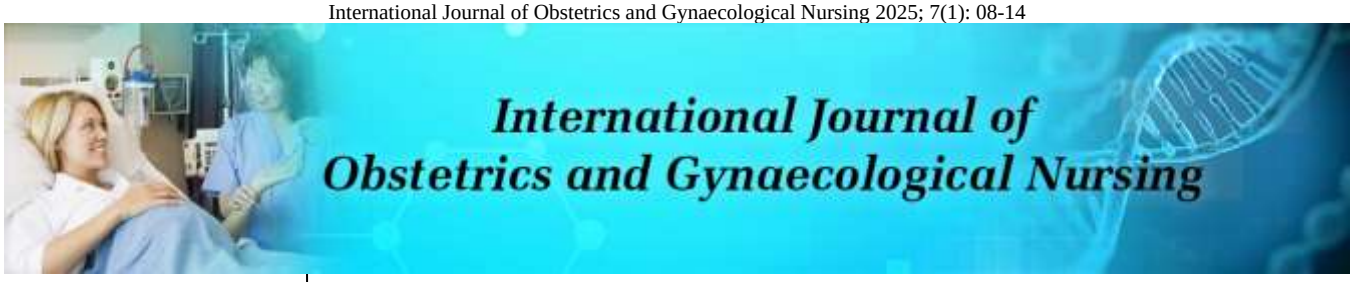

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A study to assess the level of perceived stress and effectiveness of nurse led interventions on perceived stress in females with infertility

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Abstract
Introduction: India is a country with a billion plus population, and every minute a child is born. But, statistics shows that childlessness is around 2.5% in India. Infertility is defined as the failure to conceive after 12 months of regular sexual intercourse without contraception. Several studies have found that couples classify infertility as the most upsetting and extremely stressful experience of their life. Infertility can negatively affect couples physically, emotionally, and socially. Objectives is to assess the level of perceived stress in females attending SEEDLING IVF Clinic, Rohtak.
Materials and Methods: A quantitative approach with one group pre-test post-test research design was used for this study. The sample comprised of 60 females with infertility in selected private hospital, Rohtak. Convenient sampling technique was used to select samples. Data was collected by using standardized Perceived stress scale. Permission was taken from authority and oral consent was taken from subjects who participated in the study.
Results: Out of 60 subjects, majority of females 37(61.7%) had mild stress level followed by 19(31.7%) had moderate stress, 4(6.7%) had no stress and no female had severe stress.
Conclusion: Majority of females with infertility have mild and moderate stress level. So there is a need to provide nurse led interventions to females with infertility.

Keywords: Perceived stress, infertility, nurse led intervention

Introduction
Infertility is defined as the failure to conceive after 12 months of regular sexual intercourse without contraception. It is estimated to affect approximately 72.4 million couples worldwide. Several studies have found that couples classify infertility as the most upsetting and extremely stressful experience of their life. Infertility can negatively affect couples physically, emotionally, and socially [1]. As per study, published at the end of 2012 by WHO, one in every four couples in developing countries had been found to be affected by infertility. The magnitude of the problem calls for urgent action, particularly when in majority of cases the infertility is avoidable. Estimates of infertility vary widely among Indian states from 3.7% in Uttar Pradesh, Himachal Pradesh and Maharashtra, to 5% in Andhra Pradesh and 15% in Kashmir [2]. Perceived infertility stress is defined as signs that are caused by infertility, analogous to most symptoms of post-traumatic stress disorder. Infertility-related stress includes the interaction of the physical conditions and medical interventions, which may last for years and relapse subsequent to any diagnostic or therapeutic interventions [3]. The sorrow caused by infertility is often strong and is considered important; in many cases, the individual is not able to express it or find any place to relieve it. Depression is a reaction which appears as a consequence of sorrow [4]. Psychological stress is often seen to be a natural outcome of infertility, presenting in the form of an acute or chronic stressor in the affected persons. Furthermore, feelings of psychological strain, helplessness, dwindling hopes, and a sense of loss of control are elevated in those who undergo assisted reproductive treatments than those who are trying to conceive spontaneously [5]. Two main neuro-endocrinological pathways mediate the effects of psychological factors (e.g., stress, depression) on the reproductive system. The hypothalamic-pituitary adrenal (HPA) axis secretes corticotrophin-releasing hormone (CRH) from the hypothalamus, adrenocorticotrophic hormone (ACTH) from the pituitary and

cortisol from the adrenal cortex. The sympathetic- adrenal-medulla (SAM) axis is involved in stress-induced secretions of norepinephrine from the brain stem and epinephrine from the adrenal medulla. CRH-induced pro-opiomelanocortin (POMC) derivatives from the pituitary inhibit the control of the hypothalamus over the gonadal axis [6]. In addition, glucocorticoids such as cortisol inhibit the gonadal axis as well. Stress and alterations in the HPA axis affect the hypothalamic–pituitary–gonad (HPG) axis, which are manifested in changes in sexual behaviour and in changes in LH and LHRH levels [7]. Hence, along with the development of infertility treatment technologies, dealing with the psychological pressure of infertile women is extremely important for the treatment procedure and contributes to the improvement of the treatment outcomes. Up to now, various methods have been developed to prepare the patients and improve their mental status, including psychotherapy, relaxation, stress management, cognitive-behavioural intervention, grief management, as well as sexual and marital disorder treatment [8]. India is a country with a billion plus population, and every minute a child is born. But, statistics shows that childlessness is around 2.5% in India. A child is born a minute, but either to a same family or to a family where already there is extrapols. Even with population explosion now, on the long run there may be families who do not have offspring's, to carry their genes and names. And of course it is a social issue in our culture. Even the small family norms have stated "we two ours one "stressing at least one for a family (K.Park 2014) [9]. Harvard Mental Health Letter (2013) reveals Drugs and hormones used to treat infertility may cause a variety of psychological side effects. For example, the synthetic estrogen clomiphene citrate (Clomid, Serophene), frequently prescribed because it improves ovulation and increases sperm production, may cause anxiety, sleep interruptions, mood swings, and irritability in women. (These side effects have not been documented in men.) Other infertility medications may cause depression, mania, irritability, and thinking problems [10]. Infertility can lead to considerable stress in infertile couples. Thus, coping strategies can significantly increase the quality of life among infertile couples. In contrast, failure to use coping strategies can result in bio-psychological disorders in infertile couples and even adversely affect their physiological functions [11]. Infertility is not merely a health problem; it is also a matter of social injustice and inequality. Infertility can have a serious impact on both the psychological well-being and the social status of women in the developing world. As a result of their infertile status, they suffer physical and mental abuse, neglect, abandonment, economic deprivation and social ostracism as well as exclusion from certain social activities and traditional ceremonies [12]. Since psychological counselling and perceived social support for infertile women have considerable effects on individuals' physical and mental status, and based on the international guidelines that states that fertility treatment centres are required to provide infertile with psychological counselling, and in addition due to the lack of exhaustive studies into the effects of nurse-led supportive counselling programs on women's perceived stress.

Everyone should have a healthy diet, rich in fresh fruits and vegetables, whole grain, and replacing animal fats with monosaturated oils and fish oils. A study in 2002 found that infertile men who took zinc and folic acid supplements daily for 6 months increased their sperm count by 74%. Researchers in India discovered an antioxidant, lycopene, which is found in watermelon, grapes, tomatoes and some sorts of shellfish can boost sperm concentration in infertile males [14].

Psychological support and ideal nursing consultations such as stress management, cognitive behavioural intervention, and self-help groups were an important way to make infertile patients ready to face this hard experience. Nurses working in the field of infertility aim to help such individuals to cope with these adverse effects and increase their well-being. Then, couples can manage their infertility crisis using these coping strategies since the diagnosis announce [15].

Actually, there is an international agreement that fertility centre's need to have necessary counselling programs for psychological problems of infertile couples. This is why it is crucial, on the one hand, to be able to determine the extent to which couples are affected by infertility stress at the beginning of the care process and, on the other hand, to develop a nursing consultation model to help them to start treatment successfully [16]. Despite the fact that various studies have demonstrated the importance of the mind–body connections and fertility, the psychosocial aspects of infertility have not been adequately addressed. Fertility treatments, ranging from medical monitoring, to hormonal remedies and *in vitro* fertilization (IVF), are both a physical and emotional burden on women and their partners. Psychological factors such as depression, stateanxiety, and stress-induced changes in heart rate and cortisol are predictive of a decreased probability of achieving a viable pregnancy. A couple that is trying to conceive will undoubtedly experience feelings of frustration and disappointment if a pregnancy is not easily achieved [17].

The present study will be conducted to identify the effects of nurse-led counselling programs on the perceived stress of the infertile females.

Statement of the problem

A study to assess the level of perceived stress and effectiveness of nurse led interventions on perceived stress in females with infertility attending SEEDLING IVF Clinic, Rohtak

Objectives

1. To assess the level of perceived stress in females attending SEEDLING IVF Clinic, Rohtak.
2. To find out the effectiveness of nurse led interventions in females attending SEEDLING IVF Clinic, Rohtak.
3. To find out association of demographic variables with perceived stress of females.

Operational Definition

Assess

It refers to the measurement of level of perceived stress in the infertile females.

Infertility

This includes females who are suffering from both primary and secondary infertility

Females: It refers to those females of age group 25-45 years who are diagnosed with infertility and attending selected private Clinic, Rohtak.

Effectiveness
It refers to the determination of the extent to which nurse led counselling meet the desired effect as measured with the help of perceived stress scale.

Perceived stress
It refers to the thoughts that females perceive due to the diagnosis of infertility.

Nurse led interventions
This refers to the health education, demonstration and videos as intervention which is used to improve the stress level of females attending SEEDLING IVF Clinic, Rohtak.

Research hypothesis
H01: There will be no effect of nurse led interventions on stress level of females with infertility.

H02: There will be no significant association between the demographic variables and perceived stress level of females attending infertility clinic.

Delimitations
- The study is limited to the females diagnosed with infertility
- The study is limited to females attending SEEDLING IVF Clinic, Rohtak.
- The study is limited to females of age group 25-45 years

Research Methodology
Keeping in view the objective of study, the research design selected for study One Group pre-test post-test research Design with quantitative approach. The study was conducted in SEEDLINGS IVF Clinic, Rohtak. The population of study comprised of females with infertility, age group 25-45 years in selected Clinic of District, Rohtak. The sample size is 60 females with infertility, age group 25-45 years. Convenient sampling technique was used for the selection of sample in this study.
Sampling criteria-The following was the criteria for selection of sample for the study,

Inclusion criteria
- Females who are attending Seedling IVF Clinic, Rohtak.
- Females who are willing to participate in the study.
- Females who can read and write Hindi and English.

Exclusion criteria
Females who are physically and mentally ill.

Research Variables
- **Demographic variables:** Demographic variables such as age, place of living, female education, husband education, self-occupation, husband's occupation, type family, religion, family income, type of infertility.
- **Independent variable:** Nurse led interventions
- **Dependent variable:** Perceived stress level

Ethical consideration
- Permission was obtained from the Ethical committee of Pt. B. D. Sharma, PGIMS, Rohtak.
- Permission was obtained from the HOD of obstetrical and gynecology in concerned hospital.
- Informed consent will be obtained from the participants who are willing to participate in the study.

Description of the tool
The final tool consists of the two sections:

Section 1: Self-structured questionnaire
Socio-demographic data for the females with infertility includes: age, place of living, female education, husband education, self-occupation, husband's occupation, type family, religion, family income, type of infertility.

Section-2: Perceived stress scale
- Structured scale consists of set of 10 questions to assess the level of perceived stress and answer choices ranges from 0 to 4 for each item; total score of 40
- The perceived stress is normal if total score obtained ranges of 0-10 points; it is week of 11-20 points; moderate of 21-30 points; and high of 31-40 points.

Pilot Study
Pilot study was conducted in the month of 6-16 February 2021 at SEEDLING IVF Clinic, District Rohtak. The investigator selected 10% (6) females with infertility. Responses were obtained and data was analysed by using descriptive and inferential statistics. The analysis of the pilot study found the feasibility to conduct the main study and also revealed that objectives of the study could be fulfilled. The pilot study subjects were excluded from the main study.

Data Collection Procedure
The data was collected during the month of 3 March to 3 April, 2021 from selected Clinic of District Rohtak. A written permission was obtained from HOD of OBG department at selected Clinic. Convenient Sampling Technique was used to select the sample. The subjects who met the designed inclusion criteria were included in the study. These females were consulted personally by the investigator. They were explained about the purpose and the nature of the study. Their informed consent was obtained before enrolling them in the present study. The investigator assessed existing stress level by using standardized PSS to females with infertility. After assessing existing stress level, females were given Health education.

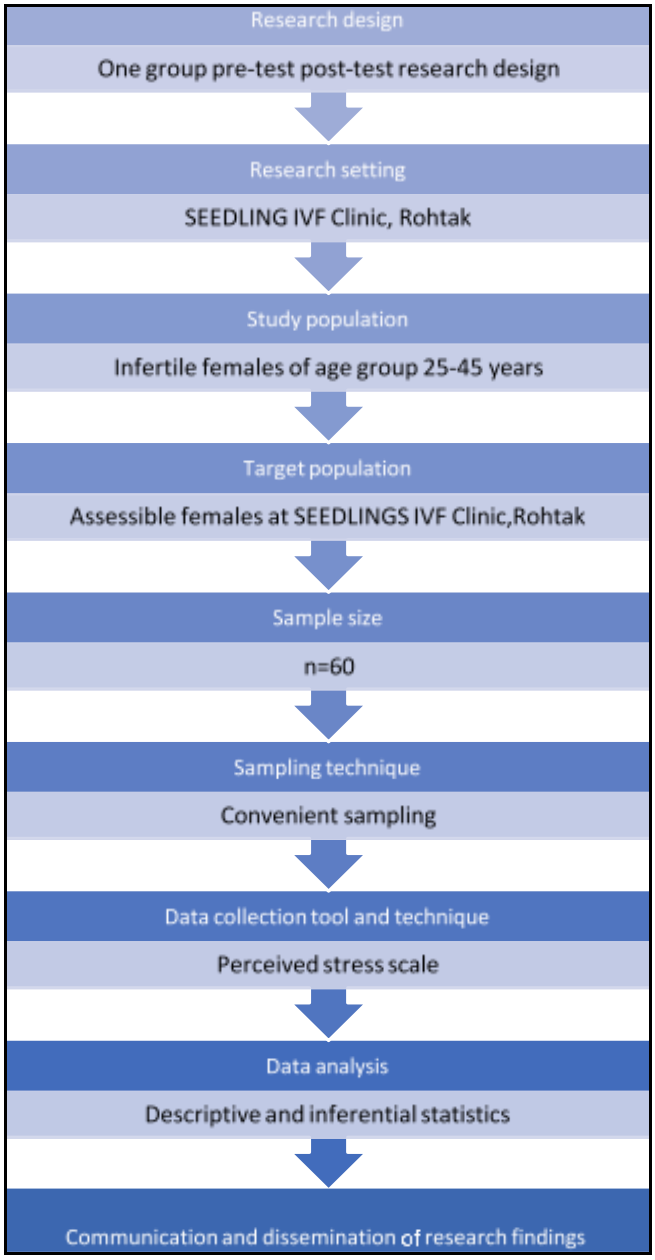

Fig 1: Flow chart of Research methodology.

Results: The data obtained was entered into the master sheet for tabulation and statistical processing. Both descriptive and inferential statistical method was used to analyze the collected data.

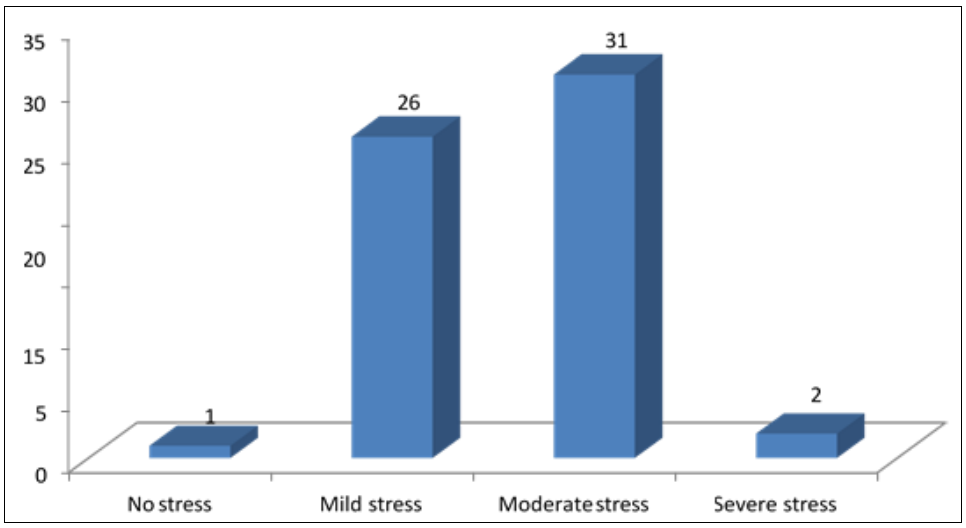

Fig 2: Bar graph showing frequency of subjects to stress level before interventions

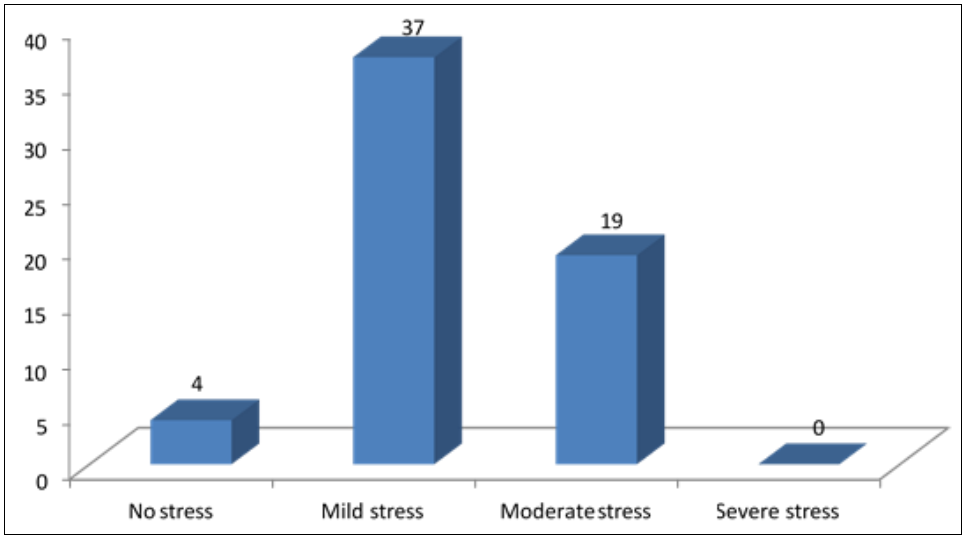

Fig 3: Bar graph showing frequency of subjects to stress level after interventions

Table 1: Showing frequency and percentage of demographic variables. (n=60)

Sr. No.	Sample Characteristics	F	%
1.	**Age**		
	a) 25-31 years	28	46.7
	b) 32-38 years	13	21.7
	c) 39-45 years	19	31.7
2.	**Educational Qualification (Self)**		
	a) Uneducated	0	0
	b) Primary	10	16.7
	c) Secondary	30	50
	d) Higher	20	33.3
3.	**Educational Qualification (Husband)**		
	a) Uneducated	0	0
	b) Primary	0	0
	c) Secondary	26	43.3
	d) Higher	34	56.7
4.	**Occupation (Self)**		
	a) House maker	42	70.0
	b) Private job	13	21.7
	c) Government job	5	8.3
5.	**Occupation (Husband)**		
	a) Farmer	14	23.3
	b) Private job	18	30.0
	c) Government job	28	46.7
6.	**Type of Infertility**		
	a) Primary	22	36.7
	b) Secondary	38	63.3
7.	**Religion**		
	a) Hindu	58	96.7
	b) Muslim	1	1.7
	c) Others	1	1.7
8.	**Area of Residence**		
	a) Urban	26	43.3
	b) Semi-urban	10	16.7
	c) Rural	24	40.0
9.	**Type of Family**		
	a) Nuclear	22	36.7
	b) Joint	38	63.3
	c) Extended	0	0
10.	**Total Family Income**		
	a) Below 10,000	0	0
	b) 10,000-20,000	1	1.7
	c) Above 20,000	59	98.3

Table 2: Effectiveness of nurse led interventions on stress level of females with infertility:

Perceived stress	Mean	Standard deviation	Paired 't' test	P value
Pre-stress level	20.10	4.832	15.828 (df=59)	0.001*
Post stress level	17.93	4.661		

Note: Level of Significance at 'p' value < than 0.05

Table 3: Showing level of association between socio-demographic variables and post stress level: (n=60)

Sr. No.	Demographic variable	Post stress level			Chi-square value	'P' value
1	**Age**	**No stress**	**Mild**	**Moderate**	7.49 (df=4)	0.112
	25-31 years	4	17	7		
	32-38 years	0	10	3		
	39-45 years	0	10	9		
2	Residence	No stress	Mild	Moderate	5.82 (df=4)	0.213
	Urban	4	15	7		
	Semi urban	0	6	4		
	Rural	0	16	8		
3	Occupation (Self)	No stress	Mild	Moderate	29.19 (df=4)	0.00*
	Home maker	0	27	15		
	Private job	1	10	2		
	Government job	3	0	2		
4	Occupation (Husband)	No stress	Mild	Moderate	2.40 (Df=4)	0.661
	Farmer	0	10	4		
	Private job	1	10	7		
	Government job	3	17	8		
5	Family income	No stress	Mild	Moderate	0.632 (df=2)	0.729
	Below 10,000	0	0	0		
	10,000-20,000	0	1	0		
	Above 20,000	4	36	19		
6	Religion	No stress	Mild	Moderate	2.793 (df=4)	0.593
	Hindu	4	36	19		
	Muslim	0	1	0		
	Others	0	0	0		
7	Education (Self)	No stress	Mild	Moderate	12.62 (df=4)	0.013*
	Primary	0	4	6		
	Secondary	0	22	8		
	Higher	4	11	5		
8	Education (Husband)	No stress	Mild	Moderate	3.72 (df=2)	0.155
	Primary	0	0	0		
	Secondary	0	16	10		
	Higher	4	21	9		
9	Family type	No stress	Mild	Moderate	3.601 (df=2)	0.165
	Nuclear	1	17	4		
	Joint	3	20	15		
	Extended	0	0	0		
10	Infertility type	No stress	Mild	Moderate	1.65 (df=2)	0.438
	Primary	3	20	8		
	Secondary	1	17	11		

Note: Level of Significance at 'p' value < than 0.05

Discussion

Table 1 indicates that according to the age maximum numbers of females were in the age group of 25-31 years 28(46.7%), followed by 13(21.7%) in the age group of 31-38 years and 19(31.7%) were in age group of 39-45 years. Regarding education qualification, no female is uneducated, 10(16.7%) females were primary educated, 30(50%) were secondary and 20(33.3%) were higher educated. Regarding education of husband, no male were uneducated, 26 (43.3%) were secondary educated, 34(56.7%) were highly educated. Results regarding occupation revealed that 42(70%) were housewife, 13(21.7%) were on private job and 5(8.3%) were on government job. Results regarding occupation of husband revealed that 14(23.3%) were farmers, 18(30%) were on private job, 28(46.7%) were on government job. The study results depicted that 22(36.7%) were suffering from primary infertility and 38(63.3%) suffering from secondary infertility. Results regarding the religion revealed that maximum number of subjects were from Hindu community 58(96.7%), 1(1.7%) from muslim community and 1(1.7%) from other community. Study revealed that 26(43.3%) of subjects were living in the urban area and 10(16.7%) were from semi-urban and 24(40%) were belongs to rural area. The study results showed that maximum numbers of subjects were living in the joint family i.e. 38(63.3%) and 22(36.7%) were in nuclear family. Results regarding the total family income shows that maximum subjects earn above 20,000 i.e. 59(98.3%), and 1(1.7%) earn 10,000-20,000. These findings were supported by Patel Ansha, Sharma P. S. V. N., Narayan Pratap Kumar et.al. (Nov. 2015) [21].

Figure 2 shows that Out of 60 females, majority of females 31(51.7%) had moderate stress followed by 26(43.3) having mild stress, 1(1.7%) female had no stress and 2(3.3%)

females were had severe stress. Figure 3 shows that Out of 60 subjects, majority of females 37(61.7%) had mild stress level followed by 19(31.7%) had moderate stress, 4(6.7%) had no stress and no female had severe stress.

Table 2 depicts that the mean pre stress level of females was higher 20.10 as compared to post stress level 17.93. There was statistically significant difference between pre stress level and post stress level of females ($p< 0.05$). These findings were supported by Chaudhuri Arunima, Ray Manjushree (Feb. 2019) [22] and Zaidoun Asmaa (July, 2009) [23].

Table 3 presents the association between the post-stress scoring with selected socio-demographic variable. There is significance association between the post-stress scoring and demographic variables *viz*; occupation (x^2=29.19, p value=0.000) or education(x^2=12.62, p value=0.013). There is no significant association between post stress scores and other demographic variables (Age, family type, Religion, occupation (Husband), infertility type).

Recommendations

Study can be replicated on large sample size with longer duration in different setting so that the findings can be generalized to large population.

A study can be conducted with two groups like experimental and control group for comparison between pre and post stress level.

The study can be replicated in different settings to strengthen the findings.

Prevalence study can be done to find out the prevalence of stress level among the females with infertility.

Conflict of interest: Nil

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