Knowledge of Patients Undergoing Chemotherapy toward Home Management of Side Effect

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ABSTRACT

Cancer is one of the dangers health problems today, which that lead to death. Most the of patients diagnosed with cancer receive chemotherapy. Chemotherapy result many side effects that will effects on physical, mental, social life, all of which affect patients' self-care performances. It has been demonstrated that treatment inconveniences is slower with suitable self-care.

The main aim of the study is to assess knowledge of patients undergoing chemotherapy toward home management of side effect.

A descriptive study design is carried out at Baqubah Teaching Hospital, from 7th October, 2022 to 22th April, 2023. The instruments were constructed by the researcher for the purpose of the study. A purposive random sample comprised of (30) patients undergoing chemotherapy The study instrument is composed of three main parts: Part I. The socio- demographic characteristics of the patients, Part II. Clinical data of the patients, Part III. Knowledge of patients undergoing chemotherapy toward self-care. Validity of the study instrument was determined through a panel of experts and reliability of the instrument was determined through Cronbach's Alpha method. The analysis of the data used was descriptive statistics and statistical inferential, in order to find the differences between the study group.

The study findings indicate that there are poor knowledge in the study group in overall III main domains regarding patient' knowledge toward home management of side effect.

The study concludes that the knowledge of patients 'undergoing home management of side effect lees than expected

The researcher recommends that Establishing a center for educating cancer patients undergoing chemotherapy about self-care information and side effects of the drugs.

INTRODUCTION:

Cancer is not a single disease with a single cause; rather, it is a group of distinct diseases with different causes, manifestations, treatments, and prognoses**,** cancer is a disease of the cells, which are the body's basic building blocks. The body continuously makes new cells to help us

grow, replace worn-out tissue and heal injuries. Normally, cells reproduce and die in an systematic way. Sometimes cells unable to grow, divide and die in the normal way. This may cause blood or lymph fluid in the body to become abnormal. [1]

Chemotherapy is a kind of treatment that uses drugs to attack cancer cell. It is called as "systemic treatment" since the drug, entering through the blood stream, travels throughout the body and destroys cancer cells at their sites. These drugs may rarely be intended to have a local effect, but in most cases, the target is to destroy cancer cells wherever they may exist in the body. Chemotherapy are chemically designed to target cells that are multiplying and growing rapidly. Once they reach the cancer cells, they act to retard their growth eventually resulting in their destruction. Chemotherapy is usually given in cycles. People receive treatment for one or more days. Then they have a recovery period of several days or weeks before the next treatment session[2].

Firstly it was thought that chemotherapy drugs specifically kill the cancer cells only but now it is well known that it also damages to the normal cells resulting the chemotherapy dose dependent side effects such as Nausea, Hair loss, Fatigue, Constipation, Fever, Diarrhea, Stomatitis or Mucositis, Burning micturition, Infection, Skin rashes, Gum bleeding, Toothache, Cough, Jaundice, swelling, dizziness etc. and even death may also occur in severe cases. The main strategy of chemotherapy drugs based on the phenomenon that these drugs selectively target the tumor cells, largely by the means of genotoxicity partially caused by the production of reactive oxygen species, which does not specifically damages the cancer cells but also the normal cells [3].

Self-care behaviors are preparation before receiving chemotherapy, self-conduct during and after chemotherapy and self-care at home. This way, patients can return to normal life in their own environment and society[4].

Self- care as the practice of activities that individuals personally initiate and perform on their own behalf to maintain life, health and well-being. Processes for achieving these goals include selecting healthy lifestyles, self-monitoring and assessing symptoms, perceiving and assigning meaning to symptoms, evaluating the severity of the situation, and determining treatment alternatives. Outcomes of self-care activities include reduction in morbidity associated with illness, increase use of health resources, more effective coping strategies, enhanced role performance, and increased independence in performance of daily living activities and enhanced self- esteem and well- being [5].

Cancer is a main public health problem in the United States and worldwide. One in four deaths in the United States occurs because of cancer [6].

Reports of the Iraq's Ministry of Health have stated that it is the second reason for death in Iraq after cardiovascular diseases. In Iraq the number of patient with cancer reached 25,556 in 2016. The large and rapid spread of the disease and shown in the tables below largely led to the thinking and promote studies to find the right therapy[7].

MATERIAL AND METHODS:

To achieve the aims of this study, a descriptive study was conducted in Baqubah Teaching Hospital from 7th, October 2022 to the 22th, April 2023.

The instruments were constructed by the researcher for the purpose of the study. A non-probability purposive sample of (30) patients undergoing chemotherapy. The study instrument is composed of three parts: first part dealing with the socio- demographic characteristics of the patients, second part dealing with the medical information, while the third part dealing with the Knowledge test which consists from (24) items (multiple choices) questionnaires divided into (3) main dimensions related to patients knowledge toward self-care.

Each question was composed of (3) items in alternative form of a multiple choice and given the

correct answer score (2) and the incorrect answer scored (1). About (25-30) minutes are given for the test completion.

Validity of the study instrument was determined through a panel of (17) experts and reliability of the instrument was determined through Cronbach's Alpha method. The analysis of the data used was descriptive statistics and statistical inferential, in order to find the differences between the study group and the control group.

Data were analyzed through the use of SPSS application version 22.0. Descriptive data analysis including Mean of score (M.S), with their Standard Deviation (S.D), and frequency (f). Inferential data analysis includes Chi-Square test, Contingency Coefficients (C.C.) test, t-test, Pearson correlation.

RESULTS :

Table (1): Distribution of Socio-demographic Characteristics for the Study and Control groups No=60

No.	variable	Classification	Study		Control		P-value
			F	**%**	**F**	**%**	
1	Age	20-29 years	4	13.4	2	6.6	P=.139 NS
		30-39 years	6	20.0	4	13.4	
		40-49 years	8	26.6	8	26.6	
		50-59 years	9	30.0	9	30.0	
		60-69 years	3	10.0	7	23.4	
		Total	30	100.0	30	100.0	
		Mean± SD	44.8±11.1		48.4±11.6		
2	Gender	Male	17	56.6	17	56.6	P=.453 NS
		Female	13	43.4	13	43.4	
		Total	30	100.0	30	100.0	
3	Level of Education	Illiterate	4	13.4	3	10.0	P=.855 NS
		Can Read & Write	3	10.0	5	16.6	
		Primary School	10	33.2	6	20.0	
		Secondary School Graduate	2	6.6	6	20.0	
		High School Graduate	4	13.4	3	10.0	
		Institute Graduate	4	13.4	4	13.4	
		Bachelor's degree and above	3	10.0	3	10.0	
		Total	30	100.0	30	100.0	
4	Marital status	Married	21	70.0	23	76.6	P=.147 NS
		Single	3	10.0	4	13.4	
		Widowed	3	10.0	2	6.6	
		Divorced	2	6.6	1	3.4	
		Separated	1	3.4	0	0.00	
		Total	30	100.0	30	100.0	
5	Occupation Status	Employee	4	13.4	5	16.4	P=.465 NS
		Free job	5	26.6	4	13.4	
		Unemployed	9	30.0	10	33.2	
		Retired	3	10.0	4	13.4	
		House wife	8	26.6	7	23.4	
		Student	1	3.4	0	0.00	
		Total	30	100.0	30	100.0	
6	Residency	Rural	18	60.0	13	43.3	P=.123 NS
		Urban	12	40.0	17	56.7	

		Total	30	100.0	30	100.0	
7	Monthly Income	Sufficient	8	26.6	4	13.4	P=.156 NS
		Barely Sufficient	14	46.8	16	53.4	
		Insufficient	8	26.6	10	33.2	
		Total	30	100.0	30	100.0	

F= frequency, % = percentage, P.value, $\bar{X} \mp SD$ = arithmetic Mean (X) and Std. Dev. (S.D.), χ2: chi-square, NS =Non-significant at P>0.05.

Table (1): presents the socio-demographic characteristics, the Mean age for the study group is (44.8 ± 11.1) and for the control group is (48.4 ± 11.6). More of the participants in the study group and control group are in the 50 – 59 years-old age group (n = 9; 30.0%). More of the participants in the study group and control group are male (n = 17 ;56.6) in both groups. More than a quarter of participants in the study group are primary school (n = 10; 33.2%). On the other hand, more of participants in the control group are primary and secondary school graduates (n = 6; 20.0%). Most of the participants in the both groups are married (n= 21 ;70.0) for the study group and (n = 23; 76.7%) for control group. More of the participants in the study group and control group unemployed (n = 9; 30.0% ; n = 10 ;33.2%) respectively. More of the participants in the study group and control group have barely sufficient monthly income (n = 14; 46.8%, n = 16 ; 53.4%) respectively. Most of the participants in the study group live in rural areas (n = 18; 60.0%) and a larger number of participants in the control group also live in urban areas (n = 17; 56.7%). This table shows that there is not any significant relationships for the selected variables at p-value > 0.05

Table (2): Distribution of Medical information for the study and Control groups No=60

No.	Variables	Classification	Study		Control		C.S.
			F	%	F	%	
1	When had you been diagnosed?	Less one month	3	10.0	1	3.4	.662 NS
		1-6 month	12	40.0	12	40.0	
		7-11	10	33.3	14	46.6	
		Year and more	5	16.7	3	10.0	
		Total	30	100.0	30	100.0	
2	Past family history of cancer	Similar type of cancer	5	16.7	3	10.0	.722 NS
		Other type of cancer	7	23.3	9	30.0	
		No history of cancer	18	60.0	18	60.0	
		Total	30	100.0	30	100.0	
4	Type of treatment given to him after diagnosis of the disease	Chemotherapy	17	56.7	21	70.0	.157 NS
		Radiation therapy	9	30.0	6	20.0	
		Surgery	4	13.3	3	10.0	
		Total	30	100.0	30	100.0	
5	Information about chemotherapy and self-care	Yes	8	26.6	8	26.6	1.000 NS
		No	22	73.4	22	73.4	
		Total	30	100.0	30	100.0	
6	source of information (8 have information)	Family and friends	1	12.5	1	12.5	.154 NS
		Books and magazines	3	37.5	0	0.00	
		Infected patients	1	12.5	0	0.00	
		Mass Media	1	12.5	0	0.00	
		Information Network	1	12.5	0	0.00	
		A Health Care Provider	1	12.5	7	87.5	

F= frequency, % = percentage, P. value, χ2: chi-square, NS =Non-significant at P>0.05.

Table (2): shows medical information for the study and control which as more of the participants in the study group have been diagnosed between 1-6 months (n = 12; 40.0%) followed by a lesser proportion for those who have been diagnosed within less than a month (n = 3; 10.0%). On the other hand, more than a third of participants in the control group have been diagnosed between 7–11 months (n = 14; 46.6%) followed by those who have been diagnosed within 1-6 months (n = 12; 40.0%). The majority of participants both in the study and the control groups reported that the family history of cancer was nonexistent (n = 18; 60.0) for both group. The majority of participants in the study group and control group had breast cancer (n = 9 ; 30.0% ; n = 8 ; 26.7%) respectively. Furthermore, most of participants both in the study and the control groups reported that given him chemotherapy after diagnosis with cancer (n = 17; 56.7%) for the study group and (n = 21; 70%) for control group. Suffer from chronic disease shows that the highest percentage of the study and control groups that had experienced chronic disease (n = 16; 53.3%) for the study group and (n = 17 ;56.7%). The highest percentage of participants in the both groups reported that they had not any previous information about chemotherapy and self-care (n = 22; 73.4%). Ultimately, less than a fifth of participants in the study group who reported that they had previous information about chemotherapy and self-care reported that the sources of such information included the books and magazines (n = 3; 37.5%). On the other hand, less than a third of participants in the control group, who reported that they had such information, reported that the sources of such information include a health care provider (n = 7; 87.5%). The results show that there is no significant relationship for the selected variables at p-value > 0.05.

Table (3): Patients Knowledge toward Home Management about Side Effect :

List	Paragraph	M.	S.D.	Ass
1	Occurs when cells are divided abnormally difficult	1.20	.407	F
2	Benign tumors (non-cancerous) are tumors	1.10	.305	F
3	Source of chemotherapy include	1.10	.305	F
4	chemotherapy is given in the form of sessions	1.33	.479	F
5	Chemotherapy is given by	1.20	.407	F
6	Factor that increase the chances to chemotherapy	1.17	.379	F
7	Side effects of chemotherapy occur because	1.27	.450	F
8	Adverse symptoms of chemotherapy include	1.27	.450	F
	Total	**1.2**	**.397**	**F**
List	**Paragraph**	**M**	**SD**	**Ass.**
1	To reduce the symptoms of anemia, get enough sleep	1.13	.346	F
2	To avoid infection of the patient	1.30	.466	F
3	To reduce the feeling of nausea and vomiting	1.13	.346	F
4	To avoid constipation on the patient	1.23	.430	F
5	To avoid diarrhea on the patient	1.23	.430	F
6	To avoid anorexia of the patient	1.20	.407	F
7	To avoid causing mouth and gum injuries, to the patient	1.20	.407	F
8	When the drought occurs Redness skin rash patient	1.37	.490	F
	Total	**1.1**	**.415**	**F**
List	**Paragraph**	**M**	**SD**	**Ass**
1	Causes of weight gain during chemotherapy	1.17	.379	F
2	You can improve sleep by	1.17	.379	F
3	Aerobic exercise for patients undergoing chemotherapy	1.17	.379	F
4	You can avoid colds and flu by	1.20	.407	F
5	Stop smoking for patients undergoing chemotherapy	1.17	.379	F

6	Whether you can work during chemotherapy depends on	1.20	.407	F
7	You can reduce stress, anxiety and fear by	1.13	.346	F
8	Organizations and support groups can provide you with	1.10	.305	F
	Total	**1.2**	**.372**	**F**

M.=mean; SD=standard deviation; Ass= assessment (cut off point=less than 1.5 F:fail, more than 1.5 P: pass

Table (3) shows there was revealed that the total mean for patients knowledge toward the instruction program domains at pretest was middle level of knowledge (1.2, 1.1, 1.2) and at posttest was middle level of knowledge (1.2, 1.2, 1.1) domains of Patients knowledge about cancer and chemotherapy, self-care of chemotherapy side effects, and the patients knowledge about self-care during daily living activities.

Table (5): The correlation between some variables with patients knowledge toward self-care for the study group

Variables / Knowledge	Study ampleS (N=30)		
	Pearson Correlation	**P-value (2-tailed)**	**Sig.**
Age	.463**	.010	S
Level of eduction	-.371*	.043	S
Marital status	-.170	.369	NS
Occupation Status	-.202	.284	NS
Residency	.157	.407	NS
Monthly Income	.194	.305	NS
When had you been diagnosed?	-.005	.979	NS
Past family history of cancer	-.173	.361	NS
Type of treatment given to him after diagnosis of the disease:	-.085	.655	NS
Do you have information about chemotherapy?	.319	.086	NS

**. Correlation is significant at the 0.01 level (2-tailed).
*. Correlation is significant at the 0.05 level (2-tailed).

Table (5): Revealed that there was significant relationship between the knowledge of instruction program, age and level of education at p≤ 0.01 level. Also, was no significant relationship between the knowledge of instruction program and marital status, occupation status, residency, monthly income, When had you been diagnosed, past family history of cancer, Type of treatment given to him after diagnosis of the disease and information about chemotherapy and self care at p≤ 0.01 level.

DISCUSSION:

Part-I: Discussion of Socio-Demographic Characteristic of patients undergoing chemotherapy (study and Control Groups)

1. Age

The results show that the highest percentage (30.0%) are in age group of (50-59) years in the study group with mean age (44.8±11.1), also the control group (30.0%) of the sample are in age group (50-59) years with mean age (48.4±11.6).The present study finding is supported by Mohammed (2012) study, who reported that the majority of the sample are at age group (50-59) years with percentage (30.0%).[8]

Haryani et al., (2017) has found in the study about self-care symptom management program to enhance the quality of life of cancer patients undergoing chemotherapy and their family caregivers, the majority of the participants in this study were aged between 40-65 years old (82.5%).[9]

2. Gender

Throughout the courses of the data analysis of the present study, the findings showed that (56.6%) in both group were male. This result is similar to the study done by (Salwa, 2016) about Assessment of Cancer Patient Undergoing Chemotherapy Knowledge Regarding Home Self-Care in Tumor Therapy and Cancer Research Center Shendi, that indicated that (60.0%) in the study were males. [10]

3. Educational Levels

The result of the present study revealed that (33.2%) of study group with primary school, and (20.0%) of control group with primary school and secondary school graduated. This finding may indicate that most of oncology patients undergoing chemotherapy have primary school. This result is supported by (Maikewo, 2012) study about Self-Care Behaviors of Chemotherapy Patients, who indicated that the highest percentage of patients (31.3%) are primary school.[4]

Patients level of education could control detecting of the symptoms in the earlier stages of the cancer, and decreasing the effect of the risk factors as well as the complications by enhancing their awareness toward the disease and also treatment modalities. So, most of patients with low levels of education have higher risks of cancer. The educational level gives an indicate about patients awareness toward illness so, a high level of education means a high level in their awareness toward the disease, and low level of education means less awareness with increasing stress levels in their lives (The researcher).

4. Marital Status

Most of the participants in the study and control group are married (70.0%) (76.6%) respectively. This agrees with the results of studies done by Salwa, (2016) who found that the majority of the sample in their studies (more than 70%) were married.[10]

According to the mostly related articles, there is no significant difference between single and married in exposing to cancer, but risk of cancer decreased which is breast feeding, especially, if a woman breastfeeds for longer than 1 year. Furthermore, considerable factor can increased knowledge about self-care from provide some information from partner (The researcher).

5. Occupation

The study shows that in both groups are unemployed (26.4%) for study group and (33.2%) for control groups, the most of the study sample were elderly and because of the disease they do not have the ability to work Moursy and Ead (2014) on 50 participants found that the majority of sample in their study were not working. [11]

Brophy, et al., (2012) in a study conducted in Canada, disagree with that by considering the occupation as an important risk factor for cancer. The results in their study showed that most of the sample were working either in agriculture or subsequently worked in automotive-related manufacturing and health care. And the same study also presented that in spite of the continuing increase in the incidence of cancer and the existence of carcinogens in occupational environments, still no registries or systematic methods to document the occupational history of patients with cancer in general or specifically patients with breast cancer were available. This leads to the underestimation of occupationally related cancers and lacking of substantive prevention related activities due to the failure in recording lifetime occupational histories and corresponding workplace exposures.[12]

6. Residency

The majority of participants in this study group live in rural areas (60.0%) and urban areas (56.7%) for control group. The findings of a study support(Choenyi et al, 2016) shown the area of living most of the cancer patients 35 (58%) belonged to rural area, 25 (42%) were from urban area.[13]

7. Monthly Income

Most of participants in the both groups of this study barely sufficient monthly income (46.8%) (53.4%) respectively. Cancer Research UK, (2012) in their reports, highlighted that increasing incidence of cancer in low and middle income countries will increase the risks of both cancer and death due to cancer worldwide.[14]

Part II: Discussion of the Medical Information of the Sample.

1. When had you been diagnosed?

In this study the statistics showed that more than a quarter of participants in the study group have been diagnosed between 1-6 months (40.0%) followed by a lesser proportion for those who have been diagnosed within less than a month (10.0%). On the other hand, more than a third of participants in the control group have been diagnosed between 7–11 months (46.6%) followed by those who have been diagnosed within less than a month (3.4%). This results agree with (Haryani et al, 2017) found have been diagnosed for less than one year (77.5%).[9]

2. Past Family History of Cancer

More half of participants in the study group and control group reported that they had not family history of cancer (60.0%). Family member with cancer in the past can provide some information about disease and how to control the side effects of treatment.

Lu et al., (2014) reported family health history is one of the strongest known cancer risk factors. For example, patients with three or more first-degree relatives with breast or prostate cancers have a four-fold and 11-fold increased risk for those diseases, respectively. With a detailed family health history, clinicians can identify these patients early and initiate personalized prevention strategies, such as increased screening, prophylactic surgery, risk-reducing therapeutics, and lifestyle changes during earlier, more treatable stages.[15]

3. Type of Treatment Given to him after Diagnosis of the Disease

Most patients given chemotherapy after diagnosis with cancer (56.7) for study group and (70.0) for control group. This results supported by Moursy and Ead (2014) 50 participants about Self-Care Practices of Chemotherapy Patients at This study was conducted at the Oncology Therapy Unit, Alexandria Main University Hospital. The inpatient unit of chemotherapy consists of 12 beds, showed that 78% of patients had surgery, and all the studied patients received chemotherapy, while 18% of the studied patient received radiotherapy.[11]

4. Information about Chemotherapy and Self-care

More than half of the participants in the study group reported that they do not have any previous information about chemotherapy and self-care (73.4%), and a larger proportion for those in the control group who also reported that they do not have any previous information about chemotherapy and self-care (73.4%). This finding supported by (Choenyi et al, 2016) Regarding previous knowledge of chemotherapy and its home management 30 patients (50%) had previous knowledge and 30 patients (50%) didn't have any previous knowledge about chemotherapy and its home management.[13]

Part III: Discussion of Patients Knowledge toward self-care Questionnaire items:

The findings of the present study show that both groups (had low knowledge toward self-care,

the results in tables (3) and (4) in domain of patients knowledge general information about cancer and chemotherapy show that the total mean of score (1.2) for control and (1.1) for study group. (Choenyi et al, 2016) 60 participants Regarding previous knowledge of chemotherapy and its home management, found lowest mean percentage score was in the area of introduction about cancer(25%).

In domain of patients knowledge toward self-care of chemotherapy side effect, results show that the total mean of score (1.2) for control and (1.2) for study group. (salwa, 2016) 40 participants found showed (5.0%) of study group were not compliance about chemotherapy treatment and most of them (95.0%) were compliance about chemotherapy. Also, found (60%) of study group their action regard side effect were seek medical care, (20%) treat it at home and (20%) were do nothing.

In domain of patients knowledge toward self-care during daily living activities, show that the total mean of score (1.2) for control and (1.1) for study group.

(Mandal & Bhurtel,2017) 74 patients to assess Knowledge on Management of Chemotherapy Related Side-effects Among Cancer Patients, found 54.9% of cancer patients knew that drinking too much liquid during the day removes the harmful agents from the body. 28.4% of the respondents ate high fiber foods with adequate fluid to manage constipation, 45.9% respondents perfumed oral care and gargle 3-4 times daily for management of stomatitis and mucositis, 67.6% of respondents took anti-emetic medication before meals for management nausea and vomiting, 40.5% of responded drank more fluid than usually with ORS for management of diarrhea, 43.2% respondent put on scarf and cap/wig for management of hair loss, 45.9% took small and frequent diet for management of loss of appetites, majority of respondents 62.2% maintain personal hygiene and change clothes every day for management of skin rashes, majority of respondents 73% took paracetamol and apply cold compress for management of fever, 44.6%respondents drank plenty of water with vitamin C for management of burning micturition.[16]

(Williams& Schreier,2004) study about The Effect of Education in Managing Side Effects in Women Receiving Chemotherapy for Treatment of Breast Cancer, found The frequency and effectiveness of self-care behaviors for fatigue, nausea and vomiting, and taste changes differed between the groups. The frequency of the majority of self-care behaviors used by the control group did not change between the first and second SCDs over time. The control group tended to use the same self-care behaviors during their treatment despite the fact that they did not seem to be working. These women may have been unaware of additional options. In contrast, by the second SCD, the experimental group had increased the number of self-care behaviors they tried.[17]

(Salwa, 2016) found About most of the patient (60%) need some assistance when doing daily activity and less than quarter (20%) complete depend on their family. Also, study showed that most patient (90%) keep their hair short and less than half (10%) use specific shampoo or cream. In addition to near most patient (75%) dealing with daily cleaning regard skin care to remove toxic from the skin and promote comfort and less than half (25%) un exposure to sunlight. In the other hand majority of patient (90%) use usual brush or toothpaste and more than half of patient (80%) do not follow up teeth, they are poor attitude regarding self-care related to lack of knowledge and psychological disturbance and fatigue ability. [10]

Part IV: Discussion of correlation between Participants' Socio-Demographic, Clinical Characteristics and their Overall Knowledge of the Study Group.

The study finding shows that there was a statistical significant between patients knowledge and their (age and level of education) (.010,. 043) respectively. (Choenyi et al, 2016) reported in

their results that there was selected variables. age,, level of education, have no significant association with the knowledge about ill effects of chemotherapy and its home management.[13]

The study finding shows that there was no statistical significant between patients knowledge and their (marital status, occupation status, residency, monthly income, When had you been diagnosed, Past family history of cancer, type of treatment given to him after diagnosis of the disease, and do you have information about chemotherapy?) at post-test. (Maikewo, 2012) reported results indicate that marital status and knowledge about cancer have a significantly positive relationship with self-care behavior in preventing cervical. [4]

CONCLUSIONS:

1. The majority of the study sample within age group (50 – 59) years, male, primary school graduates, married, unemployed, barely sufficient monthly income, and live in rural areas in the study group and urban areas in control group.

2. The majority of the study group have been diagnosed within 1-6 months, and control group have been diagnosed within 7- 11.

3. The majority of the study sample not have past family history of cancer, with breast cancer, suffer from chronic disease, do not have information about chemotherapy and self-care.

4. There was no statistical significant difference majority of items between pretest and posttest of study sample for the control groups patients knowledge toward self-care.

5. The knowledge of the patients toward self-care has been improved after implementation of the instructional program in the study group as shown in the post test results in all of the domains including: Patients knowledge toward cancer and chemotherapy, Patients knowledge toward self-care of chemotherapy side effects and Knowledge of patients undergoing chemotherapy toward self-care during daily living activities.

6. The finding of the study indicates there was a statistical significance between (age and level of education) with patients knowledge.

7. The finding of the study indicates there was no significant between (marital status, occupation status, residency, monthly income, When had you been diagnosed, Past family history of cancer, Type of treatment given to him after diagnosis of the disease, and Do you have information about chemotherapy?) with patients knowledge.

RECOMMENDATIONS

Based on the previously listed results of the study, the researcher recommends the following:

1. Establishing a center for educating cancer patients undergoing chemotherapy about self-care information and side effects of the drugs.

2. Manual or booklet of instructions about chemotherapy and self-care should be published and delivered to cancer patients, who underwent chemotherapy as a guidance.

3. Encourage the newly diagnosed patients to learn more about their condition and provide the proper information via the mass media.

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