Research Article

Assess an effect of planned teaching programme on knowledge regarding lifestyle modification for prevention of infection among cancer patients

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Abstract:

Introduction: According to the World Health Organization, cancer is one of the leading causes of death worldwide. Cancer treatment such as chemotherapy, radiotherapy, and surgery often weakens the immune system, increasing the risk of infection among patients. Infections during treatment can result in serious complications, delayed therapy, and prolonged hospitalization. However, appropriate lifestyle modification measures and patient education can significantly reduce infection risk and improve overall health outcomes. **Objectives**: To assess the pre-test level of knowledge regarding lifestyle modification for prevention infection among cancer patients before the implementation of the planned teaching programme. To determine the effect of the planned teaching programme by comparing the pre-test and post-test knowledge scores of cancer patients. To find out the association between pre-test knowledge scores regarding lifestyle modification for prevention of infection among cancer patients and selected socio-demographic variables. **Methodology:** Quantitative evaluative research approach applied with Pre expremental one group pre- test and post- test design. Non probability convenience sampling technique used to select cancer patients. **Results:** The mean pre-test knowledge score was 16.71 (SD = 2.97), whereas the mean post-test score increased to 25.71 (SD = 2.67). The calculated paired t-value was 44.19, with a p-value less than 0.001. Since the p-value was below the 0.05 level of significance.

Keywords: Planned teaching programme, Lifestyle modification for prevention of infection, cancer patients.

Introduction:

Cancer is a major public health problem characterized by the uncontrolled growth and abnormal division of cells, which may invade surrounding tissues and spread to other parts of the body. Tumours are classified into benign and malignant types. While benign tumours do not spread to other body parts, malignant tumours have the potential to invade nearby tissues and metastasize. Cancer is the second leading cause of death worldwide, accounting for approximately one in six deaths. Its development is influenced by genetic, environmental, and lifestyle-related factors such as tobacco consumption, alcohol use, unhealthy dietary habits, obesity, physical inactivity, and exposure to certain infections.[1]

Cancer patients are particularly vulnerable to infections because the disease and its treatment can weaken the body's immune system. Treatments such as chemotherapy, radiotherapy, and surgery may reduce the number and function of white blood cells, especially neutrophils, increasing susceptibility to bacterial, viral, and fungal infections. Additionally, damage to the gastrointestinal mucosa, surgical wounds, nutritional deficiencies, vascular catheters, and associated comorbidities further increase the risk of infection.[2]

Infection occurs when harmful microorganisms, including bacteria, viruses, fungi, and parasites, enter and multiply within the body. Among cancer patients, infections can cause serious complications, delay treatment, prolong hospitalization, increase healthcare expenditure, and adversely affect quality of life. Therefore, infection prevention is an essential component of comprehensive cancer care.[3]

Lifestyle modifications play an important role in reducing preventable infection risks among cancer patients. Maintaining personal hygiene, practising regular handwashing, consuming nutritious and hygienically prepared food, drinking safe water, maintaining environmental cleanliness, getting adequate rest, and recognizing early signs of infection are essential preventive measures. Nurses play a significant role in educating patients about these practices and encouraging appropriate self-care behaviours. A planned teaching programme provides systematic health education to improve knowledge and promote healthy practices among cancer patients.

Need for the study:

Cancer continues to be a significant global health challenge, and infections remain one of the major complications experienced by patients undergoing cancer treatment. Due to weakened immunity, cancer

patients are more susceptible to infections, which may result in serious health consequences, interruption of treatment, prolonged hospital stays, and increased financial burden on patients and their families.
Many infection-related complications can be reduced through appropriate preventive measures and healthy lifestyle practices. However, cancer patients may lack adequate knowledge regarding personal hygiene, handwashing, food safety, nutritional practices, environmental cleanliness, and early identification of infection-related symptoms. Differences in educational background, socioeconomic status, and health awareness may further influence their understanding and adoption of preventive practices.
Patient education is therefore essential to empower cancer patients to participate actively in their own care. Nurses have an important responsibility to provide appropriate health education, identify infection-related risk factors, encourage preventive behaviours, and promote early reporting of symptoms. A planned teaching programme offers a systematic approach to addressing knowledge gaps and improving patients' understanding of infection prevention.
Improved knowledge can encourage better self-care practices, reduce preventable exposure to infections, support continuity of cancer treatment, and enhance quality of life. However, the effectiveness of structured educational interventions needs to be evaluated scientifically.
Hence, the investigator felt the need to conduct the present study entitled "A Study to Assess the Effectiveness of a Planned Teaching Programme on Knowledge Regarding Lifestyle Modification for Prevention of Infection Among Cancer Patients Admitted to Selected Hospitals of Maharashtra." The study aims to evaluate the effectiveness of the planned teaching programme and identify the association between pre-test knowledge scores and selected socio-demographic variables.

Materials And Methods:

Aim: The aim of the study is to assess the effect of a planned teaching programme on knowledge regarding lifestyle modification for prevention infection among cancers patients in selected hospitals**. Objectives:** To assess the pre-test level of knowledge regarding lifestyle modification for prevention infection among cancer patients before the implementation of the planned teaching programme. To determine the effect of the planned teaching programme by comparing the pre-test and post-test knowledge scores of cancer patients. To find out the association between pre-test knowledge scores regarding lifestyle modification for prevention of infection among cancer patients and selected socio-demographic variables. **Research question:** Primary research question- Does the planned teaching programme in improving knowledge regarding lifestyle, modification for infection prevention among cancer patient?, Secondary research question- Does the significance association between selected socio-demographic variables and pre-test knowledge regarding lifestyle, modification for infection prevention among cancer patient?

Research approach: Quantitative evaluative research approach. Research design: Pre expremental one group pre- test and post- test design. Setting: selected hospital located in Maharashtra. Sampling Technique - Non probability convenience sampling technique. Sample and sample size: The sample size decided for the present study was 52 cancer patients who meet the inclusion and exclusion criteria. Inclusion criteria: Patients willing to participate and provide consent, patients who can understand Marathi, Hindi, or English. Exclusion criteria: Patients who are critically ill or unable to participate, Patients who have already received similar health education. Tool used for the study: Section I- Socio-demographic data, Section II- Structured knowledge questionnaire.
Hypotheses: - H0: There is no statistically significant difference between the pre-test and post-test knowledge scores regarding lifestyle modification for prevention of infection among cancer patients after implementation of the planned teaching programme. H1: There is a statistically significant difference between the pre-test and post-test knowledge scores regarding lifestyle modification for prevention of infection among cancer patients after implementation of the planned teaching programme.

Results:

Table 1: Frequency & percentage distribution of socio-demographic data of cancer patients n=52

Socio-demographic data	*Frequency*	*Percentage*
Age (in years)		
18-30	0	0.00

31-45	10	19.23
46-60	23	44.23
Above 60	19	36.54
Gender		
Male	24	46.15
Female	28	53.85
Education		
Primary education	14	26.92
Secondary education	22	42.31
Higher secondary education	16	30.77
Graduate and above	0	0.00
Occupation		
Sedentary occupation	10	19.23
Agricultural occupation	14	26.92
Manual occupation	13	25.00
Other occupation	15	28.85
Type of cancer diagnosed		
Breast cancer	13	25.00
Oral cancer	16	30.77
Cervical cancer	3	5.77
Other	20	38.46
Previous health education		
Yes	0	0.00
No	52	100.00
Duration of previous illnesses		
Less than 1 year	24	46.15
1–3 years	9	17.31
4–6 years	8	15.38
More than 6 years	11	21.15
Area of residence		
Urban	32	61.54
Rural	20	38.46
Presence of Comorbidities		
Diabetes	11	21.15
Hypertension	12	23.08
Tuberculosis	4	7.69
Other	25	48.08

In socio demographic profile, majority 44.23% of cancer patients age 46-60 years, 53.85% of them were females, 42.32% up to Secondary, 28.85% cancer patients from other occupation, 38.46% of patients had other type of cancer, 100% of patients answered as no previous health education, 46.15% of them answered as less than 1 year, 61.54% of them were from urban residence, and 48.08% of cancer patients answered as other comorbidities

Table 2: General assessments of Knowledge Pre Test
n=52

Variable	Groups	Score	Pre Test	
			Frequency	Percentage

Knowledge	Poor	0-10	0	0.00
	Average	11-20.	48	92.31
	Good	21-30	4	7.69
	Minimum		12	
	Maximum		24	
	Average (SD)		16.71 (2.97)	

During the pre-test assessment of knowledge regarding lifestyle modifications for the prevention of infections among cancer patients admitted to selected hospitals in Maharashtra, none of the participants had poor knowledge, 92.31% had average knowledge, and only 7.69% demonstrated good knowledge. The mean pre-test knowledge score was 16.71, with a standard deviation of 2.97. The minimum knowledge score was 12, while the maximum score was 24. These findings indicate that the majority of the participants had an average level of knowledge regarding lifestyle modifications for the prevention of infections before the implementation of the planned teaching programme.

Table 3: General assessments of Knowledge Post Test
n=52

Variable	**Groups**	**Score**	**Post Test**	
			Frequency	**Percentage**
Knowledge	Poor	0-10	0	0.00
	Average	11-20.	1	1.92
	Good	21-30	51	98.08
	Minimum		20	
	Maximum		30	
	Average (SD)		25.71 (2.67)	

During the post-test assessment of knowledge regarding lifestyle modifications for the prevention of infections among cancer patients admitted to selected hospitals in Maharashtra, none of the participants had poor knowledge, 1.92% had average knowledge, and 98.08% demonstrated good knowledge. The mean post-test knowledge score was 25.71, with a standard deviation of 2.67. The minimum score was 20, while the maximum score was 30. These findings indicate that the majority of the participants had good knowledge regarding lifestyle modifications for the prevention of infections following the planned teaching programme.

Table 4: Comparison of the pre and posttest Knowledge (paired t test)
n=52

Group	**Mean**	**S.D.**	**t value**	**P value**
Pre Test	16.71	2.97	44.19	0.000
Post Test	25.71	2.67		

The pre-test and post-test knowledge scores regarding lifestyle modifications for the prevention of infections among cancer patients admitted to selected hospitals in Maharashtra were compared using a paired t-test. The mean pre-test knowledge score was 16.71 (SD = 2.97), whereas the mean post-test score increased to 25.71 (SD = 2.67). The calculated paired t-value was 44.19, with a p-value less than 0.001. Since the p-value was below the 0.05 level of significance, the null hypothesis was rejected. These findings indicate a statistically significant improvement in the knowledge of cancer patients following the planned teaching programme. Therefore, the planned teaching programme was found to be effective in enhancing knowledge regarding lifestyle modifications for the prevention of infections among cancer patients.

Table 5: Association of Knowledge with demographic variables
n=52

Variable	Groups	KNOWLEDGE - Pretest		Chi Square	def.	p value	Significance
		below median	Above median				
Age (in years)	18-30	0	0	4.27	2	0.11	Not Significant
	31-45	6	4				
	46-60	11	12				
	Above 60	15	4				
Gender	Male	16	8	0.49	1	0.48	Not Significant
	Female	16	12				
Education	Primary education	14	0	38.17	2	0.000	Significant
	Secondary education	18	4				
	Higher secondary education	0	16				
	Graduate and above	0	0				
Occupation	Sedentary occupation	3	7	8.15	3	0.043	Significant
	Agricultural occupation	12	2				
	Manual occupation	7	6				
	Other occupation	10	5				

Type of cancer diagnosed	Breast cancer	5	8	4.49	3	0.21	Not Significant
	Oral cancer	10	6				
	Cervical cancer	2	1				
	Other	15	5				
Previous health education **Previous health education**	Yes	0	0	Cannot compute Chi-Square			
	No	32	20				
Duration of previous illnesses	Less than 1 year	11	13	4.69	3	0.20	Not Significant
	1–3 years	7	2				
	4–6 years	6	2				
	More than 6 years	8	3				
Area of residence	Urban	17	15	2.48	1	0.12	Not Significant
	Rural	15	5				
Presence of Comorbidities	Diabetes	9	2	9.52	3	0.023	Significant
	Hypertension	10	2				
	Tuberculosis	3	1				
	Other	10	15				

In association of knowledge with demographic variables only education, occupation and presence of comorbidities had found significant association with knowledge scores,

Discussion:

The first objective of the present study was to assess the pre-test level of knowledge regarding lifestyle modifications for the prevention of infections among cancer patients admitted to selected hospitals in Maharashtra before implementing the planned teaching programme.

A quantitative research approach with a pre-experimental one-group pre-test and post-test design was adopted. A total of 52 cancer patients were selected using a non-probability convenience sampling technique, and data were collected using a structured knowledge questionnaire. The knowledge scores were categorized as poor (0–10), average (11–20), and good (21–30). The pre-test findings revealed that 92.31% of participants had average knowledge, 7.69% had good knowledge, and none had poor knowledge. The mean pre-test score was 16.71 ± 2.97, with scores ranging from 12 to 24, indicating that most participants had average baseline knowledge.

These findings were consistent with a 2020 study by Monika Sehga on the effectiveness of a planned teaching programme regarding the prevention and management of chemotherapy side effects among cancer patients. The study reported a mean pre-test knowledge score of 12.65 ± 4.19, which increased to 25.54 ± 3.39 after the intervention ($t = 17.40$, $p < 0.05$).

Both studies highlight the importance of structured educational interventions in improving cancer patients' knowledge and promoting preventive and self-care practices.

The second objective of the present study was to determine the effectiveness of the planned teaching programme by comparing the pre-test and post-test knowledge scores regarding lifestyle modifications for the prevention of infections among cancer patients admitted to selected hospitals in Maharashtra.

A quantitative approach with a pre-experimental one-group pre-test and post-test design was adopted. A total of 52 cancer patients were selected using a non-probability convenience sampling technique. The findings revealed that the mean knowledge score increased from 16.71 ± 2.97 in the pre-test to 25.71 ± 2.67 in the post-test. The calculated paired t-value was 44.19, with $p < 0.001$, indicating a statistically significant improvement in knowledge. Therefore, the null hypothesis was rejected, demonstrating the effectiveness of the planned teaching programme.

These findings were consistent with a 2026 study conducted by Nagammal and colleagues, titled "A Study to Assess the Effectiveness of Planned Teaching Programme on Knowledge Regarding Breast Cancer and Its Prevention among the Community Area in Selected Communities, Bengaluru." Among 50 participants, the mean knowledge score increased from 14.12 in the pre-test to 20.76 in the post-test. The paired t-value was 8.42 ($p < 0.001$), confirming a significant improvement following the intervention.

Both studies highlight the effectiveness of planned teaching programmes in enhancing knowledge and promoting awareness of disease prevention and related health practices.

The third objective of the present study was to determine the association between pre-test knowledge scores and selected socio-demographic variables among cancer patients admitted to selected hospitals in Maharashtra.

The study findings revealed that the pre-test knowledge scores were significantly associated with educational status and occupation ($p < 0.05$). However, no statistically significant association was observed with age, gender, or type of cancer diagnosed ($p > 0.05$). These findings suggest that educational and occupational backgrounds may influence the baseline knowledge of cancer patients regarding lifestyle modifications for the prevention of infections.

The findings were supported by a quasi-experimental study conducted by Jena S. (2017) at Basavatarakam Indo-American Cancer Hospital and Research Centre, Hyderabad, among 30 parents of children undergoing chemotherapy. The pre-test results showed that 44.66% of participants had below-average knowledge and 53.34% had average knowledge. Following the structured teaching programme, 96.6% achieved above-average knowledge, demonstrating a statistically significant improvement ($p < 0.05$).

Both studies highlight the importance of planned educational interventions in improving knowledge regarding infection prevention among cancer patients and their families. The findings also emphasize the role of educational background in influencing baseline knowledge levels.

Summary:

The present study evaluated the effectiveness of a planned teaching programme on knowledge regarding lifestyle modifications for the prevention of infections among cancer patients admitted to selected hospitals in Maharashtra. A quantitative approach with a pre-experimental one-group pre-test and post-test design was adopted. A total of 52 participants were selected using non-probability convenience sampling. Data were collected using a structured knowledge questionnaire with a reliability coefficient of 0.89.

The pre-test findings revealed that 92.31% of participants had average knowledge and 7.69% had good knowledge, with a mean score of 16.71 ± 2.97. Following the intervention, 98.08% achieved good knowledge, with the mean score increasing to 25.71 ± 2.67. The paired t-test revealed a statistically significant improvement ($t = 44.19$, $p < 0.05$), confirming the effectiveness of the programme. Pre-test knowledge was significantly associated with educational status, occupation, and comorbidities, but not with age, gender, or type of cancer. Thus, the planned teaching programme effectively enhanced knowledge regarding infection prevention among cancer patients.

Conclusion:

The present study concludes that cancer patients had average knowledge regarding lifestyle modifications for infection prevention before the planned teaching programme. Following the intervention, a statistically significant improvement in knowledge was observed, as confirmed by the paired t-test. Hence, the null hypothesis was rejected, establishing the effectiveness of the programme. Educational status, occupation, and presence of comorbidities were significantly associated with pre-test knowledge, whereas age, gender, and type of cancer showed no significant association. The findings emphasize the importance of structured educational programmes in improving patient awareness and promoting infection prevention practices among cancer patients.

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Conflicts of interest:

There are no conflicts of interest. Institute ethical committee clearance obtained.

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