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Effectiveness of structured teaching programme on knowledge regarding oral care among cancer patients undergoing chemotherapy in rims hospital, Imphal

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Abstract

Despite the fact that chemotherapy has led to a reduction in death rates among cancer patients, the treatment's associated morbidity can negatively affect the quality of life and disrupt cancer treatment. Out of the entire population receiving chemotherapy, 30% to 40% experienced oral complications. The present study aimed to evaluate the effectiveness of a structured teaching program on the knowledge of oral care among cancer patients receiving chemotherapy at RIMS hospital in Imphal. A one-group pre-test post-test interventional design was utilized for this research. The findings indicated that the mean knowledge score of participants in the post-test was higher than that in the pre-test. The difference in the mean knowledge score between pre-test and post-test was statistically significant at 5% level ($p < 0.05$), with a paired 't' test value of 27.48. Therefore, the study concluded that the structured teaching program is effective in enhancing knowledge about oral care among cancer patients undergoing chemotherapy.

Keywords: Effectiveness, Structured teaching programme, Knowledge, Oral Care, Patient

Introduction

Cancer is a condition affecting cells where the usual regulatory mechanisms governing growth and proliferation have been modified. It is increasingly recognized as a public health issue globally¹. Chemotherapy involves the administration of anti-neoplastic agents aimed at destroying tumor cells by disrupting cellular function and reproduction³. However, Chemotherapeutic agents cannot selectively distinguish between normal cells and cancer cells, resulting in the destruction of normal cells, especially those that are rapidly proliferating, such as those in the bone marrow, the lining of the gastrointestinal system, and the integumentary system (skin, hair, and nails) ^[1]. The challenges associated with antineoplastic agents in the oral cavity include mucositis, infections, hemorrhaging, dry mouth, neurologic issues, and nutritional deficiencies. It is extremely important to anticipate and recognize the conditions that predispose patients to complications so that they can be prevented or minimized by proper management before, during, and after chemotherapy. Simple and easy measures, like proper oral care among cancer patients, are neglected due to a lack of information. As a result, most of them often end up in fatal conditions. Timely Health education on oral care can reduce the incidence rate and severity of oral complications due to chemotherapy and help in better coping with the treatment.

2. Objectives of the study

1. To determine the effectiveness of a structured teaching programme on knowledge regarding oral care among cancer patients undergoing chemotherapy.
2. To evaluate the association between selected demographic variables and the knowledge levels of cancer patients concerning oral care.

3. Materials and Methods

3.1 Study design

A One-group pre-test post-test Intervention design was utilized in this research.

3.2 Study setting

The study was carried out in the Department of Radiation Oncology at RIMS, Imphal.

3.3 Study population

The population of this study comprised of cancer patients receiving chemotherapy at RIMS Hospital, Imphal.

3.4 Sample size

80 participants were included in the study.

3.5 Sample technique

In this study, the investigator adopts a non-probability consecutive sampling technique.

3.6 Study tool

A Self-structured questionnaire was adopted. It consists of two (2) Sections.

3.6.1 Section A: Socio-demographic variables

The first section of the tool comprises of questions that are meant for collecting background information from the participants, such as participants' age, gender, educational status, religion, source of information, occupation, cancer in the family, monthly income, and habits.

3.6.1 Section B: Structured knowledge questionnaire

The second section comprises 30 items design to assess the participants' level of knowledge. It has four parts as mentioned below:

Part I	:	Consists of five (5) questions related to introduction on cancer
Part II	:	Consists of four (4) questions related to side effect of chemotherapy
Part III	:	Consists of nine (9) questions related to oral problems.
Part IV	:	Consists of twelve (12) questions related to oral care.

3.7 Reliability of tool

It was computed by using Cronbach's Alpha ' α '. The score of internal consistency is found to be 0.745.

3.8 Data collection procedure

The research was carried out at RIMS Hospital, Imphal. Data collection occurred from 06-03-2021 to 31-03-2021. Before proceeding to data collection, formal written permission was attained from the concerned authorities of RIMS. The study took place in the Radiation Oncology wards of RIMS Hospital. The researcher offered adequate

information about the study's purpose and its significance. The participants who are either admitted to the ward or outpatients who come for chemotherapy in the day care unit were recruited as a sample using a consecutive sampling technique. For inpatients, the pre-test and post-test were scheduled in a manner that it did not disrupt the normal routine of the wards, specifically after 1 PM. For day care patients, data collection was before starting or during the infusion of chemotherapy drugs, i.e., 9am to 1pm. The study was initiated by the introduction of the researcher to the participants. On the same day of the meeting, consents were taken from the participants.

Following the consent, the researcher administered a pre-test to evaluate the level of knowledge, which was succeeded by a structured teaching program (STP). The pre-test and STP were conducted daily for one week until the desired sample size was achieved. For outpatients who completed the pre-test and STP but did not have an appointment within the subsequent 10 days, the post-test was conducted via telephone calls.

3.9 Statistical analysis

3.9.1 Descriptive statistics

1. Frequency and percentage distribution were employed to examine participants' age, gender, educational status, religion, source of information, occupation, cancer in the family, monthly income, and habits.
2. Mean and standard deviation were used to assess the individual knowledge score regarding oral care of the cancer patients.

3.9.2 Inferential statistics

1. A paired t-test was employed to determine the effectiveness of a structured teaching programme on knowledge related to oral care.
2. The Chi-square test (χ^2) was utilized to assess the significant relationship between chosen demographic variables and the knowledge scores of the participants.

3.10 Ethical consideration

Before commencing with the study, consent was taken from the Principal of the College of Nursing, RIMS, Research Ethics Board of RIMS, and the HOD of the Radiation Oncology Department, RIMS, Imphal. Informed consent was obtained from all participating individuals. The participant's identity remains anonymous by using a code number. Data collected was kept secure and can be assessed only by me and my guide. Collective data and findings, where individual data cannot be identified, were published.

4. Results

Table 1: Knowledge category-wise distribution of cases between pre- and post-tests. n=80

Knowledge levels	Pre-test (%)	Post-test (%)
Inadequate Knowledge	62(77.5%)	
Moderately adequate Knowledge	18(22.5%)	59(73.8%)
Adequate Knowledge	-	21(26.3%)

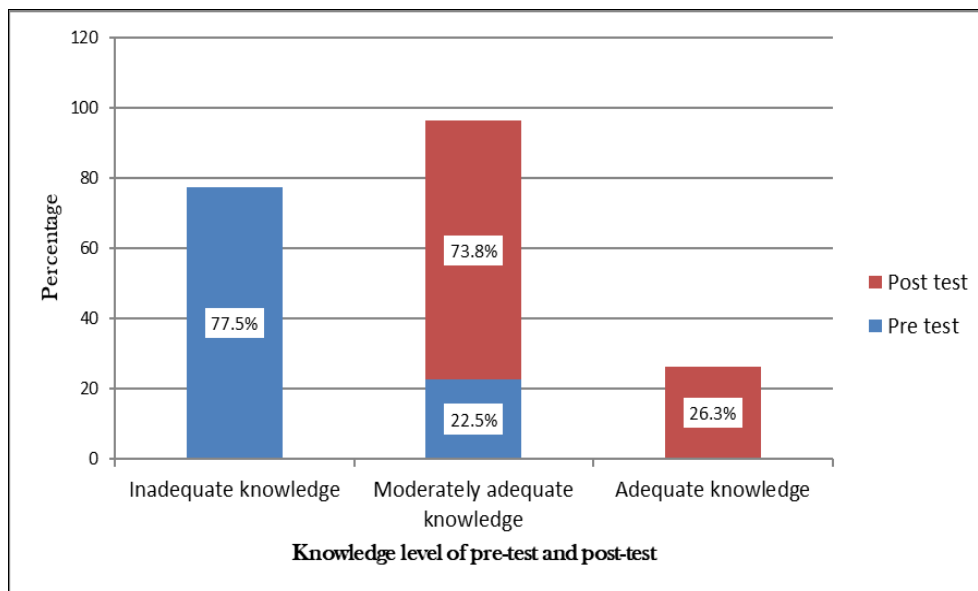


Fig 1: Category-wise knowledge scores between the pre-test and the post-test.

Table 1.0 and Figure 1.0 indicate that during the pre-test, 62 participants (77.5%) exhibited inadequate knowledge, while the remaining 18 respondents (22.5%) demonstrated

moderate knowledge. In the post-test, 21 participants (26.3%) displayed adequate knowledge, and 59 participants (73.8%) showed moderately adequate knowledge.

Table 2: The overall knowledge scores of the participants in both the pre-test and post-test are presented. n=80

Overall Knowledge	Number of cancer patients	Max. Score	Mean	Mean %	Std. Deviation	t-value	P-value
Pre-test	80	30	11.39	37.97	3.52	27.48	<0.01
Post-test	80	30	20.09	66.97	3.01		
Enhancement	80	30	8.7	29	2.8		

* Significant at 5% Level

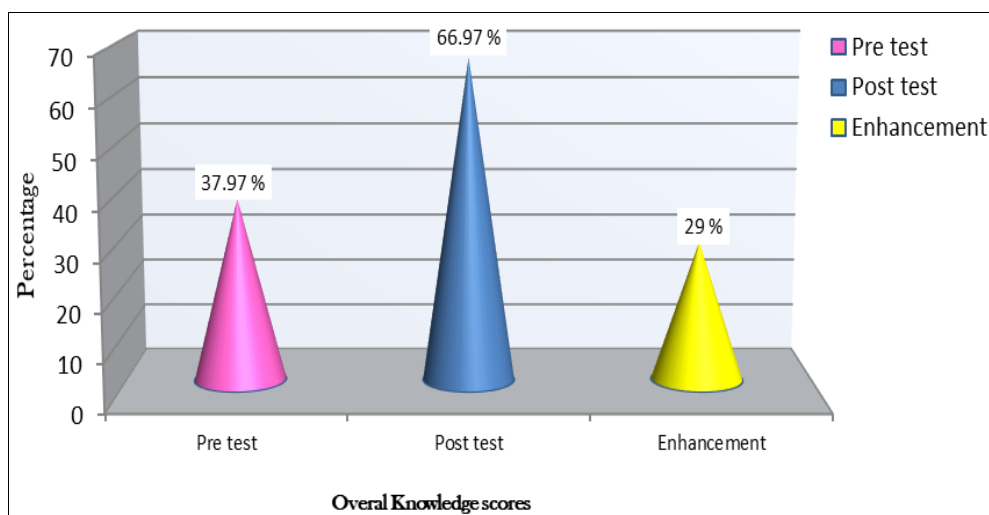


Fig 2: The average percentage knowledge scores of the participants in pre-test and post-test

As indicated in Table 2 and Figure 2.0, it is observed that the average knowledge score obtained by the cancer patients in the post-test was higher (mean=20.09 with SD=3.01) compared to the mean score in the pre-test (mean=11.39 with SD=3.52), reflecting an increase in the mean knowledge score by 8.7. The results of the statistical paired 't' test demonstrate that the difference between the pre-test

and post-test values was statistically significant at the 5% level ($p < 0.05$), with a paired 't' test value of 27.48. Consequently, there is a notable enhancement in knowledge concerning oral care among cancer patients receiving chemotherapy following the implementation of the Structured Teaching Programme.

Table 3: Association between knowledge of oral care among cancer patient and their demographic variable. n=80

Sl no.	Demographic variables	Category	Pre-test level of Knowledge		Total (%)	Chi-square df	p-value
			Inadequate Knowledge (%)	Moderately adequate Knowledge (%)			
1.	Age	18-29 years	4 (80)	1 (20)	5 (6.25)	$\chi^2=1.133$ (0.769) df=3	p>0.05 NS
		30-41 years	8 (66.67)	4 (33.33)	12 (15)		
		42-53 years	16 (76.19)	5 (23.81)	21 (26.25)		
		54 years and above	34 (80.95)	8 (19.05)	42 (52.5)		
2.	Sex	Male	32 (80.00)	8 (20.00)	32 (80.00)	$\chi^2=0.287$ (0.790) df=1	p>0.05 NS
		Female	30 (75.00)	10 (25.00)	30 (75.00)		
3.	Religion	Christian	27 (71.05)	11 (28.95)	38 (47.5)	$\chi^2= 2.367$ (0.5) df=3	p>0.05 NS
		Hindu	29 (82.86)	6 (17.14)	35 (43.75)		
		Muslim	3 (100.00)	0 (0.00)	3 (3.75)		
		Others	3 (75.00)	1 (25.00)	4 (5)		
4.	Educational Status	Primary Education	45 (88.24)	6 (11.76)	51 (63.75)	$\chi^2=12.72$ (0.005) df=3	p<0.05 S
		Secondary Education	13 (68.42)	6 (31.58)	19 (23.75)		
		Higher Secondary	2 (50.00)	2 (50.00)	4 (5)		
		Graduate and above	2 (33.33)	4 (66.67)	6 (7.5)		
5.	Source of information	Books	4 (80)	1 (20)	5 (6.25)	$\chi^2=2.272$ (0.5) df=3	p>0.05 NS
		Friends	20 (71)	8 (29)	28 (35)		
		Mass Media	21 (75)	7 (25)	28 (35)		
		Health care personnel	17 (89)	2 (11)	19 (23.75)		
6.	Occupation	Employed	7 (63.64)	4 (36.36)	11 (13.75)	$\chi^2=1.63$ (0.652) df=3	p>0.05 NS
		Business	8 (80.00)	2 (20.00)	10 (12.5)		
		Farmer	31 (81.58)	7 (18.42)	38 (47.5)		
		Others	16 (76.19)	5 (23.81)	21 (26.25)		
7.	Cancer in the family	First degree relative	17 (85.00)	3 (15.00)	20 (25.00)	$\chi^2=2.71$ (0.438) df=3	p>0.05 NS
		Second degree relative	2 (50.00)	2 (50.00)	4 (5.00)		
		Nil	42 (76.36)	13 (23.64)	55 (68.75)		
		Both a)&b)	1 (100.00)	0 (0.00)	1 (1.25)		
8.	Monthly income of the family	Below 5K	29 (82.86)	6 (17.14)	35 (43.75)	$\chi^2= 1.965$ (0.58) df=3	p>0.05 NS
		5000 -10000	14 (70.00)	6 (30.00)	20 (25)		
		10000 - 20000	10 (83.33)	2 (16.67)	12 (15)		
		20000 and above	9 (69.23)	4 (30.77)	13 (16.25)		
9.	Habits	Using Tobacco product	44 (81.48)	10 (18.52)	54 (67.50)	$\chi^2=3.006$ (0.391) df=3	p>0.05 NS
		Alcohol	5 (62.50)	3 (37.50)	8 (10.00)		
		Addicted to sweet or sugar	6 (85.71)	1 (14.29)	7 (8.75)		
		Eating process food or charred meat	7 (63.64)	4 (36.36)	11 (13.75)		

NS: Not significant S: Significant

Table 3.0 represents the relationship between pre-test knowledge scores and various demographic variables. The Chi-square is applied to determine the association between the pretest knowledge score and the selected demographic variables at a significant level of <0.05. The results of the chi-square analysis indicate a significant association between knowledge score and educational status (p-value of 0.005). Conversely, no significant association is observed between knowledge score and demographic variables such as age (p-values of 1.133), sex (p-value of 0.790), religion (p-value of 0.5), source of information (p-value of 0.5), occupation (p-value of 0.652), history of cancer in the family (p-value of 0.438), monthly income of the family (p-value of 0.601), and habits (p-value of 0.391).

5. Discussion

The primary aim of the study is to assess the effectiveness of a structured teaching program on the knowledge of oral care among cancer patients undergoing chemotherapy

The present study found that participants' knowledge scores improved considerably after post-implementation of the structured teaching program, and this improvement is statistically significant. The overall mean percentage knowledge score in the pre-test was 11.39 (37.93%), while in the post-test it was 20.09 (66.96%), indicating a

knowledge enhancement of 8.7 (29%).

A similar study was conducted by Prathiba Sivakumar, who conducted a pre-experimental design structured teaching program aimed at enhancing knowledge among cancer patients at a selected Hospital in Chennai, Tamil Nadu. They found that the overall mean knowledge score in the post-test is 21.68, in contrast to the pre-test mean percentage knowledge score value of 7.21, reflecting a knowledge enhancement of 14.47 following the structured teaching program. This shows that the educational program contributes to an increase in knowledge, which may positively influence proper oral care during chemotherapy [8].

The second objective of the study is to evaluate the association between selected demographic variables and the knowledge scores of cancer patients concerning oral care

In the current study, among the demographic variables analyzed, educational status was identified as having a highly significant association with knowledge scores. No significant association were found between age, sex, religion, source of information, occupation, cancer in the family, monthly income of the family, and personal habits.

A Similar study was conducted by Mahadeo Shinde, focusing on a quasi-experimental study into the

effectiveness of a planned teaching program on knowledge regarding non-curative care of terminally ill cancer patients among caregivers in Mumbai. One of the study's objectives was to explore the association between knowledge and selected socio-demographic variables. An evaluative research approach utilizing a quasi-experimental design was employed, involving 40 caretakers and a convenience sampling method. The findings indicated that the variable of educational qualification had a significant association with the knowledge score of the respondents [9].

5.1 Strength of the Study

The research aimed at evaluating the effectiveness of structured teaching program on oral care for cancer patients is the first of its kind, as per the Review of Literature. However, prior studies have employed a descriptive cross-sectional research design to examine knowledge and practice related to oral care among the patients receiving chemotherapy.

All the participants receive identical treatment and the assessment. This helps in assessment of the dependent variable both before and after the treatment.

5.2 Limitations of the study

1. The research is confined to cancer patients aged 18 years and older who are receiving chemotherapy at RIMS Hospital, Imphal.
2. The study did not incorporate a control group. The investigator lacked control over the occurrences between the pre-test and post-test phases.
3. The duration of the study is restricted to 4 weeks.
4. The sample size for the study was limited to 80 cancer patients who were available during the data collection period. A small number of subjects restricts the ability to generalize the finding of the study.

6. Conclusion

The Primary objective of this research was to evaluate the effectiveness of a structured teaching program aimed at enhancing knowledge about oral care among cancer patients receiving chemotherapy at RIMS Hospital in Imphal.

Analysis of the mean score from the pre-test and post-test regarding oral care knowledge among these patients revealed that the mean score achieved in the post-test was higher than that of the pre-test. The results of the statistical paired t-test implies that the difference between the pre-test and post-test score was statistically significant at the 5% level ($p < 0.05$), with a paired 't' test value of 27.48. This suggests a significant improvement in knowledge regarding oral care among cancer patients undergoing chemotherapy following the implementation of the structured teaching program.

To examine the association between pre-test knowledge and selected demographic variables, the chi-square was utilized, with a p-value of < 0.05 deemed significant. The chi-square analysis revealed a significant association knowledge scores and educational status (p-value of 0.005), while no significant association was found between knowledge scores and other demographic variables.

The following conclusion was drawn on the basis of the findings of the study.

1. The Majority of cancer patients have inadequate knowledge before the administration of STP, with 62(77.5%) of the patients demonstrating inadequate knowledge, while 18(22.5%) exhibited moderately

adequate knowledge.

2. The STP was effective in increasing knowledge among patients with cancer; in the post-test, 21(26.3%) possessed adequate knowledge, and 59(73.8 %) had moderately adequate knowledge.
3. A significant association exists between knowledge scores and educational status. However, no significant association was found between the knowledge scores and the other selected demographic variables including age, sex, religion, source of information, occupation, family history of cancer, and habit.

Conflict of Interest: Not available

Financial Support: Not available

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