Research Article

Knowledge of Staff Nurses on Immediate Physiological Problems Occurring due to Chemotherapy: A Descriptive Study

Nidhi Chopra[1], Pardeep Garg[2], Bimla Rani[3]

[1]Department of Nursing, Bharat College of Nursing, Jalandhar, Punjab, India, [2]Department of Oncology, Patel Hospital Jalandhar, Jalandhar, Punjab, India, [3]Department of Nursing, Bharat College of Nursing, Jalandhar, Punjab, India

Abstract

Background: People undergoing chemotherapy will have side effects, usually occurring such as nausea and vomiting, alopecia, pain, fatigue, neutropenia, mouth sores, and thrombocytopenia. Some side effects can be serious enough to create delays in treatment. These may include febrile neutropenia, anemia, thrombocytopenia, etc. The objectives were formulated to carry out the study to assess the knowledge of staff nurses on immediate physiological problems occurring due to chemotherapy.

Methods: The study opted to use a descriptive approach to its methodology. The research was conducted at the Patel Multispecialty Hospital in Jalandhar, which is located in the state of Punjab in India. The information was gathered from eighty staff nurses using the convenient sample technique and a self-structured questionnaire, and it was then analyzed to determine the level of knowledge possessed by the staff nurses. When doing the analysis of the data, both descriptive and inferential statistics were utilized. Pender's model of health promotion served as the inspiration for the conceptual framework that this study employed.

Results: The overall aspect-wise mean knowledge score was 13.63 with an SD of 5.509 and the total percentage was 40%. In the present communication, we have observed that in the age group 41–50 years has good knowledge of chemotherapy and its immediate side effects rather than others.

Conclusion: The nurses with a B.Sc. degree having more information as compared to GNMs followed by those who were working more than 5 years has good knowledge of the side effects of chemotherapy as compared to other staff. Hence, there is a need for an information guide sheet related to immediate physiological problems and the management of chemotherapy, which will be useful to improve the knowledge of staff nurses.

Keywords: Knowledge, immediate physical problems, chemotherapy

Introduction

Every part of life, whether physical, physiological, social, or spiritual, is profoundly impacted by cancer. By the year 2020, it is predicted that there would be 18.1 million new cancer cases worldwide (excluding skin cancers) and more than 9.9 million cancer-related deaths (excluding non-melanoma skin cancer).[1] In developing countries, up to 25% of tumors are associated with chronic infections such as Hepatitis B, Human Papillomaviruses, and other factors such as tobacco use, environmental exposure, certain infections as well as genetic pre-disposition play a vital role in carcinogenesis.[2] Cancer produces serious health problems, especially when it causes pressure, obstruction, hemorrhage, and infection in vital tissues organ.[3]

Depending on the type and stage of the disease, cancer can be treated. Surgery, radiation, chemotherapy, hormone

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Address for correspondence:
Dr. Pardeep Garg, Associate Professor Radiation Oncologis, Department of Radiotherapy, GGSMCH, Faridkot, Punjab, India.

therapy, and immune therapy are all possible combinations of treatments to remove the tumor or stop it from spreading.[4] The major goal of these therapies is to treat patients effectively and appropriately to prevent further metastasis, relieve symptoms, and maintain a high quality of life (QoL) as long as possible. Over the last two decades, nursing responsibility has increased in chemotherapy administration because the patients have no aware of treatment. Nurses play four key responsibilities in the administration of chemotherapy, including educating patients and their families about this type of therapy, carefully administering the chemotherapy medicines, and treating any potential adverse effects.[5] The delivery of chemotherapy is a crucial component of oncology nursing. It is difficult to provide chemotherapy patients with high-quality care in the field of cancer nursing.[6] People with cancer suffer treatment-related physical side effects that may significantly affect their QoL and increasing the risk of developing more serious levels of anxiety and depression so having psychological impact on their lifestyle.[7] By evaluating, teaching, supervising, and administering treatment to the patient, oncology nurses contribute to the treatment of cancer. They are involved in the patient's direct care, which includes giving chemotherapy, determining the patient's physical and emotional well-being, and taking thorough nursing histories. In addition, part of their job entails educating patients to help them deal with their diagnosis and long-term treatment and preventative objectives. Nurses will assess patient problems such as diarrhea and emesis brought on by chemotherapy and help decide how to treat them.[8] The studies revealed that nurse practitioners are less likely to provide other forms of cancer prevention, such as smoking cessation counseling or information on diet and cancer, although they do offer breast and cervical cancer screening services for the majority of women over the age of 40.[9] Some studies showed that there is a need for medical education program regarding awareness of breast cancer at the institutional level.[10] Along with the prevention, the handling of antineoplastic drugs by nurses should be monitored.[11] Joseph and Manu (2005) conducted a study in Mangalore on the effectiveness of a planned education program for staff nurses on how to handle cancer chemotherapeutic medicines safely. Khan *et al*. (2012) conducted a study in a tertiary hospital in Pakistan. The objective of the study was to evaluate the nurses' attitudes and levels of knowledge following the delivery of a chemotherapy administration and management education session.[12] So *et al*. (2012) A descriptive cross-sectional study was conducted in Hong Kong, with a self-reported survey completed by 103 oncology nurses caring for and administering chemotherapy to cancer patients in the department of oncology in three Hong Kong public hospitals.[13] Miller and Kearney (2001), 470 nursing staff members recruited from the community, general medical, general surgical, and oncology clinical settings were given a postal questionnaire to assess their knowledge and attitudes on cancer-related fatigue as part of a UK study on the topic.[14,15]

Methods

A descriptive study design was used to accomplish objectives. The study was conducted in the Patel Multispecialty Hospital, Jalandhar, Punjab state, India. The sample consisted of 80 staff nurses collectively from Patel Hospital. Convenient sampling technique was used to draw the sample from the population. The study included the subjects who were present at the time of data collection, willing to participate in the study, and having work experience of staff nurses more than 1 year. Ethical Permission was taken from the Medical Superintendent of the Patel Multispecialty Hospital, Jalandhar. The written consent was obtained from the participants, and confidentiality of information of all respondents was maintained. The sociodemographic profile and self-structured tool were used to collect the data.

Description of tool

Section-1: Demographic variables

It consists of demographic data of the participants related to age, gender, educational status, total year of working experience, present designation, previous clinical experience in oncology, duration of work experience with chemotherapy, and source of information.

Section-2: Structured questionnaire

It consists of a self-structured questionnaire to assess the knowledge of staff nurses regarding immediate physiological problems occurring due to chemotherapy in cancer patients. This section contains multiple choice questions comprised 34 questions that includes Cancer and Chemotherapy (questions, 1–4), Side effect of Chemotherapy (questions, 5–25), Safe handling, and Nursing Management (questions, 26–34). Each question has one correct answer among the four choices and each correct answer carries one mark.

Statistical analysis

Analysis of data was performed in accordance with the objectives. The data were analyzed using descriptive and inferential statistics. Analysis of the overall knowledge score of staff nurses was done using frequency and percentage distribution. ANOVA test was used to find out the association between knowledge score and demographic variables.

Results

The conceptual framework used for the study was based on Pender's Health Promotion model. Descriptive and inferential statistics were used to analyze the data. ANOVA is used for the interpretation of results and was expressed in mean ± S.D.

The data were analyzed and presented in the following section

Section I: Finding related to sample characteristics

Majority of the subjects 66.2% were in the age group of 21–30 years, followed by 11.5% in 41–50 years. Gender-

wise majority of the subject were 81.2% female and 18.8% male. In relation to the education, most of the subjects 87.5% were GNM and least 12.5% were B.Sc. About the present designation, 87.5% were staff nurses, whereas only 12.5% were Ward In-Charge. According to the total year of experience, 55.0% had 2–5 years' experience, followed by 12.5% had above 5-year experience. Regarding the chemotherapy experience distribution in most of the subjects 80% had chemotherapy experience of 0–1 year, followed by 2.5% had above 5 years of experience. Regarding previous experience in oncology, 77.5% did not have previous experience in oncology and 22.5% had previous experience in oncology. Regarding the source of information, more than half, 62.5% from health-care professional and least 11.2% from the Internet.

Section-II: Finding related to assessment of the knowledge level among staff Nurses

Table 2 depicts the percentage distribution of staff nurses according to knowledge as per criterion measure and it revealed that 45% of staff nurses had below average knowledge, followed by 35% had average knowledge, 15% had a good level of knowledge, and only 5% had an excellent level of knowledge regarding Immediate Physiological problems occurring due to the Chemotherapy. Therefore, it was concluded that the majority of staff nurses had an inadequate level of knowledge.

Section-III: Findings related to the association between knowledge regarding the immediate physiological problems due to chemotherapy with selected demographic variables (Table 3).

It can be inferred that age had a significant influence on the knowledge and we found the most majority of the sample lies in 21–30 years' age group, but people with the highest score lie between 41 and 50 years' age group those having more knowledge about chemotherapy and their physiological side-effects. Similarly, in sexuality distribution, we found that female was more in the sample size selected for the survey but male had higher knowledge as compared to them. Even GNM are more in number than B.Sc. but on the basis of education, it is observed the graduates had more knowledge as compared to the diploma. About the present designation, we found that the knowledge of staff nurses is more as compared to ward in charge of the physiological side-effects of chemotherapy. As per experience, we found that the nurses working from more 5 years having the highest knowledge than other subjects. About the previous experience in oncology, the majority of the subject did not have any previous experience in oncology. In terms of knowledge about the physiological side effects of chemotherapy, most of the subjects were getting knowledge from the health-care professional.

Table 1: Frequency and percentage distribution of sample characteristics

S. No.	Demographic variables	Frequency	Percentage
1	Age (years)		
	• 21–30	53	66.20
	• 31–40	18	22.50
	• 41–50	09	11.50
2	Gender		
	• Male	15	18.80
	• female	65	81.20
3	Education		
	• GNM	70	87.50
	• B.Sc.	10	12.50
	• M.Sc.	00	00.00
4	Present designation		
	• Staff nurse	70	87.50
	• Ward In-charge	10	12.50
5	Experience (years)		
	• 1–2	26	32.50
	• 2–5	44	55.00
	• ≥5	10	12.50
6	Chemotherapy experience		
	• 0–1	64	80.00
	• 2–3	11	13.80
	• 4–5	03	03.50
	• ≥5	02	02.50
7	Previous experience in oncology		
	• Yes	18	22.50
	• No	62	77.50
8	Information source		
	• Internet	09	11.20
	• Books/Newspaper	21	26.20
	• Health care professional	50	62.50
	• T.V. or radio	00	00.00

Table 2: Frequency and percentage distribution of nursing staff according to level of knowledge

Level of knowledge grading	Knowledge score	Frequency	Percentage
Excellent (80–100%)	28–34	4	5
Good (60–79%)	21–27	12	15
Average (40–59%)	14–20	28	35
Below average (<40%)	>13	36	45

Table 3: Content wise area mean percentage of knowledge score

Content wise area	Knowledge score			
	Max score	Mean	SD	Mean percentage
General information related cancer and chemotherapy	4	2.333	0.673	55.83
Side effect of chemotherapy	21	6.783	3.430	32.3
Nursing management	9	4.6	1.699	51.1

Discussion

In this article, an attempt has been made to discuss the findings of the study in accordance with the objectives of the study to access the knowledge of staff nurses on immediate physiological problems occurring due to chemotherapy in cancer patients. This study was conducted to find out the significant association

Table 4: Association of sociodemographic variables and knowledge of the participants

Demographic variables	*n*	Mean	SD	F value	*P*-value
Age					
21–30	53	13.68	4.763	11.250	0.00[S]
31–40	18	17.72	6.201		
41–50	09	22.44	8.338		
Gender					
Male	15	16.07	5.496	0.113	0.738[NS]
Female	65	15.46	6.447		
Education					
M.Sc.	-	-		12.107	0.001[NS]
B.Sc.	10	21.60	5.602		
GNM	70	14.71	5.886		
Present designation					
Staff Nurse	70	14.77	5.716	10.347	0.002[NS]
Ward In charge	10	2.20	7.239		
Total year of experience					
1–2	26	15.08	4.690	8.494	0.000[S]
2–5	44	14.30	5.753		
>5	10	22.50	7.863		
Chemo therapy experience					
0–1	64	13.58	4.700	16.504	0.00[S]
2–3	11	22.00	4.879		
4–5	03	23.50	3.563		
>5	02	32.00	0.000		
Previous experience in oncology					
Yes	18	23.39	5.181	66.256	0.000[S]
No	62	13.31	4.460		
Information source					
Internet	05	13.56	4.558	3.504	0.035[S]
Books/Newspaper	21	14.70	6.035		
Health professional care	50-	18.52	6.630		
T.V/Radio					

of knowledge of staff nurses on immediate physiological problems occurring due to chemotherapy in cancer patients with a selected variable such as age, sex, and education of staff nurses, etc., to develop an information guide sheet. The conceptual framework for the present study is developed from health promotion model theory.

A descriptive approach was used to perform the study and was conducted at Patel Multispecialty Hospital Jalandhar, Punjab state, India. Data were analyzed and interpreted in terms of objectives using descriptive and inferential statistics.

The data was analyzed and interpreted by applying statistical methods. It can be inferred that age had a significant influence on the knowledge because we found that most of the sample lie between the age group of 21–30 years, as shown in Table 1 but the highest scoring getting people to lie in 41–50 age group those having more knowledge about chemotherapy and their physiological side effects as shown in Table 4. Similarly, in terms of sexual distribution, we found that female was more in comparison to male selected for the survey, as shown in Table 1, but male had higher knowledge as compared to them, as presented in Table 4. GNM are more in number than B.Sc. Table 1, but on the basis of education, we found the graduates had more knowledge as compare to diploma as shown in Table 4. About the present designation it is observed that knowledge of staff nurses is more as compare to ward in-charge about the physiological side-effects of chemotherapy. As per experience we found the nurses working from more 2–5 years are more, as shown in Table 1 but nurse working with >5 years having highest knowledge than others proven in Table 4. About the previous experience in oncology the majority of the subject did not have previous experience in oncology. On the point of getting knowledge about physiological side effects of chemotherapy, most of the subjects were getting knowledge from the health-care professional and least from the internet.

Chemotherapy administration is a significant aspect of oncology nursing. Over the last two decades, nursing responsibility has increased in chemotherapy administration because of the patients aware of treatment. Educating patients and their families about this form of therapy, safely administering the chemotherapy drug, and managing any adverse effects from chemotherapy are the four key tasks that nurses play in the administration of chemotherapy. Elkind (1982),[16,17] Several nurses were discovered to have very negative views of cancer in a study of 785 nurses to determine what type of impression nurses may offer the general public about cancer by their attitudes towards the disease. Witkamp (2009)[18] conducted study in the Kingdom of Saudi Arabia on staff nurses. In order to improve practice and create an education program for oncology and hematology nurses in Saudi Arabia, the study's goal was to examine, characterize, and gain a better understanding of Saudi nurses' attitudes and expertise toward managing chemotherapy side effects. Dennison (1995)[19] showed that while nurses were proficient at presenting information, they infrequently evaluated how patients felt about their care. In addition, studies have shown that inadequate management of chemotherapeutic side effects, including nausea and vomiting, can negatively impact QoL. So *et al*. (2012)[13] 103 oncology nurses who care for and administer chemotherapy to cancer patients in the department of oncology at three Hong Kong Public Hospitals participated in a descriptive cross-sectional study in Hong Kong. However, a number of studies have shown that patients are frequently dissatisfied with the communication, psychological support, assessment, and management of side effects during the chemotherapy administration procedure. The study has certain very important findings and implications for the nursing profession, i.e., clinical practice, nursing education, nursing administration, and nursing research. According to the best of our knowledge, the findings of the present research can be utilized in seminars, workshops, and conferences organized in nursing institutions to improve the knowledge of nursing students regarding the knowledge of staff nurses regarding immediate physiological problems due to chemotherapy in cancer patients. Adequate information materials should be made available to various health professionals, nurses and in the public domain about chemotherapy treatment. The study can guide the oncology staff nurses in their active involvement in the management of immediate physiological problems due to chemotherapy. This study suggests conducting large-scale

studies to know the overall side effects of chemotherapy and their management.

Conclusion

The nurses who have a Bachelor of Science degree have more information than the GNMs, and those who have worked in the field for more than 5 years have a better understanding of the potential adverse effects of chemotherapy than the other members of the team.

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Conflict of Interest

There is no interest of conflict.

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