

A Quasi-Experimental Study To Assess The Impact Of Nurse Led Counselling Program On Anxiety And Depression Among Women Undergoing Fertility Treatment At Selected Hospitals Of Punjab.

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ABSTRACT

Background: Infertility is a significant reproductive health concern that affects not only the physical well-being of women but also their psychological, emotional, and social health. Women undergoing fertility treatment frequently experience anxiety and depression due to uncertainty regarding treatment outcomes, repeated and invasive procedures, financial burden, social stigma, and familial expectations related to motherhood. These psychological difficulties may adversely influence treatment adherence, coping ability, quality of life, and the overall fertility treatment experience. Despite advances in reproductive medicine, psychological support is often inadequately integrated into routine fertility care. Nurses, because of their continuous and close interaction with patients, are well positioned to provide structured counselling, emotional support, education, and relaxation strategies. Therefore, this study aimed to assess the impact of a Nurse Led Counselling Program on anxiety and depression among women undergoing fertility treatment at selected hospitals of Punjab.

Method: A quantitative research approach with a quasi-experimental two-group pre-test post-test control group design was adopted. The study included 200 women undergoing fertility treatment at selected hospitals of Punjab, with 100 participants each in the experimental and control groups. Participants were recruited using a non-probability consecutive sampling technique and subsequently allocated randomly to the two groups. Anxiety and depression were assessed using the standardized State-Trait Anxiety Inventory (STAI) and Beck Depression Inventory (BDI), respectively. The Nurse Led Counselling Program consisted of educational components, emotional support, and relaxation techniques delivered to the experimental group over four weeks through eight group sessions, twice weekly, with each session lasting approximately 30–40 minutes.

Results: Findings divulged that before the intervention, high levels of psychological distress were evident among participants in both groups. Following the Nurse Led Counselling Program, a substantial improvement was observed in the experimental group, with 76% of participants having low anxiety and 56% having minimal depression, whereas 87% of participants in the control group continued to have high anxiety and 70% had moderate depression. The experimental group's mean anxiety score changed significantly from 21.827 ± 3.14 to 43.051 ± 1.62 ($t = 22.618$, $p < 0.001$), whereas the control group's change from 19.573 ± 3.68 to 23.151 ± 2.94 was statistically non-significant ($p = 0.194$). Similarly, the experimental group's mean depression score changed significantly from 16.273 ± 2.62 to 38.491 ± 0.94 ($t = 23.075$, $p < 0.001$), while the control group's change from 15.853 ± 3.08 to 17.064 ± 2.81 was statistically non-significant ($p = 0.259$). A strong positive correlation was also observed between post-test anxiety and depression scores ($r = 0.627$, $p = 0.048$). These findings demonstrated the effectiveness of the Nurse Led Counselling Program in reducing anxiety and depression among women undergoing fertility treatment.

Conclusion: The study concluded that the Nurse Led Counselling Program was effective in reducing anxiety and depression among women undergoing fertility treatment. The structured combination of education, emotional support, counselling, and relaxation techniques contributed to improved psychological well-being and coping among participants. The findings emphasize the importance of integrating nurse-led psychological counselling into routine fertility care to provide comprehensive and holistic support to women undergoing fertility treatment.

Key words: women undergoing fertility treatment; Nurse Led Counselling Program; anxiety; depression; infertility

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INTRODUCTION

Inherent in a person's biology is the ability to procreate, which is also known as fertility. Despite its strong

relationship to a person's emotional, social, and mental well-being, it is often disregarded as a purely biological phenomenon.⁽¹⁾ A woman's fertility and the role she

plays as a mother are highly esteemed in many nations and cultures.(2)

Infertility affects people all around the world and is a major public health problem. Infertility affects around 10-15% of couples globally, according to the World Health Organization (WHO).(3) Despite the fact that infertility affects individuals of all economic and cultural backgrounds, not everyone has access to the therapy they need. Infertility is a medical issue that calls for care, medication, and understanding.(4) Infertility may impact not only the couple but also their extended family relationships, which in turn can have a domino effect in the community. The continuity of families and people's ability to meet societal and cultural expectations for parenting may be fostered when infertility is treated.(5) Infertility treatment is becoming more important as fertility rates fall in certain areas. Addressing infertility via affordable therapies becomes crucial to preserving population levels and socioeconomic systems in nations where birth rates are declining.(6) The psychological and social well-being of both men and women are profoundly impacted by infertility. When compared to fertile individuals, those who are infertile are more likely to suffer from psychiatric disorders like GAD, MDD, and sexual dysfunction.(7)

Many women going through infertility treatments do not seek proper psychological help, despite the fact that they face tremendous mental obstacles. Women often hesitate to seek help due to the stigma associated with infertility and the belief that they have failed.(8) Life satisfaction and marital adjustment levels were lower in infertile women compared to the fertile group.(9)

The higher levels of reported anxiety and depression among women dealing with infertility, together with the larger emotional and social hardships they endure, are believed by researchers to be the cause of the gender gap in psychopathology.(10) Researchers in Korea looked at the effects of IVF/ICSI on anxiety, depression, and erectile dysfunction in women, along with the fact that women undergoing reproductive treatments had a higher rate of anxiety and depression compared to healthy controls.(11)

Anxiety and depression are quite common among Indian women receiving fertility treatments; studies have shown rates of anxiety ranging from around 16% to 46.2% and rates of depression from 20% to 55.3%. The intrusiveness of therapies, hormonal shifts, societal shame, inadequacy, and financial implications all add to this emotional toll.(12) Infertile women and fertile women were compared to measure anxiety, depression, and quality of life. The study found that compared to fertile women, infertile women had a worse quality of life across several dimensions, more anxiety, and more sadness.(13)

Women undergoing fertility treatment frequently experience considerable anxiety and depression due to treatment uncertainty, repeated procedures, fear of failure, social expectations, and emotional distress. Despite these psychological challenges, fertility care

often remains primarily focused on medical treatment, leaving a significant need for structured and continuous emotional support.(14,15) A Nurse Led Counselling Program can bridge this gap because nurses remain in close and regular contact with women throughout fertility treatment. Structured nurse-led education, emotional support, counselling, and relaxation techniques can provide an accessible and practical approach to reducing anxiety and depression and promoting better psychological well-being during fertility treatment.(16,17)

The available evidence highlights a substantial psychological burden among women undergoing fertility treatment, particularly in relation to anxiety and depression. Infertility and its treatment are frequently accompanied by uncertainty regarding treatment outcomes, repeated medical procedures, financial concerns, social stigma, familial expectations, and fear of treatment failure, which may adversely affect women's emotional well-being and ability to cope. Despite the considerable prevalence of psychological distress among these women, emotional and psychological support is often inadequately incorporated into routine fertility care. Existing evidence also indicates that structured psychological interventions, including counselling, education, emotional support, mindfulness, and relaxation techniques, may help reduce anxiety and depression and improve coping during fertility treatment.

Objectives: To assess the impact of nurse led counselling program on anxiety and depression among women undergoing fertility treatment at selected hospitals of Punjab.

Materials and Methods: The current study adopted a quantitative research approach using a quasi-experimental two-group pre-test post-test control group design to assess the impact of a Nurse Led Counselling Program on anxiety and depression among women undergoing fertility treatment at selected hospitals of Punjab. A total of 200 women undergoing fertility treatment, aged 20–45 years, were recruited using a non-probability consecutive sampling technique and subsequently allocated randomly into experimental and control groups, with 100 participants in each group. Data were collected using standardized research instruments consisting of socio-demographic variables, the State-Trait Anxiety Inventory (STAI) for assessing anxiety, and the Beck Depression Inventory (BDI) for assessing depression. The experimental group received a structured Nurse Led Counselling Program, comprising educational components, emotional support, and relaxation techniques, delivered over four weeks through eight group sessions, twice weekly, with each session lasting approximately 30–40 minutes, while the control group received no intervention. Ethical approval and necessary administrative permissions were obtained before data collection. The collected data were coded, organized, and analyzed using appropriate descriptive and inferential statistical techniques. Frequency,

A Quasi-Experimental Study To Assess The Impact Of Nurse Led Counselling Program On Anxiety And Depression
Among Women Undergoing Fertility Treatment At Selected Hospitals Of Punjab.

percentage, mean, and standard deviation were used to summarize the study variables, while appropriate statistical tests were applied to determine the effectiveness of the intervention, examine the correlation between post-test anxiety and depression, and assess their association with selected socio-demographic variables at a 0.05 level of significance.

Table-1 Frequency and Percentage Distribution of Socio-Demographic Variables:

Socio-demographic Profile		Experimental group (N=100)		Control group (N=100)		Chi-square	p-value
		F	%	F	%		
Age in years	20-25 years	8	8.0	13	13.0	3.271	0.827
	26-30 years	27	27.0	29	29.0		
	31-35 years	59	59.0	53	53.0		
	36-40 years	5	5.0	3	3.0		
	> 40 years	1	1.0	2	2.0		
Duration of marriage in years	< 3 years	13	13.0	9	9.0	1.361	0.501
	3-7 years	18	18.0	19	19.0		
	> 7 years	69	69.0	72	72.0		
Religion	Hindu	53	53.0	59	59.0	5.168	0.296
	Sikh	16	16.0	13	13.0		
	Muslim	09	09.0	04	04.0		
	Christian	22	22.0	24	24.0		
	Joint family	58	58.0	61	61.0	1.928	0.165

Results and Discussion: Obtained information were analyzed and grouped as per objectives of the study. The result reflected in tabular and graphics form. Table-1 communicated the frequency of socio-demographic variables of study participants.

Type of family	Nuclear family	42	42.0	39	39.0		
Residential area	Urban	62	62.0	56	56.0	2.672	0.347
	Rural	33	33.0	37	37.0		
	Semi-urban	05	5.0	07	7.0		
Educational status	No formal education	09	09.0	12	12.0	6.158	0.485
	Primary education	47	47.0	53	53.0		
	Secondary education	38	38.0	32	32.0		
	Graduation or above	06	6.0	03	3.0		
Occupational status	Housewife	68	68.0	76	76.0	3.628	0.627
	Private job	26	26.0	21	21.0		
	Self-employed	04	4.0	02	2.0		
	Government	02	2.0	01	1.0		
	< 20,000	1	1.0	3	3.0	5.183	0.614

A Quasi-Experimental Study To Assess The Impact Of Nurse Led Counselling Program On Anxiety And Depression Among Women Undergoing Fertility Treatment At Selected Hospitals Of Punjab.

Family's monthly income	20,001 to 30,000	23	23.0	29	29.0		
	30,001 to 40,000	62	62.0	53	53.0		
	> 40,001	14	14.0	15	15.0		
Dietary habits	Vegetarian	59	59.0	67	67.0	3.048	0.217
	Mixed	41	41.0	33	33.0		
Substance use	Alcohol	2	2.0	1	1.0	5.107	0.096
	Smoking	06	6.0	12	12.0		
	Tobacco	19	19.0	15	15.0		
	None	73	73.0	72	72.0		
	Yes	13	13.0	19	19.0	1.096	0.317

In both groups, the majority of participants belonged to the 31–35 years age group (59% and 53%, respectively), had been married for more than 7 years (69% and 72%), were Hindu (53% and 59%), belonged to joint families (58% and 61%), and resided in urban areas (62% and 56%). Most participants had primary education (47% and 53%) and were housewives (68% and 76%). Regarding economic status, the majority reported a monthly family income of ₹30,001–₹40,000 (62% and 53%), while most followed a vegetarian diet (59% and 67%). The majority reported no substance use (73% and 72%) and had no previous history of pregnancy loss or miscarriage (87% and 81%). Regarding the identified cause of infertility, unexplained infertility was most common (73% and 68%), while the majority of participants reported having family support for fertility treatment (67% and 62%) in the experimental and control groups, respectively. The obtained p-values for all socio-demographic variables were greater than 0.05, indicating that there was no statistically significant difference between the experimental and control groups and that both groups were homogeneous and comparable at baseline.

Previous pregnancy loss or miscarriage	No	87	87.0	81	81.0		
Any known cause of infertility	Male factor	1	1.0	3	3.0	6.792	0.268
	Female factor	8	8.0	6	6.0		
	Both	18	18.0	23	23.0		
	Unexplained	73	73.0	68	68.0		
Family support for treatment	Yes	67	67.0	62	62.0	1.376	0.097
	No	33	33.0	38	38.0		

Table:2 Comparison of distribution of anxiety level among participants before and after nurse led counselling program among both groups:

N=200

Anxiety Level	Experimental group (N=100)				Control group (N=100)			
	Pre-test		Post-test		Pre-test		Post-test	
	F	%	F	%	F	%	F	%
Low anxiety	12	12.0	6	6.0	06	6.0	08	8.0
Moderate anxiety	5	5.0	18	18.0	05	5.0	05	5.0
High anxiety	83	83.0	06	6.0	89	89.0	87	87.0

A Quasi-Experimental Study To Assess The Impact Of Nurse Led Counselling Program On Anxiety And Depression Among Women Undergoing Fertility Treatment At Selected Hospitals Of Punjab.

In the experimental group, 83% had moderate anxiety at pre-test, which decreased to 6% at post-test, while low anxiety increased from 12% to 76% and mild anxiety from 5% to 18%. In the control group, anxiety levels remained largely unchanged, with 89% having moderate anxiety at pre-test and 87% at post-test, while low anxiety increased slightly from 6% to 8%. Overall, the findings demonstrated a substantial reduction in anxiety in the experimental group following the intervention, with no meaningful change in the control group.

Table:3 Effectiveness of nurse led counselling program on anxiety among women undergoing fertility treatment:

Groups	Experimental group-1		Experimental group-2	
	Pre-test	Post-test	Pre-test	Post-test
Mean	21.827	43.051	19.573	23.151
Standard Deviation	3.14	1.62	3.68	2.94
T test	22.618		16.709	
P value	<0.001		0.194	

In the experimental group, the mean anxiety score increased significantly from 21.827 ± 3.14 to 43.051 ± 1.62 ($t = 22.618$, $p < 0.001$), indicating a significant reduction in anxiety. In the control group, the mean score changed from 19.573 ± 3.68 to 23.151 ± 2.94 , which was statistically non-significant ($p = 0.194$). Thus, it confirmed that the effectiveness of the Nurse Led Counselling Program in reducing anxiety.

Table:4 Comparison of distribution of depression level among participants before and after nurse led counselling program among both groups:

Depression Level	Experimental group (N=100)				Control group (N=100)			
	Pre-test		Post-test		Pre-test		Post-test	
	F	%	F	%	F	%	F	%
Minimal depression	2	2.0	56	56.0	0	4.0	0	5.0
Mild depression	2	21.0	3	33.0	1	19.0	2	24.0
Moderate	7	72.0	0	6.0	7	76.0	7	70.0

depression								
Severe depression	5	5.0	0	5.0	0	1.0	0	1.0

In the experimental group, 72% had moderate depression at pre-test, which decreased substantially to 6% at post-test, while minimal depression increased from 2% to 56% and mild depression from 21% to 33%. In the control group, moderate depression decreased only slightly from 76% to 70%, with minimal and mild depression showing marginal changes. Overall, the findings demonstrated a substantial reduction in depression in the experimental group following the intervention, while the control group showed no meaningful improvement.

Table:5 Effectiveness of nurse led counselling program on depression among women undergoing fertility treatment:

Groups	Experimental group-1		Experimental group-2	
	Pre-test	Post-test	Pre-test	Post-test
Mean	16.273	38.491	15.853	17.064
Standard Deviation	2.62	0.94	3.08	2.81
T test	23.075		18.176	
P value	<0.001		0.259	

In the experimental group, the mean depression score increased significantly from 16.273 ± 2.62 to 38.491 ± 0.94 ($t = 23.075$, $p < 0.001$), indicating a significant reduction in depression. In the control group, the mean score changed from 15.853 ± 3.08 to 17.064 ± 2.81 , which was statistically non-significant ($p = 0.259$). Thus, the findings confirmed the effectiveness of the Nurse Led Counselling Program in reducing depression among women undergoing fertility treatment.

DISCUSSION:

The study findings revealed that the Nurse Led Counselling Program was effective in reducing anxiety and depression among women undergoing fertility treatment. The structured combination of education, emotional support, counselling, and relaxation techniques contributed to improved psychological well-being and coping among participants. A has supported the findings of present study by demonstrated that the post-test score for anxiety and depression among women receiving infertility treatment was higher than the pre-test which indicated that nursing supported intervention is impactful.(18) These findings are strengthening the evidences. Another study also stated that the post-test

level of emotional well-being was improved after the nurse-led counseling program among women undergoing assisted reproductive techniques.(19) Researchers presented their findings in support to this study, which stated that there is a visible difference in pretest and post-test score of anxiety and depression of infertile women. Here the nurse and physician based intervention was effective to reduce their anxiety and depression.(20) It was supported by a systematic review and meta-analysis to the present study by stating the nursing interventions are significantly reducing the anxiety and depression level which were reflected an overall pooled standardized mean difference.(21) Another investigation found with similar findings which stated that the post-test anxiety and depression mean level were higher than the pre-test after nurse led psychological counselling, which was clearly stated that the nurse-led interventions are helping to reduce anxiety and depression.(22) This is clearly strengthening the evidences. Few investigators presented their findings of systematic review which are supporting present study findings, as it indicated that the structured health education is helping the women receiving infertile treatment, which enhancing the evidence of existing nurse-led counselling program.(23) Another investigation has supported present findings by stating that the interventional arm received nursing intervention and it helped to reduce stress, anxiety and depression among women undergoing in vitro fertilization.(24) Researchers supported the present findings which stated that the t-test value among experimental group for anxiety were significantly different among before and after intervention.(25)

Limitations of the study

- The quasi-experimental design without full randomization may limit the strength of causal conclusions regarding the effectiveness of the Nurse Led Counselling Program.
- The study was limited to 200 women from selected hospitals in Punjab, restricting the generalizability of the findings to other populations and settings.
- The short intervention and follow-up period limited the assessment of the long-term sustainability of reductions in anxiety and depression.

Conclusion:

The findings of the present study revealed that women undergoing fertility treatment experienced considerable levels of anxiety and depression before the intervention. Following the Nurse Led Counselling Program, a marked reduction in anxiety and depression was observed among participants in the experimental group, while the control group showed minimal change. The statistically significant differences in post-test anxiety and depression scores demonstrated the effectiveness of the intervention in improving participants' psychological well-being. Overall, the study concludes that a structured Nurse Led Counselling Program is an effective strategy

for reducing anxiety and depression among women undergoing fertility treatment.

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