

Effectiveness of Structured Teaching Programme on Knowledge Regarding Advance Infertility Treatment among B.Sc. Nursing 3rd Year Students in Selected Nursing Colleges of Shimla, HP: A Quasi-Experimental Study

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Abstract: ***Background:** Infertility is a major global health concern. Advances in assisted reproductive technologies have expended treatment options for infertile couples. Adequate knowledge of these advances is essential for nursing students to provide effective evidence-based care and counselling. **Objectives:** To Evaluate the Effectiveness of Structured Teaching Program on Knowledge regarding Advance Infertility Treatment among B.Sc. Nursing 3rd year students in selected Nursing Colleges of Shimla, HP. **Methods and materials:** A quasi-experimental, non-randomized control group design was adopted among 92 B.Sc. nursing 3rd year students selected through purposive sampling from selected nursing colleges in Shimla, Himachal Pradesh. Data were collected using a self-structured knowledge questionnaire. A structured teaching programme was administered after the pre-test, followed by a post-test after eight days. **Results:** The finding reveals that most participants had moderate knowledge before the intervention. After the structured teaching programme, 95.7% of participants in the experimental group attained adequate knowledge, while 89.1% of the control group remained at a moderate level. The experimental group showed a significant improvement in mean knowledge scores from 17.35 ± 2.34 to 32.96 ± 2.56 ($p < 0.001$), whereas no significant change was observed in the control group.*

Keywords: Advance, Infertility, treatment, Structured teaching programme, knowledge, Nursing Students

1. Introduction

Infertility is a tragic condition, a significant social and medical problem affecting couples worldwide. The World Health Organization (WHO) defines infertility as a disease of the male or female reproductive system characterized by the failure to achieve a clinical pregnancy after 12 months or more of regular, unprotected sexual intercourse. Though Infertility does not claim an individual's life, it is devastating emotional trauma on the individual for being unable to fulfil the biological role of parenthood for no fault of his/her own. [1]

According to the WHO (2023) around 17.5% of the adult population 1 in 6 worldwide experience infertility, showing the urgent need to increase access to affordable, high-quality fertility care for those in need. Lifetime prevalence was 17.8% in high-income countries and 16.5% in low- and middle-income countries. [2]

A multinational study carried out by World Health Organization to determine gender distribution and Infertility etiologies. In 37% of Infertile couples, female couples were the cause in 35% of couples, both male and female causes were identified in 8% there was male factor infertility. [3] Advancement in infertility treatment such as Intrauterine Insemination (IUI) improve fertilization chances with success rate 10-20% per cycle. In Vitro Fertilization (IVF) a widely used ART technique with success rate 40-50%. Intracytoplasmic Sperm Injection (ICSI) is specialized IVF

procedure with success rate IVF (40-50%). [4] Frozen Embryo Transfer (FET) Embryos from a previous IVF cycle are frozen and transferred later when conditions are optimal. In vitro maturation (IVM) is an advance reproductive technique in which immature eggs are collected from the ovaries and allowed to mature in a laboratory setting before fertilization. [5] PGT (Preimplantation Genetic Testing). PGT screens embryos for genetic abnormalities before implantation. [6] Stem cell therapy is emerging as a promising advancement in the field of reproductive medicine. [7] Modern technologies Artificial Intelligence (AI) identify the healthiest embryos, improve success rates and reduce miscarriages. [8] Educating future professionals regarding recent advancements in infertility enable them to provide accurate information, support, holistic care to infertile couples.

2. Objectives

- 1) To assess the level of Knowledge regarding Advance Infertility Treatment among B.Sc. Nursing 3rd year students in selected Nursing Colleges of Shimla in Experimental group and Control group.
- 2) To Evaluate the Effectiveness of Structured Teaching Program on Knowledge regarding Advance Infertility Treatment among B.Sc. Nursing 3rd year students in selected Nursing Colleges of Shimla in Experimental Group.

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3. Methodology

Quantitative research approach, a quasi-experimental non-randomized control group research design was adopted to accomplish the main objectives of the study. The study was conducted at Shivalik Institute of Nursing and Sister Nivedita college of nursing Shimla - HP. Sample size was 92 nursing students, selected by using purposive sampling technique (non-probability sampling technique).

4. Results

Analysis and interpretation of data

Among participants in both groups, the majority were aged 20–22 years in the experimental 93.5% and control, 87.7%

groups. Most participants were Hindu in the experimental 93.5% and control 100% groups and resided in hostels 91.7% and 80.4%, respectively. Participants Mothers were predominantly graduates (23, 50.0% and 18, 39.1%), as were participants fathers (29, 63.0% and 22, 47.8%). Most belonged to the middle-income category (17, 37.0% and 24, 52.2%). The majority had previous knowledge about infertility (40, 87.0% in both groups), with teachers as the main source of information (25, 54.3% and 28, 60.9%). Most of participants had no family history of infertility (36, 78.3% in both groups), and only a few reported known infertility-related family history.

Table 1: Distribution of Participants according to Knowledge Levels Before and after the Intervention, N=92

Level of Knowledge	Range	Experimental Pre-Test f (%)	Experimental Post-test f (%)	Control Pre-Test f (%)	Control post-test f (%)
Adequate	27-40	-	44 (95.7)	-	-
Moderate	26-14	43 (93.5)	2 (4.3)	38 (82.6)	41 (89.1)
Inadequate	0-13	3	-	8 (17.4)	5 (10.9)
Maximum Score =40				Minimum Score=0	

Finding related to effectiveness of structured teaching programme

The findings show that the experimental group had an increase in mean knowledge score from 17.35 ± 2.340 in the pre-test to 32.96 ± 2.564 in the post-test. The calculated paired 't' value (32.382) was higher than the table value (2.021) with $p < 0.001$, indicating a highly statistically significant improvement in knowledge. In the control group, the mean knowledge score decreased slightly from 16.37 ± 2.462 in the pre-test to 16.30 ± 2.128 in post-test. The calculated paired 't'

value (0.279) was lower than the table value (2.021) with $p = 0.781$, indicating no statistically significant difference in control group. The unpaired 't' test showed that there was no significant difference between the experimental and control groups in the pre-test ($t = 1.953$, $p = 0.054$). However, a highly statistically significant difference was observed in the post-test ($t = 33.894$, $p < 0.001$), demonstrating the effectiveness of the intervention in improving knowledge in the experimental group.

Table 2: Comparison of pre-test and post-test knowledge score by paired 't' test.

Group	N	Pre-test Mean $\pm$ SD	Post-test Mean $\pm$ SD	Mean Difference	Paired 't'	df	p-value
Experimental	46	17.35 ± 2.340	32.96 ± 2.564	15.61	32.382*	45	< 0.001
Control	46	16.37 ± 2.462	16.30 ± 2.128	-0.07	0.279	45	0.781

The experimental group shows a statically significant improvement knowledge score after the intervention ($p < 0.001$), whereas control group showed no significant improvement ($p = 0.781$)

Table 3: Comparison of pretest and post- test knowledge score by unpaired 't' test.

Test	Experimental Mean $\pm$ SD	Control Mean $\pm$ SD	Mean Difference	df	Unpaired 't'	p-value
Pre-test	17.35 ± 2.340	16.37 ± 2.462	0.98	90	1.953	0.054
Post-test	32.96 ± 2.564	16.30 ± 2.128	16.66	90	33.894*	<0.001

In pre-test Experimental (17.35 ± 2.340) and control (16.37 ± 2.462) showed no significant difference ($t = 1.953$, $p = 0.054$). Post-test results showed that Experimental (32.96 ± 2.564) had significantly higher knowledge than control (16.30 ± 2.128) ($t = 33.894$, $p < 0.001$).

5. Discussion

First Objective The first objective was to assess the level of knowledge regarding advanced infertility treatment among B.Sc. Nursing 3rd-year students in the experimental and control groups. In the pre-test, the majority had moderate knowledge (93.5% experimental and 82.6% control), while

inadequate knowledge was found in 6.5% experimental and 17.4% control group no students had adequate knowledge. In the post-test, 95.7% of the experimental group achieved adequate knowledge, while 4.3% had moderate knowledge and no students had inadequate knowledge. In contrast, the control group had no students with adequate knowledge, with 89.1% having moderate and 10.9% having inadequate knowledge.

The result of the present study is consistent with the study findings of Mathew Nimmy, KV Deeksha, James Jilna, RN Ashwani Gundam Honey (2024) conducted a study in Karnataka with 80 nursing students Data collected with

structured questionnaires. The study finding reveals that in Pre- test 76 % students had average knowledge about assisted reproductive technology. [9] The result of the present study is contradictory **Rakshitha, Maya VK, D Souza Laveena Manila (2024)** conducted a cross-sectional descriptive study on knowledge and attitude regarding in-vitro fertilization (IVF) among B.Sc. Nursing students at Sri Siddhartha College of Nursing, Tumkur, Karnataka with 60 sample The findings revealed that majority of students 55% had inadequate knowledge regarding IVF. [10]

Second objective was to Evaluate the Effectiveness of a Structured Teaching Programme on Knowledge Regarding Advance Infertility Treatment among B.Sc. Nursing 3rd year Students in Selected Nursing Colleges of Shimla in Experimental group. The mean knowledge score of the experimental group increased significantly from 17.35 ± 2.340 (43.37%) in the pre-test to 32.96 ± 2.564 (89.39%), with a mean difference of 15.61 and a highly significant paired 't'-value (33.894 $p < 0.001$).

The findings of the present study are supported by the study conducted by **Kaur Harpreet and Sharma Neelam (2022)** among nursing students regarding assisted reproductive technologies. with 60 nursing students. The study reported that the mean pre-test knowledge score was 18.24 ± 3.12 , which increased to 30.87 ± 2.95 in the post-test and paired 'value was 28.41, which was statistically significant at $p < 0.001$. [11] However, the findings of the present study are contradictory to the study conducted by **Zahra Tayebi, Fateme Behmaneshpour, Zahra Mehdizadeh Tourzani, Farzaneh Khaghkhagh, Mohammad Falahatdari, Mohammad Mahdi Khorasani et.al** on effects of micro learning on the fertility knowledge and attitude among 90 Iranian nursing students. The study finding reveals that there was a significant difference in the mean fertility knowledge before training (8.4 ± 1.97) and immediately after training (9.95 ± 1.68) ($p < 0.001$) and in the second measurement after training (9.95 ± 1.68) ($p < 0.001$). However, no significant difference was observed in the mean fertility knowledge immediately after the training and in the second measurement after the training ($p = 0.69$). [12]

6. Limitation of the Study

The study was conducted in two selected institutions with a sample size 92 nursing students (46 experimental and 46 control group) which limited the generalizability of findings. Additionally, the short duration of follow up did not allow assessment of long-term retention of knowledge.

7. Nursing Implications

- 1) **Nursing practice:** The findings highlight that nurses can play an important role in improving awareness of advanced infertility treatments through simple health education and counselling. They can also provide emotional support and guide couples towards appropriate infertility services.
- 2) **Nursing education:** The finding highlights need of nursing education to strengthen knowledge of infertility and advanced treatment options. Practical and case -based learning can help students develop confidence in proving infertility refracted care.

- 3) **Nursing Administration:** Nursing administrators should provide regular educational programme to keep nurses updated about advances in infertility treatment. Adequate resources and teamwork with fertility specialists can further improve patient care.
- 4) **Nursing Research:** The findings provide a basis for further research on advance infertility treatment among nursing students and healthcare professionals. Future studies can evaluate educational programme for improving knowledge, attitudes and confidence in infertility care.

8. Conclusion

The structured teaching programme was effective in significantly improvement of knowledge of nursing students regarding advance infertility treatment. Improved knowledge in nursing students is important because nurses play a significant role in educating counselling supporting individual and couples undergoing fertility treatment.

9. Recommendations

- 1) Similar study can be conducted with larger groups of nursing students from different colleges and areas to make finding more widely applicable.
- 2) Comparative study can be done using different teaching methods such as structured teaching programme, video-assisted study, multimedia to find out which method is more effective in improving students' knowledge regarding advance infertility treatment.
- 3) Similar studies can be carried out by using randomized controlled designs to get stronger evidence on the effectiveness of structured teaching programme regarding advance infertility treatment.

References

- [1] Dutta D. Textbook of Obstetrics [Internet]. 9TH ed. KONAR H, editor. NEW Delhi: Jaypee publication; 2018. Available from: jaypee@jaypeebrothers.com
- [2] World Health Organization. 1 in 6 People Globally Affected by Infertility [Internet]. www.who.int. 2023. Available from: <https://www.who.int/news/item/04-04-2023-1-in-6-people-globally-affected-by-infertility>.
- [3] Walker MH, Tobler KJ. Female Infertility [Internet]. PubMed. Treasure Island (FL): Stat Pearls Publishing; 2022. Available from: <https://www.ncbi.nlm.nih.gov/books/NBK556033/>
- [4] admin. Types of Fertility Treatments: Options & Success Rates [Internet]. Lifeline Multi Specialty Hospital. 2025. Available from: <https://lifelinehospitalkerala.com/types-of-fertility-treatments/>
- [5] IUI, IVF and Advance Infertility Treatments to Know in 2025 [Internet]. Indiraivf.com. Indira IVF; 2025 [cited 2026 Apr 26]. Available from: <https://www.indiraivf.com/blog/best-infertility-treatments-in-2025>
- [6] Health P. Latest Advances in Fertility Treatments You Should Know About - Petals Health [Internet]. Petals Health. 2025 [cited 2026 Apr 26]. Available from: <https://www.petalshealth.in/latest-advances-in-fertility-treatments-you-should-know-about/>

- [7] Adore Fertility [Internet]. Adore Fertility. 2025. Available from: <https://adorefertility.com/latest-advances-in-fertility-treatments-for-2025/>
- [8] The Latest Advances in IVF Technology: What's New in 2025? [Internet]. Worldivfcentre.com. 2025. Available from: <https://www.worldivfcentre.com/blog/latest-advances-in-ivf-technology>
- [9] Mathew N, James J, Rn A, Gundami H. A study to assess the knowledge on assisted reproductive techniques [Internet]. International Journal of Nursing and Health Research. 2024 [cited 2025 Apr 29]. Available from: <https://www.nursingjournal.in/assets/archives/2024/vol6issue2/6038.pdf>
- [10] Maya V, None Rakshitha, Manila. A study on development of information guide sheet regarding knowledge and attitude on in-vitro fertilization among final year B.Sc. students in selected college of nursing, Tumkur, Karnataka. IP Journal of Pediatrics and Nursing Science [Internet]. 2024 Apr 3 [cited 2025 May 11];7(1):8–12. Available from: <https://www.jpns.in/html-article/21461>
- [11] Kaur G, Chaudhary N, Kaur H. Structured teaching program on assisted reproductive technology among nursing students. Int J Sci Res. 2022 Feb 5;11(2):1121–3. Available from: <https://www.ijsr.net/archive/v11i2/SR22122182658.pdf>
- [12] Tayebi Z, Behmaneshpour F, Tourzani ZM, Khaghkhagh F, Falahatdari M, Khorasani MM, et al. The effects of microlearning on the fertility knowledge and attitude of Iranian nursing students: an interventional study. BMC Nursing [Internet]. 2025 Aug 25 [cited 2026 Aug 30];24(1). Available from: <https://www.springerpflege.de/the-effects-of-microlearning-on-the-fertility-knowledge-and-atti/51380644>