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Effectiveness of self-instructional module on knowledge regarding self care management on side effects of chemotherapy among cancer patients

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Article History:	Abstract	
Received on: 13 Jan 2024 Revised on: 18 Mar 2024 Accepted on: 20 Apr 2024 Keywords: Self-care management, Side effects, Chemotherapy, Cancer patients	The research study was conducted in a selected government hospital in Chennai with 30 chemotherapy patients chosen by purposive sampling. A structured self-administered questionnaire (SAQ) assessed pre-test and post-test knowledge on self-care management of chemotherapy side effects. Patient education was delivered through a self-instructional module. Data analysis used descriptive and inferential statistics. Results showed that in the pre-test, 28 patients (93.33%) had inadequate knowledge and 2 (6.67%) had moderately adequate knowledge. Post-intervention, 24 patients (80%) had adequate knowledge and 6 (20%) had moderately adequate knowledge. The pre-test mean score was 8.50 ± 3.06, while the post-test mean score was 20.07 ± 2.89. The mean difference score was 11.57, with a mean difference percentage of 46.3%. The paired "t" test value was $t=14.125$, statistically significant at $p<0.001$, indicating the effectiveness of the self-instructional module in improving knowledge. The study concludes that the self-instructional module effectively improved patients' knowledge regarding self-care management of chemotherapy side effects.	

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INTRODUCTION

Cancer is a major health problem worldwide and has remarkable effects on patients and their caregiver. In 2022, there were an estimated 20 million new cancer cases and 9.7 million deaths. The estimated number of people who were alive within 5 years following a cancer diagnosis was 53.5 million. About 1 in 5 people develop cancer in their lifetime, approximately 1 in 9 men and 1 in 12 women die from the disease. The new estimates

available on IARC's Global Cancer Observatory show that 10 types of cancer collectively comprised around two-thirds of new cases and deaths globally in 2022. Data covers 185 countries and 36 cancers. Lung cancer was the most commonly occurring cancer worldwide with 2.5 million new cases accounting for 12.4% of the total new cases. Female breast cancer ranked second (2.3 million cases, 11.6%), followed by colorectal cancer (1.9 million cases, 9.6%), prostate cancer (1.5 million cases, 7.3%), and stomach cancer (970 000 cases, 4.9%) (World Health Organization, 2024).

The number of Indians suffering from cancer is projected to increase to 29.8 million in 2025 from 26.7 million in 2021. The highest incidence last year was in the North (2,408 patients per 100,000) and the Northeast (2,177 per 100,000). It was higher among men. According to a report by the Indian Council for Medical Research on the 'Burden of cancers in India', seven cancers accounted for more than 40% of the total disease burden: lung (10.6%), breast (10.5%), oesophagus (5.8%), mouth (5.7%), stomach (5.2%), liver (4.6%) and cervix uteri (4.3%) (ICMR, 2022).

Chemotherapy is a standard modality of cancer treatment that uses chemical agents or drugs to destroy cancer cells in the cell cycles or use chemicals or drugs to inhibit cancerous cells' growth and spread. (A. Foitz, G. Gaines, M. Gullottee 2015). Chemotherapy is a vital treatment modality for many cancers, and evolving new anti-cancer drugs represents one of the largest pharmaceutical development areas (B.A. Chabner, T.G. Roberts 2015). Chemotherapy has its own merits and demerits as the treatment affects both physiological and psychological aspects of human life. i.e., pain, sleep disturbances, nausea, vomiting, stress, anxiety, gastrointestinal disorders etc. (F.T. Arslan, Kantar M. Basbakkal Z, 2013). Over 1.5 crore people will need chemotherapy globally each

year by 2040, a new study has said, Between 2018 and 2040, the number of patients requiring first-course chemotherapy annually will increase from 9.8 million to 15.0 million, a relative increase of 53%. The estimated proportion of patients needing chemotherapy who reside in low-income or middle-income countries was 63% (6 162 240 of 9 782 783) in 2018, and will be 67% (10 071 049 of 14 984 560) in 2040. The most common indications for chemotherapy worldwide in 2040 will be lung cancer (accounting for 2 455 137 [16.4%] of 14 984 560 cases eligible for chemotherapy), breast cancer (1 898 740 [12.7%]), and colorectal cancer (1 678 153 [11.1%]). We estimated that, in 2018, 65 000 cancer physicians were required worldwide to deliver optimal chemotherapy-a figure that we estimate will rise to 100 000 by 2040 (with estimates ranging from 50 000 to 150 000, depending on workload). (Wilson BE, Jacob S 2019).

The nature of chemotherapy is that while damaging cancer cells it also damages healthy cells, leading to side effects. Combination chemotherapy is usually preferred to outweigh risk-benefit ratios, however, long-term cancer chemotherapy have its own impact on cancer survivors including QOL, psychosocial issues, and physical symptoms and particularly the adverse effects of systemic adjuvant therapy.

Accurate reporting of treatment-related adverse effects is crucial for the appropriate management of patients with cancer. In routine clinical practice, adverse-effect reporting is pivotal in the decision-making process for dose modifications (e.g., dose reduction, treatment delay, or withdrawal), supportive care administration, and prophylaxis.

Cancer is being recognized as a chronic illness; self-management has been identified as

integral to person-centered cancer care. Self-care ability on the management of adverse effect is well defined as “the individual's ability to manage the symptoms, treatment, physical and psychosocial consequences, and lifestyle changes inherent in living with a chronic condition. (J. Barlow, C. Wright, J.2002).

A large proportion of cancer patients experience multiple concurrent psychological symptoms during their cancer care trajectory, such as anxiety, depression, fear of cancer recurrence (FCR), insomnia, fatigue, pain, and cognitive impairments etc. Highly correlated and coexisting symptoms have been found to form clusters in cancer. Lack of knowledge on chemotherapy treatment and various methods to manage related adverse effects could increase hospital admissions, increased morbidity, and decreased quality of life among cancer survivors. Besides, education on cancer treatment, side effects, and self-care behavior can minimize chemotherapy's side effects and improve life quality.

The side effects associated with chemotherapy affects the cancer patient's life in multiple dimensions such as physical, psychological, emotional and disturb the quality of life of cancer patients.

Cancer patients under chemotherapy experience certain side effects. These side effects results in certain manifestations like nausea and vomiting, constipation, diarrhoea, insomnia, loss of appetite, pain, fatigue, dyspnoea, dry mouth (oral mucositis) and hair loss, etc. and certain psychological effects like depression, loss of concentration, confusion and anxiety etc. These side-effects have an impact on the quality of life of cancer patients and may disturb the continuity of the treatment.

A cross-sectional study was done to identify the incidence and severity of the self-reported chemotherapy associated side-effects among

100 cancer patients at department of oncology, AIIMS, Rishikesh in the year 2020. The results of the study revealed that constipation, breathlessness, nausea, vomiting and pain were the most common reported symptoms along with skin and mouth problems.

The lack of knowledge about their chemotherapy treatment and how to manage related adverse effects could lead to increased hospital admissions, increased morbidity, and decreased quality of life for the cancer patient. It is important that patients treated with chemotherapy be educated about what to expect from their regimen and the correct use of supportive care medications at home. In addition to patient education, it is equally important to determine any barriers that may hinder their understanding of the education they are provided. Hence the researcher prompted to undertake this study to evaluate the effectiveness of self-instructional module on knowledge regarding self-care management on side effects of chemotherapy among cancer patients.

OBJECTIVES

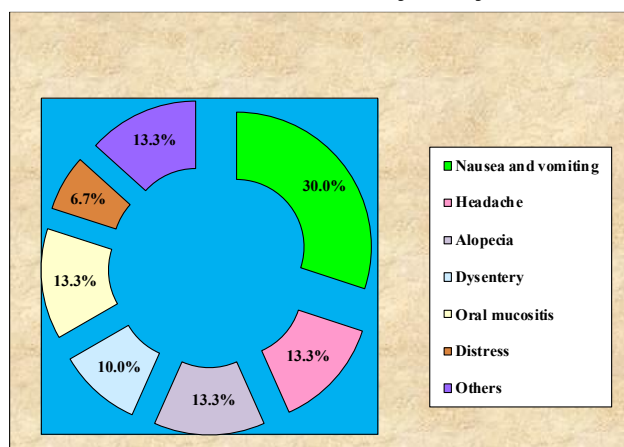
- To assess the pre and post level of knowledge regarding self care management on side effects of chemotherapy among cancer patient.
- To evaluate the effectiveness of self instructional module on knowledge regarding self care management on side effects of chemotherapy among cancer patient.
- To find out the association between the level of knowledge regarding self care management on side effects of chemotherapy among cancer patients with their selected demographic variables.

Table 1 Frequency and percentage distribution of demographic variables of cancer patients (n = 30)

S. No	Demographic Variables	Frequency (f)	Percentage (%)
1.	Age in years		
	25 – 35	9	30.0
	36 – 45	6	20.0
	46 – 55	10	33.3
	≥56	5	16.7
2.	Gender		
	Male	16	53.3
	Female	14	46.7
3.	Marital status		
	Married	24	80.0
	Unmarried	1	3.3
	Divorced	2	6.7
	Widow	3	10.0
4.	Education		
	Professional	3	10.0
	Graduate or Post graduate	1	3.3
	Secondary or Higher secondary or Diploma	-	-
	High school certificate	5	16.7
	Middle school certificate	8	26.6
	Primary school certificate	7	23.7
	Illiterate	6	20.0
5.	Occupation of the head of the family		
	Professional - White color job	3	10.0
	Semi – professional	2	6.7
	Clerk/Shop owner / Agriculture	6	20.0
	Skilled labour	8	26.7
	Semi – skilled labour	3	10.0
	Unskilled labour	-	-
	Not working	8	26.7
6.	Family income		
	≥52,734	3	10.0
	26,355 – 52,733	5	16.7
	19,759 – 26,354	4	13.3
	13,161 – 19,758	8	26.7
	7,887 – 13,160	8	26.7
	2,647 – 7,886	-	-
	≤2,640	2	6.7
7.	Religion		
	Hindu	21	70.0
	Christian	4	13.3
	Muslim	3	10.0
	Others	2	6.7

Table 2 Frequency and percentage distribution of clinical variables of cancer patients (n = 30)

Clinical Variables	Frequency(f)	Percentage (%)
No. of years diagnosed of cancer		
1 – 6 months	11	36.7
7 – 12 months	6	20.0
>12 months	13	43.33
Site of cancer		
Breast cancer	12	40.0
Oral cancer	6	20.0
Oesophageal cancer	1	3.3
Stomach cancer	7	23.3
Cholorectal cancer	1	3.3
Others	3	10.0
Any of the first degree relatives affected by cancer		
Yes	6	20.0
No	24	80.0
Duration of treatment of cancer		
3 – 4 weeks	13	43.3
5 – 6 weeks	8	26.7
7 – 8 weeks	5	16.7
More than 1 year	4	13.3
No. of cycles of chemotherapy		
1 – 3 cycles	14	46.6
4 – 6 cycles	11	36.7
7 – 6 cycles	2	6.7
More than 10 cycles	3	10.0
Type of chemotherapy medicine undertaken		
Cyclophosphamide, methotrexate, 5 fluorouracil	8	26.7
Cyclophosphamide, Adriamycin	9	30.0
Cyclophosphamide and methotrexate	9	30.0
Others	4	13.3
Side effects of chemotherapy		
Nausea and vomiting	9	30.0
Headache	4	13.3
Alopecia	4	13.3
Dysentery	3	10.0
Oral mucositis	4	13.3
Distress	2	6.7
Others	4	13.3



RESEARCH METHODOLOGY

Quantitative research approach with Pre experimental one group pretest, post-test design was adopted for this study. A formal approval was secured from the Management, Principal, and the Research committee of GRT College of Nursing, Tiruttani. Additionally, permission was granted by the Head of the Medical Oncology Department at selected hospital, Chennai. Utilizing purposive sampling techniques, the investigator selected a sample size of 30 individuals. Following the selection process, participants were introduced to the study, provided with consent, and assured of the confidentiality of their responses. Demographic information and pre-test knowledge level were assessed using demographic proforma and a self-structured questionnaire which took nearly 30 minutes to complete it. Patient education on self-care management regarding chemotherapy side effects was delivered through a self-instructional module about 1 hour. Subsequently, a post-test was administered after the duration of 7 days.

RESULTS

The above table 3 shows that in the pretest, 28(93.33%) had inadequate knowledge and 2(6.67%) had moderately adequate knowledge whereas in the post test after the intervention, 24(80%) had adequate knowledge and 6(20%) had moderately

adequate knowledge regarding self care management on the side effects of chemotherapy among cancer patients.

The table 4 shows that the pretest mean score of knowledge was 8.50 ± 3.06 and the post test mean score was 20.07 ± 2.89 . The mean difference score was 11.57 and the mean difference percentage was 46.3%.

The calculated paired “t” test value of $t=14.125$ was statistically significant at $p<0.001$ level which clearly indicates that Self Instructional Module on Self Care Management about the side effects of chemotherapy administered among the patients undergoing chemotherapy was effective in improving the level of knowledge among in the post test.

DISCUSSION

The findings revealed that in the pretest, 28(93.33%) had inadequate knowledge and 2(6.67%) had moderately adequate knowledge whereas in the post test after the intervention, 24(80%) had adequate knowledge and 6(20%) had moderately adequate knowledge regarding self-care management on side effects of chemotherapy and none of them had inadequate knowledge. The findings of the similar study conducted by VijayanandhMani, Renuka Kandaswamy (2023) conducted a study aim to evaluate the effectiveness of self-care measures on side effects of chemotherapy, performance status, and quality of life among patients undergoing chemotherapy in selected hospital at Pondicherry. The quantitative approach and Quasi experimental one group pre-test—post-test research design was used in the study among 30 cancer patients using Purposive sampling at selected hospitals. The effectiveness of self-care instruction module among cancer patients undergoing chemotherapy in pretest 20 (66.7%) has poor quality of life, and 10 (33.3%) have neutral quality of life after giving self-care instruction

Table 3 Frequency and percentage distribution of pretest and post test level of knowledge regarding self care management on side effect of chemotherapy among cancer patients (n=30)

Level of Knowledge	Pre-test		Post-test	
	F	%	F	%
Inadequate knowledge ($\leq 50\%$)	28	93.33	-	-
Moderately adequate (51 – 75%)	2	6.67	6	20.0
Adequate ($>75\%$)	-	-	24	80.0

Table 4 Effectiveness of Self-Instructional Module on Self Care management on side effect of chemotherapy among cancer patients (n=30)

Knowledge	Mean	S.D	Mean Difference & %	Paired “t” test & p-value
Pretest	8.50	3.06	11.57 (46.3%)	t =14.125 p=0.0001, S***
Post Test	20.07	2.89		

***p<0.001, S – Significant

Table 5 Association of post test level of knowledge regarding self care management on side effects of chemotherapy among cancer patients with their selected demographic variables (n=30)

Demographic Variables	Moderately Adequate knowledge (51 – 75%)		Adequate Knowledge ($>75\%$)		Chi-Square Test
	No.	%	No.	%	
Gender					$\chi^2=4.051$ d.f=1 p = 0.044 S*
Male	1	3.3	15	50.0	
Female	5	16.7	9	30.0	
Professional - White color job	0	0	3	10.0	
Semi – professional	0	0	2	6.7	
Clerk/Shop owner / Agriculture	1	3.3	5	13.3	
Skilled labour	1	3.3	7	23.3	
Semi – skilled labour	2	6.7	1	3.3	
Unskilled labour	-	-	-	-	
Not working	2	6.7	6	20.0	

*p<0.05, S – Significant, N.S – Not Significant

module, 30 (100) have neutral quality of life. The study concluded that self-instructional module has a positive and significant impact on the level of knowledge among cancer patients.

The pretest mean score of knowledge was 8.50 ± 3.06 and the post test mean score was 20.07 ± 2.89 . The mean difference score was 11.57 and the mean difference percentage

was 46.3%. The calculated paired “t” test value of $t=14.125$ was statistically significant at $p<0.001$ level which clearly indicates that Self Instructional Module on Self Care Management on side effects of chemotherapy administered among cancer patient was effective in improving the level of knowledge among them in the post test. Thus, it is concluded that the booklet on chemotherapy self-care is effective in improving the

knowledge of patients receiving chemotherapy.

The findings also revealed that the demographic variable gender ($\chi^2=4.051$, $p=0.044$) had shown statistically significant association with posttest level of knowledge at $p<0.05$ level and the other demographic variables had not shown statistically significant association with post test level of knowledge and none of the clinical variables had statistically significant association with post test level of knowledge at $p<0.05$.

CONCLUSION

It became vital for the cancer patients in oncology department should have additional knowledge on Self-care management on side effects of chemotherapy and its interpretation in order to save the patient from developing quite lot of side effects. If they are able to interpret correctly can prevent side effects, thus helps in improving the condition of the patients. Hence the study is useful for cancer patients. The study revealed that the self-instructional model was effective in improving the knowledge of cancer patients regarding self-care management on side effects of chemotherapy.

Ethical Approval

No ethical approval was necessary for this study.

Author Contribution

All authors made substantial contributions to the conception, design, acquisition, analysis, or interpretation of data for the work. They were involved in drafting the manuscript or revising it critically for important intellectual content. All authors gave final approval of the version to be published and agreed to be accountable for all aspects of the work, ensuring its accuracy and integrity.

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Conflict of Interest: The Author declares that there is no conflict of interest.

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