Effectiveness of Self-care Measures on Side Effects of Chemotherapy, Performance Status, and Quality of Life among Patients Undergoing Chemotherapy at Selected Hospitals at Puducherry

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ABSTRACT

Background: Cells that are uncontrolled in their growth, division, and invasion into other tissues are called cancerous tumors. Cell division is controlled by a person without cancer. In the majority of tissues, healthy cells reproduce and divide in a controlled manner to produce new healthy cells. This regular cell division becomes uncontrolled in cancer. Because of gene mutations, cells undergo morphological changes. All cancerous cells are the offspring of cancerous cells. Malignant cells are also blamed for the development of cancer cells within our bodies. During treatment for cancer, self-care is a crucial and necessary component of pleasure and wellness. According to research, self-care routines help lessen the negative consequences of stress, poor sleep, and anxiety.

Objectives: The aim is 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 Puducherry.

Methodology: The quantitative approach and Quasi experimental one group pre-test—post-test research design was used in this study among cancer patients at selected hospitals. Purposive sampling technique was adapted and sample size was 30. Samples were interviewed through standardized observation checklist to assess the self-care measures, side effects of chemotherapy, performance status, and quality of life.

Results: 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 module, 30 (100) have neutral quality of life. Cancer patients undergoing chemotherapy in Eastern cooperative oncology group (ECOG) performance status scale as in pretest 23 (76.7%) were in symptomatic, but ambulatory and symptomatic (<50%) in bed were 7 (23.3%) after giving self-care instruction module; 13 (43.3%) were in asymptomatic; and 17 (56.7%) were symptomatic but ambulatory. The overall symptoms of chemotherapy in pretest 19 (63.3%) have moderate symptoms and 11 (36.7%) have mild symptoms after giving self-care instruction module. Two (6.7%) have moderate symptoms, and 28 (93.3%) have mild symptoms.

Conclusion: The study revealed that the self-care measures on side effects of chemotherapy, performance status, and quality of life among cancer patients who are undergoing chemotherapy were effective, and they changed the quality of life of cancer patients.

Keywords: Cancer, Chemotherapy, Quality of life, Self-care.

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INTRODUCTION

A set of illnesses known as cancer involves abnormal cell proliferation and has the ability to penetrate or spread to different body regions.[1,2] Additionally, both forms of cancer that predominate and their distribution around the globe are constantly changing, particularly in developing nations.[3] In men, oral, pulmonary, gastrointestinal, hypo pharynx, and vocal were the most common sites, while in women breast, cervical, ovary, oral, tongue, as well as myeloid leukemia, were common. The majority of instances were detected in people between the ages of 35 and 64, and also the proportion of men and women inside this age range was, respectively, 62.51 and 71.05%.[4] The five most important malignancies in both men and women make up 47.2% overall cancers, yet they can be checked for, prevented, or diagnosed and treated early. By doing this, the mortality rate from certain cancers might be dramatically lowered.[5] Surgery, chemotherapeutic, radiation treatment, hormone replacement, synthetic deadliness, and targeted therapy are all options for treating cancer. The location, severity, and level of the disease, in

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addition to patient's general health, influence the therapy option. There are also numerous treatments for cancer in progress. The most efficient and popular kind of treatment for the majority of

cancers is chemotherapy.[6] Although cancer treatment is becoming more and more successful, there are both immediate and chronic negative effects. The prevalence of cancer has been rising, which has resulted forever treatment approaches. The primary tactic of chemotherapy medications is rooted in the fact that all these drugs specifically targeted the cancerous cells, mostly through genotoxicity, which is partly brought on by the creation by reactive oxygen species, which do harm not only the cancerous cells but also the healthy cells.[7,8] Chemotherapy seems to be a crucial part of treating many malignancies, and introducing better anticancer medications is among the most significant sectors of the pharmaceutical industry.[9] Chemotherapy's inherent characteristics, however, mean that in addition to harming healthy cells, they also harm cancer cells, which results in adverse effects.[10] Chemotherapy side effects have an impact on a person's physical well-being, emotional state, and quality of life.[11,12] The most prevalent quick side effects of typical adjuvant chemotherapy protocols, as well as their corresponding frequency and severity, include exhaustion, nausea and vomiting, neutropenia, and oral microsites. In recent years, this side effect of chemotherapeutic drugs has been recognized as a common one.[13–18] Through earlier knowledge of side effects and their management approaches, patients engaged in and followed self-care behavior before side effects became persistent or severe. Additionally, Stromberg supports educating self-care to assist cancer patients develop their self-control sense and minimize the hopelessness that frequently comes with the illness and treatment. The nurse's additional task is to encourage patients to take an active role in their own care rather of relying solely mostly on health professional. In order to encourage self-care, the nurses collaborate with the patient's family and friends using their expertise as a patient educator. To individually tailor the response to patient care issues, the nurse must exercise significant ingenuity and flexibility.[19] According to Foster et al., a person's tactics for managing major diseases to optimize health or choices they have made to enhance their quality of life while coping with cancer.[20]

OBJECTIVES

The objectives of this study are as follows:

- To assess the effectiveness of self-care measures related to the side effects of chemotherapy, performance status, and quality of life among patients undergoing chemotherapy.
- To determine the effectiveness of self-care measures on side effects of chemotherapy, performance status, and quality of life among patients undergoing chemotherapy.
- To find the relationship among chemotherapy symptoms, performance status, and quality of life among patients undergoing chemotherapy.
- To find out the association between level of self-care, performance status, and quality of life among patients undergoing chemotherapy with their selected demographic variables.

METHODOLOGY

The quantitative research approach was used and the research design of Quasi experimental—one group pre-test and post-test design was used in this research. The population comprises cancer patients undergoing chemotherapy in selected hospital at Puducherry. The sample size was 30 cancer patients undergoing chemotherapy treatment. Purposive sampling technique is used to select the sample. Patients in first, second, and third stage of cancer are involved for the study. The tool was divided into four parts.

Part I: It includes sociodemographic data like age, gender, marital status, religion, occupation, educational status, family income, duration of cancer, family history, duration of surgery, and stages of cancer.

Part II: It includes Chemotherapy Symptom Assessment Scale.

Part III: Quality of Life assessment scale.

Part IV: It has Eastern Cooperative Oncology Group performance status of cancer patients undergoing chemotherapy. Data were obtained from each cancer patient after getting individual consent. Data are collected by interview and observation method using checklist. On the first day of data collection, pre-test was done for each sample and on the next day the sample was educated about Self-Care Instruction Model. After a month, the post-test was conducted for the same sample.

RESULTS

Table 1 and Figure 1 represent the frequency and distribution of cancer patients undergoing chemotherapy, in age above 60 years, 14 (46.7%); 56–59 years, 8 (26.7%); and 46–55 years, 8 (26.7%). In terms of gender, women [18 (60%)] were more than men [12 (40%)]. In terms of marital status, 19 (63.3%) were married, widower were 7 (23.3%), and divorced were 4 (13.3%). In terms of religion, the Hindus were 19 (63.3%) and Christians were 4 (13.3%). Among samples, for no formal education, the values were 14 (46.7%); for primary school, 8 (26.7%); and for high school, 8 (26.7%). All 30 samples were unemployed, where family income <10,000,

Table 1: The frequency and distribution of cancer patients undergoing chemotherapy

Demographic variables	Frequency	Percentage (%)
Age in years		
46–55	8	26.7
56–59	8	26.7
Above 60	14	46.7
Gender		
Male	12	40
Female	18	60
Marital status		
Married	19	63.3
Divorced	4	13.3
Widower	7	23.3
Religion		
Hindu	26	86.7
Christian	4	13.3
Education status		
No formal education	14	46.7
Primary school	8	26.7
High school	8	26.7

Occupation		
Unemployed	30	100
Family income per month		
Less than 10,000	10	33.3
10,000–19,000	10	33.3
20,000–29,000	10	33.3
Duration of cancer		
7–12 months	20	66.7
More than 12 months	10	33.3
Family history		
Yes	9	30
No	21	70
Duration of surgery		
0–11 months	21	70
1–3 years	9	30
Stages of cancer		
I	18	60
II	7	23.3
III	5	16.7

10 (33.3%); 10,000–19,000 were 10 (33.3%), and 20,000–29,000 were 10 (33.3%). In terms of the duration of cancer, 7–12 months were 20 (66.7%) and >12 months were 10 (33.3%). Among 30 samples, 21 (70%) had no family history of cancer and 9 (30%) had history of cancer. The newly operated cancer cases were in 0–11 months 21 (70%) and 1–3 year 9 (30%). In terms of stages of cancer 18 (60) were in stage I cancer, 7 (23.3%) were in stage II cancer and 5 (16.7%) were in stage III cancer.

Table 2 and Figure 2 describe the effectiveness of self-care instruction module among cancer patients undergoing chemotherapy as in pre-test 20 (66.7%) have poor quality of life and 10 (33.3%) have neutral quality of life after giving self-care instruction module. About 30 (100) have neutral quality of life. The pre-test mean value was 251.40, with a standard deviation of 10.89, and the post-test mean value was 186.87, with a standard deviation of 7.45. As a result, the paired t-test result was 46.58. P-value was <0.001 levels, and it was statistically significant.

Table 3 describes the effectiveness of self-care instruction module among cancer patients undergoing chemotherapy as in pre-test 25 (83.3%) have moderate severity symptoms and 5 (16.7%) have mild severity symptoms after giving self-care instruction module. About 25 (83.3%) have mild severity symptoms and 5 (16.7%) have moderate severity symptoms.
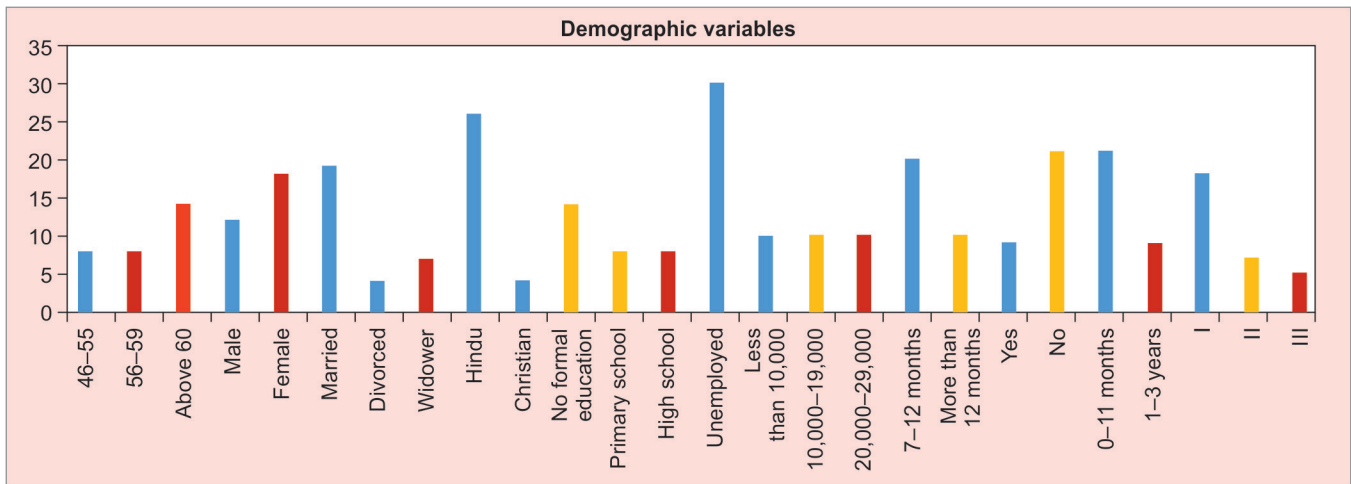

Fig. 1: Frequency and distribution on demographic variables of cancer patients undergoing chemotherapy

Table 2: Frequency and percentage distribution of pre- and post-test level of quality of life among cancer patients undergoing chemotherapy

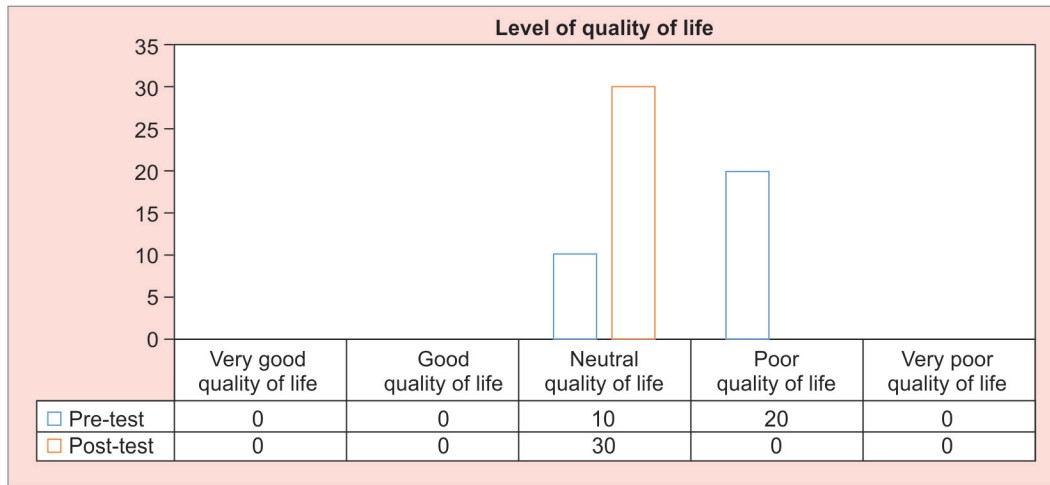|	Pre-test		Post-test	
Level of quality of life	Frequency	Percentage (%)	Frequency	Percentage (%)
Very good quality of life	0	0	0	0
Good quality of life	0	0	0	0
Neutral quality of life	10	33.3	30	100
Poor quality of life	20	66.7	0	0
Very poor quality of life	0	0	0	0

Fig. 2: Graphical presentation of effectiveness of self-care instruction module on quality of life among cancer patients undergoing chemotherapy

Table 3: Frequency and Percentage distribution of pre- and post-test level of severity of chemotherapy symptoms among cancer patients undergoing chemotherapy

Severity of chemotherapy symptoms	Pre-test		Post-test	
Mild severity of symptoms	5	16.7	25	83.3
Moderate severity of symptoms	25	83.3	5	16.7
Severe severity of symptoms	0	0	0	0

Table 4: Frequency and percentage distribution of pre- and post-test level of chemotherapy symptoms that bothers among cancer patients undergoing chemotherapy

Chemotherapy symptoms that bother	Pre-test		Post-test	
	Frequency	Percentage (%)	Frequency	Percentage (%)
Mild bother of symptoms	20	66.7	29	96.7
Moderate bother of symptoms	10	33.3	1	3.3
Severe bother of symptoms	0	0	0	0

Table 5: Frequency and percentage distribution of pre- and post-test level of chemotherapy symptoms among cancer patients undergoing chemotherapy

Level of chemotherapy symptoms	Pre-test		Post-test	
	Frequency	Percentage (%)	Frequency	Percentage (%)
Mild symptoms	11	36.7	28	93.3
Moderate symptoms	19	63.3	2	6.7
Severe symptoms	0	0	0	0

Table 4 describes the effectiveness of self-care instruction module among cancer patients undergoing chemotherapy as in pre-test 10 (33.3%) have moderate bother of symptoms and 20 (66.7%) have mild bother of symptoms after giving self-care instruction module. About 29 (96.7%) have mild bother of symptoms and 1 (3.3%) has moderate bother of symptoms. The pre-test mean value was 23.47, with a standard deviation of 4.68, and the post-test mean value was 16.77, with a standard deviation of 3.380. As a result, the paired t-test result was 17.585. p-value was <0.001 levels, and it was statistically significant.

Table 5 and Figure 3 describe the effectiveness of self-care instruction module among cancer patients undergoing chemotherapy as the overall symptoms of chemotherapy in pre-test 19 (63.3%) have moderate symptoms and 11 (36.7%) have mild symptoms after giving self-care instruction module. About 2 (6.7%) have moderate symptoms, and 28 (93.3%) have mild symptoms.

Table 6 represents the pre-test and the mean value was 52.37, with a standard deviation of 8.168. The post-test mean value was 37.10, with a standard deviation of 6.759. As a result, the paired t-test result was 27.014. P-value was <0.001 level, and it was statistically significant.

Table 7 and Figure 4 describe the effectiveness of self-care instruction module among cancer patients undergoing chemotherapy in performance status ECOG as in pre-test 23 (76.7%)
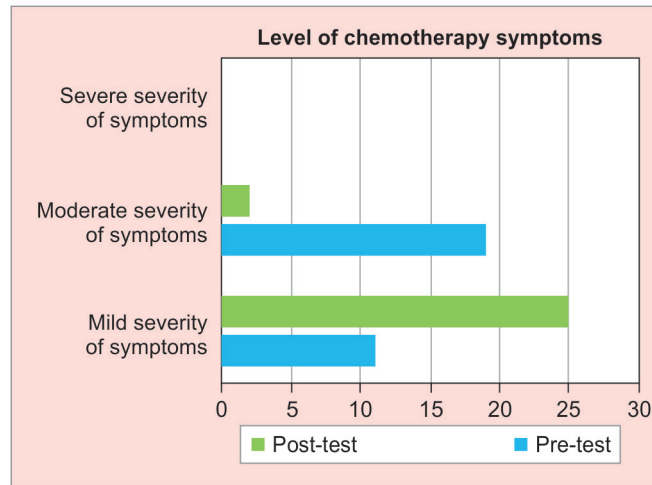
Fig. 3: Effectiveness of self-care instruction module on severity of chemotherapy symptoms among cancer patients undergoing chemotherapy

Table 6: Mean and standard deviation of pre- and post-test level of chemotherapy symptoms among cancer patients undergoing chemotherapy

Level of chemotherapy symptoms	Mean	Std. deviation	Std. error mean	Paired differences	Paired t-test	p-value
Pre-test	52.37	8.168	1.491	15.267	27.014	0.000
Post-test	37.10	6.759	1.234			

Table 7: Frequency and percentage distribution of pre- and post-test level of performance status ECOG among cancer patients undergoing chemotherapy

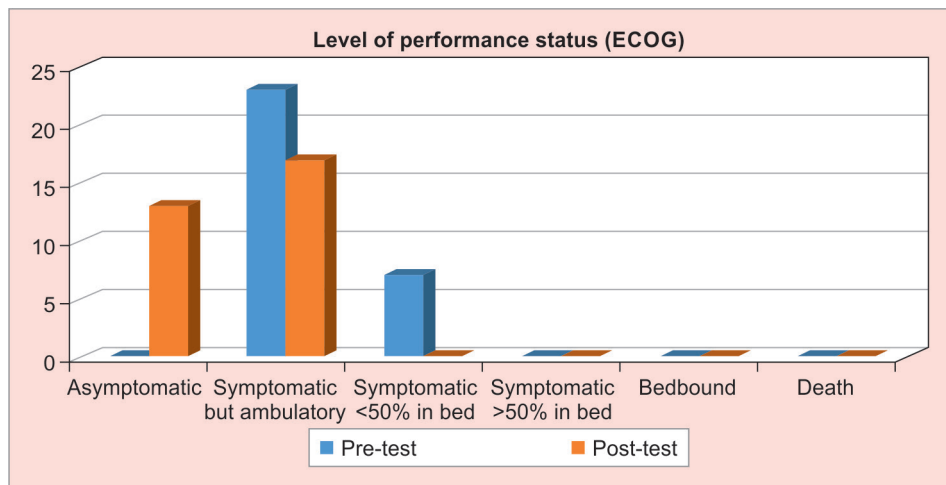|	Pre-test		Post-test	
Level of performance status (ECOG)	Frequency	Percentage (%)	Frequency	Percentage (%)
Asymptomatic	0	0	13	43.3
Symptomatic but ambulatory	23	76.7	17	56.7
Symptomatic <50% in bed	7	23.3	0	0
Symptomatic >50% in bed	0	0	0	0
Bedbound	0	0	0	0
Death	0	0	0	0

Fig. 4: Effectiveness of self-care instruction module on patient's performance status among cancer patients undergoing chemotherapy

Table 8: Fisher's extract test on level of performance status (ECOG) among cancer patients undergoing chemotherapy

| | Performance status post-test | | | |
Performance status pre-test	Asymptomatic	Symptomatic but ambulatory	Total	Fisher's exact test
Symptomatic but ambulatory	13	10	23	
Symptomatic <50% in bed	0	7	7	0.010
Total	13	17	30	

Table 9: Relation among self-care measures on side effects of chemotherapy, performance status, and quality of life among patients undergoing chemotherapy

Relationship		Pre-test quality of life	Pre-test severity of chemotherapy symptoms	Pre-test symptoms that bother	Pre-test level of chemotherapy symptoms
	Pearson correlation				
Pre-test quality of life	p-value	–	–	–	–
Pre-test severity of chemotherapy symptoms	Pearson correlation	−0.269	1	–	–
	p-value	0.150		–	–
Pre-test symptoms that bother	Pearson correlation	−0.135	0.616	1	–
	p-value	0.475	0.000	–	–
Pre-test level of chemotherapy symptoms	Pearson correlation	−0.223	0.892	0.906	1
	p-value	0.237	0.000	0.000	–

Table 10: Pre- and post-test level of performance status (ECOG) among cancer patients undergoing chemotherapy

Relationship	Pre-test performance status	N	Mean	Std. deviation	Std. error mean	Mean differences	Independent t-test	p-value
Pre-test quality of life	Symptomatic but ambulatory	23	252.13	10.914	2.276	3.130	0.659	0.515
	Symptomatic <50% in bed	7	249.00	11.314	4.276			
Pre-test severity of chemotherapy symptoms	Symptomatic but ambulatory	23	28.65	4.108	0.857	−1.062	−0.553	0.585
	Symptomatic <50% in bed	7	29.71	5.529	2.09			
Pre-test symptoms that bother	Symptomatic but ambulatory	23	23.43	4.066	0.848	−0.137	−0.066	0.948
	Symptomatic <50% in bed	7	23.57	6.754	2.553			
Pre-test level of chemotherapy symptoms	Symptomatic but ambulatory	23	52.09	7.204	1.502	−1.199	−0.335	0.740
	Symptomatic <50% in bed	7	53.29	11.441	4.324			

were in symptomatic, but ambulatory and symptomatic (<50%) in bed were 7 (23.3%) after giving self-care instruction module. About 13 (43.3%) were in asymptomatic and 17 (56.7%) were symptomatic but ambulatory.

Table 8 represents the Fisher's exact test on pre- and post-test level of performance status among cancer patients was significant with values 0.010.

Tables 9 and 10 describe that there is relation between the severity of symptoms and symptoms that bother and based on *p*-value < 0.001. Hence, it was statistically significant.

The association of level of self-care, performance status, and quality of life among patients undergoing chemotherapy with their selected demographic variables was highly associated with the family income.

Discussion

The frequency and distribution of cancer patients undergoing chemotherapy, and the majority of cancer patients are in the age of above 60 years were 14 (46.7%). These values in females were 18 (60%); in terms of marital status, 19 (63.3%) (married); Hindu religion, 19 (63.3%); and with no formal education: 14 (46.7%). All 30 samples were unemployed; family income <10,000: 10 (33.3%); 20,000–29,000: 10 (33.3%); duration of cancer: 7–12 months, 20 (66.7%) among 30 samples; 0–11 months: 21 (70%); and at last 18 (60) were in stage I cancer. The effectiveness of self-care instruction module among cancer patients undergoing chemotherapy in pre-test was 20 (66.7%). In quality of life after giving self-care instruction module, 30 (100) had neutral quality of

life. *P*-value was <0.001 levels, and it was statistically significant. The effectiveness of self-care instruction module among cancer patients undergoing chemotherapy as in pre-test 25 (83.3%) has moderate severity symptoms and after giving self-care instruction module 25 (83.3%) had mild severity symptoms. Malathi G Nayak et al. in 2019 conducted an exploratory survey on 768 cancer patients with the primary goal of determining the relationship between the quality of life for cancer patients receiving tertiary care. She discovered that cancer sufferers experience low physical and psychological quality of life. The symptoms that patients experience throughout therapy and diagnosis have an impact on their quality of life. To enhance the quality of life of people with cancer, symptoms must be adequately managed.

The effectiveness of self-care instruction module among cancer patients undergoing chemotherapy as the overall symptoms of chemotherapy in pre-test 19 (63.3%) has moderate symptoms and 11 (36.7%) has mild symptoms after giving self-care instruction module. About 2 (6.7%) has moderate symptoms and 28 (93.3%) has mild symptoms. *P*-value was <0.001 level, and it was statistically significant. The effectiveness of self-care instruction module among cancer patients undergoing chemotherapy in performance status ECOG as in pre-test 23 (76.7%) were in symptomatic but ambulatory and symptomatic <50% in bed were 7 (23.3%) after giving self-care instruction module. About 13 (43.3%) were in asymptomatic and 17 (56.7%) were symptomatic but ambulatory. The association of level of self-care, performance status, and quality of life among patients undergoing chemotherapy with their selected demographic variables was highly associated with the family income.

Conclusion

The self-care measure has changed the self-care activities and improved the quality of life of cancer patients. This self-care measures will be taught to cancer patients routinely and encourage them to follow it to improve their quality of life.

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