STM JOURNALS

International Journal of
Oncological Nursing and Practices

Volume 3, Issue 1, 2025
January–June
DOI (Journal): 10.37591/IJONNP

https://journals.stmjournals.com/ijonnp

Research IJONNP

Impact of Training Program on Recent Innovations in Oncology Among Nursing Professionals

Davinder Kaur[1], Poonam Thakur[2], Ravinder Kaur[3,*]

Abstract

Introduction: *In recent years, there have been significant advancements and trends in the field of oncology treatment in India. This study aimed to evaluate impact of training program on knowledge regarding recent innovations in oncology among nursing professionals. After ethical approval, a pre-experimental, one group pretest- post-test design was used to conduct this research at a nursing college of Punjab.* ***Methods:*** *The sample was selected using the total enumerative sampling technique. Sample size calculation was not done as it was one day training program and all participants who attended the program and also meeting the criteria of inclusion were enrolled. 80 nursing professionals, out of which 39% students of BSc Nursing 3rd year, 25% teachers and 30% nursing officers were enrolled. Self-structured questionnaire was prepared and got validated by experts and reliability was checked. It had 30 multiple-choice questions related to the incidence, recent advancements in the diagnosis, and treatment of cancer. After pretest, one day training was imparted regarding recent advances in oncology and hands on practice done on stoma care. Overview of global and Indian scenario of cancer, recent advances in molecular diagnostic oncology, current perspectives and new challenges, recent advances in tumor-targeting and impact of chemotherapeutic drugs, benefits of proto and radiation therapy, targeted immunotherapy in oncology, complementary and alternative medicine, chemotherapy, nurses' role and drug administrative errors stoma care and oncology nursing perspectives was discussed. Post-test was taken on the same day after the training. Data was analyzed for descriptive and inferential statistics by SPSS version 21. R software (Ross Ihaka and Robert Gentleman software) has been used for item analysis.* ***Results:*** *The study results showed that the pre-test mean knowledge score was 17.02, while the post-test mean knowledge score was 19.15. There was a highly significant ($p<0.0001$) improvement in the nurses' knowledge after the training program.* ***Conclusion:*** *This study concluded that teaching program was proved to be a useful intervention for nurses to enhance their knowledge regarding recent innovations in oncology for comprehensive patient care.*

Keywords: Oncology, training program, recent innovations, nursing, professionals, challenges, impact

***Author for Correspondence**
Ravinder Kaur
E-mail: ravinderkaurb79@gmail.com

[1]Principal, Department of Nursing, Gian Sagar College of Nursing, Ramnagar, Rajpura, Patiala, Punjab, India
[2]Associate Professor, Department of Nursing, Gian Sagar College of Nursing, Ramnagar, Rajpura, Patiala, Punjab, India
[3]Associate Professor, Department of Nursing, Adesh Nursing College, Vill-Mohri, Shahabad (M), Kurukshetra, Haryana, India

Received Date: February 10, 2025
Accepted Date: February 27, 2025
Published Date: March 07, 2025

Citation: Davinder Kaur, Poonam Thakur, Ravinder Kaur. Impact of Training Program on Recent Innovations in Oncology Among Nursing Professionals. International Journal of Oncological Nursing and Practices. 2025; 3(1): 9–14p.

INTRODUCTION

As the second leading cause of death worldwide, cancer has been a major and continuously evolving area of biomedical research and practice. Considerable efforts have been dedicated to understanding the origin of cancer cells, the development of cancerous tissues, and the mechanisms behind their spread and recurrence, yet the disease remains largely enigmatic [1].

In recent years, oncology treatment in India has seen significant advancements and trends. With an increasing emphasis on research and development, India has become a center for innovative cancer therapies. Immunotherapy has emerged as a

groundbreaking approach in cancer treatment by utilizing the body's immune system to target cancer cells. Targeted therapies, such as HER2 inhibitors (e.g., Herceptin) for breast cancer, have revolutionized treatment outcomes. Robotic surgery, image-guided procedures, and minimally invasive surgeries have led to better patient outcomes and quicker recovery times. Along with conventional cancer treatments, complementary therapies enhance overall well-being and quality of life. In India, cancer treatment is undergoing a transformative phase, with new chemotherapy options, biological agents, radiotherapy, hormonal therapy, gene therapy, and surgical approaches helping to create personalized treatment plans for cancer patients [2, 3].

Although there have been advancements in early detection and a deeper understanding of the molecular foundations of breast cancer biology, approximately 30% of patients with early-stage breast cancer experience recurrence [4]. Ongoing clinical research trials continue to show the effectiveness and safety of many emerging cancer therapies, such as molecular-targeted treatments. This knowledge ultimately helps the nurses to understand pathophysiological changes and the treatment of various cancers. These measures help nurses to improve and control symptoms and supportive palliative care to patients [5]. All cancer patients during treatment often feel unrelieved pain. Expert oncology nurses promote targeted pain management strategies for each particular patient that incorporate novel therapeutic agents [6].

Nurses always influence the quality of cancer care, value, patient satisfaction and cost of treatment. So, nurses should update their knowledge and skills with an ever-changing array of targeted therapies and developing science [7]. To achieve oncology nursing experts, cancer education should begin before licensure, strong job training, competency training, continuing education and oncology nursing leadership [8].

Persons having cancer always require intensive nursing care and support in every healthcare setting. Nurses have to take care of patients during diagnosis and treatment. Recent advances in oncology nursing always add to the complexity of the nursing role [9]. To keep pace with changing treatment modalities of cancer, nurse’s knowledge should be updated according to changing scenarios. The researchers evaluated the impact of a training program on knowledge regarding recent advancements in treatment modalities of cancer.

METHODOLOGY

After obtaining ethical approval, 80 nursing professionals were enrolled on a one-day training program at a nursing college of Punjab. The samples were selected using a non-probability purposive sampling technique. A self-structured questionnaire was formulated and got validated by experts. The reliability of the tool was checked by Split half method (r=0.80). The tool was divided into socio-demographic variables and 30 multiple-choice questions regarding recent innovations in oncology nursing. One mark was given for the right answer and zero for the wrong answer. The criteria used for assessment of knowledge was: Good knowledge score (20–30), Average knowledge score (10–19) and below average knowledge score (0–9). A pretest was conducted from health care personnel before training. After the pretest, one day of training was imparted regarding recent advances in oncology nursing. Medical oncologists and nursing experts take lecture cum discussion with the help of power-point presentations.

Overview of global and Indian incidence of cancer, recent advances in molecular diagnostic oncology, recent advances in tumor-targeting and impact of chemotherapy drugs, benefits of proton therapy and radiation therapy, immunotherapies in oncology, the role of complementary and alternative medicine, the role of the nurse in chemotherapy and drug administrative errors and oncology nursing perspective discussed. Stoma care hands-on practice done by all participants under supervision of stoma care nurse. Then post test was conducted on the same day after training to evaluate mean difference. The data was analyzed using descriptive and inferential statistics through SPSS version 21.

RESULTS

Table 1 reveals that 38% participants were in the age group of 20–30 years, followed by 33% of above 40 years and 29% were in the age group 30–40 years. Majority participants were females (79%) followed by males (21%). Meanwhile, in occupation 39% were students followed by 31% teachers and 30% were nursing officers. Participants have BSc Nursing (39%), MSc Nursing (34%) and Post-Basic BSc Nursing (27%) qualification.

Figure 1 reveals that in pretest, maximum participants have below average (61%) and only 5% having good knowledge score regarding recent innovations in oncology nursing. In post-test, maximum participants (65%) have good knowledge score and only 14% have below Average knowledge score.

Table 2 shows a significant ($p<0.0001$) mean difference between the pre-test and post-test knowledge scores of nurses on recent innovations in oncology nursing. Hence this training program was effective to enhance the knowledge of nurses regarding recent innovations in oncology nursing.

Table 1. Percentage distribution of the sample characteristics (N=80).

S.N.	Characteristics	f (%)
1.	*Age in years*	
	20–30	31 (38%)
	30–40	23 (29%)
	Above 40	26 (33%)
2.	*Gender*	
	Male	17 (21%)
	Female	63 (79%)
3.	*Occupation*	
	Student	31 (39%)
	Teachers	25 (31%)
	Nursing officers	24 (30%)
4.	*Qualification*	
	BSc nursing	31 (39%)
	Post basic nursing	22 (27%)
	MSc nursing	27 (34%)

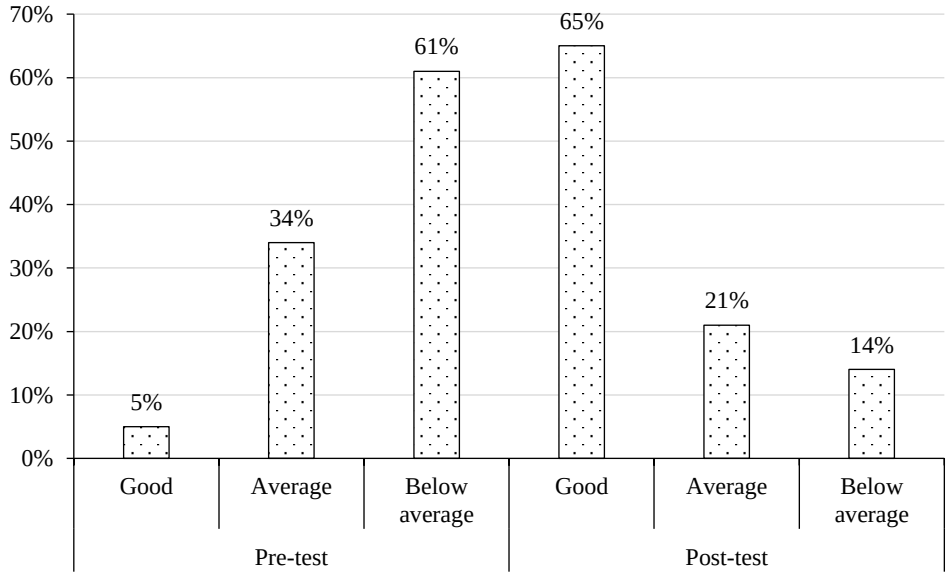

Figure 1. Pre-test and post-test knowledge score.

Table 2. Comparison of mean pre-test and post-test knowledge score of nurses regarding recent innovations in oncology nursing (N=80).

Test	Mean	SD	Mean difference	t- test	df	p-value
Pre-test	17.02	3.95	2.13	4.7411	79	0.0001
Post-test	19.15	4.08				

Table 3. Knowledge of nursing professionals regarding recent innovations in oncology (N=80).

S.N.	Items	Pre-test (%)	Post-test (%)
1.	Oncology is the branch of science that deals with the diagnosis and treatment of cancer.	77	100
2.	Cancer is a leading cause of death worldwide.	92.5	94
3.	Cancers can be cured if detected early and treated effectively.	87.5	77.5
4.	ACTIP is Animal Cell Technology Industrial Platform.	61.3	85
5.	Breast cancer is the most common type of cancer among women in the world.	56.3	60
6.	The incidence of breast cancer in new cases among females is 24.5%.	96.3	98.8
7.	Lung cancer is the most common type of cancer that kills men.	15	42.5
8.	It is expected that in 2025 the incidence of Cancer will be 15.5 lakh.	71.3	77.5
9.	Histology is the diagnostic test for cancer in which a sample of tissue is taken and explained under microscope.	27.5	36.3
10	ELISA is a molecular diagnostic technique based on antigen antibody reaction.	47.5	53.8
11.	Molecular diagnosis can be used in the initial stages of the onset of disease.	80	83.8
12.	Bence-Jones proteins in urine is suggestive of the diagnosis of multiple myeloma.	41.3	56.3
13.	Chemotherapy is used to kill tumor cells by interfering with cellular function and reproduction.	57.5	73.8
14.	Faster growing cells are non-susceptible to chemotherapy.	80	87.5
15.	Palliation is the goal of chemotherapy.	1.3	2.5
16.	Constipation is not the major side effect in a client undergoing external radiation therapy.	53.8	73.8
17.	Gamma Rays are commonly employed in intra operative radio-therapy.	7.5	38.8
18.	Monoclonal antibody is a type of immunotherapy uses experimentally produced antibodies to target specific proteins on the surface of cancer cells.	45	48.5
19.	Adoptive Cell Transfer is a type of immunotherapy.	57.5	67.5
20.	Ayurvedic medicine helps in eliminating impurities in the body and alleviating the symptoms.	26.3	32.5
21.	Holistic approach, Complementary and Alternative Medicine (CAM) therapies focuses on treating both the mind and the whole body.	51.2	53.8
22.	Carcinoma is the most common reason for stoma formation.	51.2	57.5
23.	Ascending colostomy stoma is located on right area of abdomen.	52.5	61.3
24.	3% of errors is involved in chemotherapy.	40	50
25.	Administering improper dose is most common type of medication error.	43.8	57.5
26.	Two nurses for double check should be there for prevention and administration of medication for preventing errors in chemotherapy.	65	57.5
27.	Primordial prevention is the prevention of emergence of development of risk factors.	51.2	77.5
28.	Antibacterial soap should be used while cleaning the skin around the stoma.	35	25
29.	The drain from a stoma is called effluent.	87.5	93.8
30.	Carcinoma arises from Epithelial lining.	60	67.5

Table 3 reveals the results on the basis of item analysis; it is clearly depicted that the knowledge score was improved after giving training to the nursing personnel excluding item 3, 26 and 28. Here item analysis score was less in post-test as compared to pre-test. Overall analysis states that training

education program had a great impact on increasing the knowledge of nursing personnel on recent innovations in oncology nursing.

DISCUSSION

Cancer is the rapid development of abnormal cells that grow beyond their normal limits, potentially invading nearby tissues and spreading to other organs. Innovation refers to developing new care models, safety practices, and more efficient processes that address challenges and enhance patient outcomes. Nurses are often the first point of contact for patients and play a central role in the healthcare system. One of the most effective ways to reduce the global cancer burden is by enhancing oncology nursing education and training for comprehensive learning.

The present study was conducted to evaluate the impact of training program on knowledge among nurses regarding recent innovations in oncology nursing

Present study depicted that prior to training, maximum nurses had below average knowledge score. After training, maximum nurses have good knowledge scores regarding recent innovations in oncology nursing. A significant ($p<0.0001$) mean difference was found between the pre-test and post-test knowledge scores of nurses on recent innovations in oncology nursing.

Janet *et al.* evaluated the effectiveness of STP on knowledge regarding safe handling of chemotherapeutic drugs among BSc nursing students and found the level of knowledge statistically significant ($p=0.000$) after administration of structured teaching program [10].

Our study findings are also supported by a similar study by Pethe *et al*., who conducted a study to assess the effectiveness of STP on knowledge regarding safe handling of chemotherapeutic drugs among 60 student nurses in selected nursing colleges of Vidarbha Region. The mean pretest knowledge score was 9.95 and the post test score was 16.05 and was statistically significant ($p=0.000$). Therefore, it can be statistically concluded that the planned teaching program on the safe handling of chemotherapeutic drugs was effective [11].

Researchers created a Continuing Medical Education (CME) training program to help health practitioners communicate emerging scientific findings related to breast cancer and environmental research. The results of the current study showed that using CME effectively enhanced knowledge, attitudes, behavioral intentions, and practice behaviors related to the topic. They stressed that CMEs can be an effective strategy for health care providers for translational activity in order to change their behavior within practice. Literature reported that for acquisition and retention of skill, knowledge, attitude, behavior and clinical outcomes, CMEs are important method [12].

This training program regarding recent innovations in oncology nursing was effective to enhance the knowledge of nurses which ultimately will improve the patient care. Knowledge and skill acquired by nurses during this training will definitely help the nurses to provide palliative care to patients with cancer [13].

CONCLUSION

A detailed review of literature indicated that education has significant effect in improving the knowledge of staff nurses related to recent innovations in oncology nursing. This study had the modest effort to increase the knowledge of nurses because nurses are having a crucial role in handling cancer patients. It is very important for them to make themselves updated with all the new advancements in their area of practice. Hence it was concluded that a well-prepared material by the experts in the form of training program helped the nurses to improve their knowledge regarding recent innovations in oncology nursing.

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