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Patients' self-care for side effects of chemotherapy after mastectomy

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Abstract---Background: Chemotherapy is medicine used to destroy cancer cells and treat breast cancer. It is toxic to fast growing cancer cells.. The aim of this study was to assess the patients 'self-care practices for side effects of chemotherapy after mastectomy. Design: A descriptive exploratory research design was utilized to achieve aim of the study. Setting: the study was conducted at the oncology outpatient breast clinics at Dar El Salam oncology center. Sample: Purposive samples of 117 patients were included in the study. Tools: Tool I: Structured interview questionnaire: Part I: Socio demographic characteristics of patients, Part II: Medical health history assessment, Part III: Patients' knowledge regarding chemotherapy. Tool II: Patients' self-care practices assessment sheet:. Part I: Assessment of patients 'self-care practices regarding chemotherapy, Part II: Patients' daily living activities. Results: 65.0% of the studied patients had satisfactory total knowledge score regarding chemotherapy, about half them had satisfactory total self-care practices score regarding chemotherapy's side effects. Conclusion: there were highly statistically significant positive correlation between the studied patients' total knowledge regarding chemotherapy and their total self-care practices. Recommendations: Continuous evaluation of patient's knowledge and practice is essential to identify patient's needs and factors affecting their performance & activities of daily living.

Keywords---chemotherapy, self-care practices, mastectomy.

Introduction

Breast cancer is still a public health problem; breast cancer is still the most common type of cancer among females and the second common type of cancer among all types of cancers in the United States and the world according to the latest global burden disease (GBD) report. According to the latest statistics in 2021, the incidence and mortality of breast cancer in 2020 was 2.1 million new cases and 684, 996 deaths. There is no definitive treatment for breast cancer and the most common treatment is surgery. Today, surgery for cancer treatment is increasingly popular, so it is predicted that breast cancer-related surgeries will increase from 9,065,000 surgeries in 2018 to more than 13, 821, 000 surgeries in 2040. Breast cancer surgery is performed in both partial (lumpectomy) and complete (mastectomy) forms (*Bouya et al, 2021*).

Chemotherapy is “the use of pharmacologic or natural agents that inhibit the development of invasive breast cancer either by blocking the DNA damage that initiates carcinogenesis or by arresting or reversing the progression of premalignant cells in which such damage has already occurred. Normally drugs are used in chemotherapy to destroy the cancer cell and to keep the cancer cell being large (Dhara et al, 2021).

Chemotherapeutic agents are commonly associated with side effects. Usually, the side effects of chemotherapy are a reflection of their mechanism of action. Most chemotherapy drugs show activity in rapidly multiplying cells, so they tend to affect rapidly multiplying cells, e.g., bone marrow, GI tract, hair follicles. Common toxicities associated with such agents include myelosuppression, nausea, vomiting, GI side effects, mucositis, alopecia, sterility, infertility, infusion reactions (*American Cancer Society, 2019*).

Patients and their families must be aware of what side effects to expect, and how to manage them, including when to seek medical advice. Yet many patients and their families may regard side effects as inevitable and not be aware that adverse effects can be alleviated. Some side effects may be able to be prevented or reduced, such as nausea and vomiting through the use of antiemetic prophylaxis. Other side effects such as anaemia may require an adjustment in dosage or interval for subsequent cycles of treatment but are less urgent (*Olver et al., 2018*).

Nursing and allied health professionals play a significant role in taking care of patients since the administration of most chemotherapy agents such as providing supportive care, preventing infections, monitoring for adequate nutrition and hydration, and monitoring patient safety: hand washing and infection precautions like isolation protocols require strict adherence and frequent laboratory monitoring (*Amjad, et al., 2021*).

Significant of study

Breast cancer has the highest incidence rate among all types of cancer worldwide; the age standardized rate per 100,000 for breast cancer diagnosis was 46.3 in 2018. The rate for the developed countries was reported to be 75.2 in comparison to 32.8 for the developing countries. The International Agency for Research on

Cancer (IARC) reported breast cancer as the second most common cancer, with 11.6% of the total 18.1 million cancer cases in 2018. Breast Cancer is the leading barrier to increased life expectancy in the 21st century (Majeed et al., 2021).

Sampling technique observational prospective breast cancer patients with completed the chemotherapy cycle from September 2017 to April 2018 with descriptive analysis and statistics by looking correlation between drug side effects and Quality of Life (QoL). Results of the study were side effects of fatigue 100%, nausea 67.5%, vomiting 60%, no appetite 63.75%, fever 42.5%, joint pain 43.75%, diarrhea 16.25%, difficulty swallowing 16,25%, allergies 5%, itching 1,25%, mouth sores 3,75%, swollen right hand 1.25%, constipation 3.75%. QoL results are physical 6.2%, psychology 5.3%, social 4.9%, spiritual 6.8%. Results of Sperman test showed no correlation between the side effects of chemotherapy and QoL $P > 0.05$. This study shows that there is no relationship between the side effects drug chemotherapy and QoL in breast cancer patients (Khairani et al., 2019).

Though breast-conserving therapy is more prevalent, mastectomy is a commonly performed procedure, accounting for 38% of resections for early-stage breast cancer after mastectomy (Ullrich et al., 2019).

Aim of the study

Assess the patients 'self-care practices for side effects of chemotherapy after mastectomy

Subjects and Methods

Technical Design Research Design

A descriptive exploratory design was utilized to achieve the aim of this study.

Research Settings

The study was conducted in the oncology outpatient breast clinics at Dar El Salam oncology center at Cairo.

Subjects

A purposive sample of (117) mastectomy patients undergoing chemotherapy were working at previously mentioned setting at time of data collection and agreed to participate in this study.

Tools of data collection

Tool I: A structured interview questionnaire: it was developed by the investigator in simple Arabic language based on reviewing of relevant, current national and international related literature (Carpenito., 2006), (El Hamed Ali et al., 2011) (Dianatinasab et al., 2018) & (Marmorat, 2020). It included three parts.

Part I: Socio demographic characteristics of patients, it included age, marital status, educational level, occupation, place of residence, income.

Part II: Medical health history assessment for patients; it includes past and present history of the diseases.

Part III: Patients' knowledge regarding chemotherapy; it includes 23 items as meaning of chemotherapy, uses, reasons for resorting to chemotherapy after mastectomy, places of getting chemotherapy, ways to give chemotherapy, contra indications, correct way to save chemotherapy, means of personal protection from chemotherapy, ways to dispose of chemical drugs, can a dose of chemotherapy be missed, investigation, time the side effects appearing, how long it lasts, causes of pain during chemotherapy, duration of treatment, does chemotherapy cure breast cancer, does affect your ability to have children, and working, taking other medicines during chemotherapy, signs of successful chemotherapy treatments, when does the body get rid of chemotherapy effects, foods should not be eaten, to what extent does the duration of chemotherapy depend.

Tool II: Patients' self-care practices regarding side effects of chemotherapy assessment sheet: this tool was adapted by the investigator based on (Graf, 2009). The tool was divided in two parts:

Part I: Assessment of patients' self-care practices regarding side effects of chemotherapy

The tool included (169) items; it concerned with assessment of patients' self-care practices regarding side effects of chemotherapy as personal hygiene and prevention of infection, severe pain, cough and dyspnea, fever, constipation, diarrhea, nausea and vomiting, loss of appetite, mouth ulcer, change of taste, hair loss, rashes and dry skin, bleeding, fatigue, insomnia and sleepless, chemotherapy spills, and how to manage aspects of sexual life, social life, getting rid of psychological stress in the home and work, and achieving the spiritual aspects.

Part II: Assessment of patients daily living activities, it consisted of (25) items such as working, participation in community activities, performing religious rituals, walking, sleeping, precautions while some one is sick, favorite hobbies, visiting friends, transferring, dressing, reading and concentrating, traveling, enjoying vacations, doing garden work, vacuum cleaning, feeding, bathing, toileting, meal preparation, shopping, taking medication, managing financial budget, getting up from bed, doing relaxation exercises.

Tool validity and reliability

Validity: Content and face validity was conducted to determine whether the tools covered the aim, test its appropriateness, comprehensiveness, accuracy, clarity, relevance, understanding and applicability through a jury of five experts (Assistant professors and lecturers) in the field of Medical-Surgical Nursing Helwan University. Their opinion was elicited regarding tools consistency, rephrasing for some statements, and scoring system (Harris et al., 2021).

Reliability: it was done by using Cronbach's Alpha coefficient test which revealed that each of the three tools consisted of relatively homogenous items as indicated by the moderate to high reliability of each tool. The internal consistency of knowledge was 0.92, self-care practices was 0.95, and 0.93 for the activities of daily living.

Pilot study

The pilot study done on (10 %) of the sample equal (12 patients) of the subjects under the study was included and chosen randomly from the previously mentioned setting then later included to the sample to test applicability, feasibility and clarity of questions and time needed to complete the study tools. According to the results, No modifications were done for the used tools.

Results

Table (1): Shows that, 55.6% of the studied patients aged from 35 to less than 45 years old with $\bar{X} \pm SD$ of 37.79 ± 9.41 , 68.4% of them were married, 47.0% had university education, and 85.5% of them were living in urban areas. As for occupation and monthly income, 59.8% of them were working, and 74.4% of them had insufficient monthly income for treatment expenses.

Figure (1): indicates that, 65.0% of the studied patients had satisfactory total knowledge score regarding chemotherapy, while 35.0% of them had unsatisfactory total knowledge score.

Table (2): Indicates that, 80.3%, 76.1, and 84.6%, of the studied patients were suffering from nervous system, integumentary system, and other symptoms as side effects of chemotherapy respectively, while 41.9% and 42.7% of them don't suffer from respiratory system or reproductive symptoms side effects respectively.

Table (3): Denotes that, 88.0%, 81.2%, and 88.0% of the studied patients had satisfactory total self-care practices score regarding chemotherapy side effects related fever, sore throat and mouth ulcers respectively, while 36.8%, 36.8%, and 46.2% of them had unsatisfactory total self-care practices regarding chemotherapy side effects related fatigue, insomnia, and sexual life and fertility respectively.

Figure (2): demonstrates that, 63.2% of the studied patients were dependent on others in performing their activities of daily living, while 36.8% of them were independent on others.

Table (4): Indicates that, there were highly statistically significant positive correlation between the studied patients' total knowledge regarding chemotherapy and their total self-care practices regarding chemotherapy's side effects at ($P < 0.001$).

Table (5): Shows that, there were highly statistically significant positive correlation between the studied patients' total knowledge regarding chemotherapy and their total activities of daily living at ($P < 0.001$).

Table (6): Denotes that, there were highly statistically significant positive correlation between the studied patients' total self-care practices regarding chemotherapy's side effects and their total activities of daily living at ($P < 0.001$).

Discussion

As Regard to demographic characteristics of the studied patients; the current study illustrated that more than half of the studied patients aged from 35 to less than 45 years old with $\bar{X} \pm SD$ of 37.79 ± 9.41 , this finding may indicate that breast cancer was common among this age groups, this result agreed with Balekouzou, et al., (2016) in a study about "Assessment of breast cancer knowledge among health workers in Bangui " who reported that the age of studied group were 35-44 years , but this result contradicted with Younis, et al., (2016) in a study entitled "knowledge and awareness of breast cancer among young women in Emirates" and reported that about half of studied sample were of ages 25 - 30.

As regards marital status the current study revealed that more than two thirds of the studied sample were married, this result in same line with Alam, et al., (2021) in a study about "evaluation of knowledge, awareness and attitudes towards breast cancer risk factors and early detection among females in Bangladesh" who reported that more than three quarter of participants were married, but this result contradicted with Balekouzou et al., (2016) who reported that more than half of studied group were unmarried.

Regarding level of education , the current study revealed that less than half of the studied sample had university education, this might be due to the most of people desire to had high level of education, this result in same line with Almanie, et al., (2017) who studied "Assessment of knowledge and attitude and practice towards breast cancer screening among female in Abha City" and found more than three quarter of the studied sample had college education. , on other hand this result disagree with Heydarzadeh et al., (2019) who studied "the effect of peer education on knowledge, comprehension, and Knowledge Application of Patients Regarding Chemotherapy Complications" and reported that about half of studied patients of control and study group were pre diploma.

In relation to residence, the current study revealed that more than three quarter of the studied group was living in urban areas. This might be due to the hospital where they went to receive treatment nearby their housing. This result disagreed with Alam et al., (2021) in a study about "evaluation of knowledge, awareness and attitudes towards breast cancer risk factors and early detection among females in Bangladesh" who reported that most of the studied sample was living in rural area.

As regards occupation, the current study revealed that more than half of the studied sample were working, from the researcher point of view, this might be due to the need for more money, this result contradicted with Prusty, et al., (2020) in a study about "knowledge of symptoms and risk factors of breast cancer among women: a community based study in a low socio-economic area of Mumbai, India" who found that the majority of the studied sample were unemployed.

Concerning studied patients according to their total chemotherapy side effects on their body systems , the current study revealed that more than three quarter of the studied patients were suffering from nervous system, integumentary system,

and other symptoms as a side effects of chemotherapy, this result disagreed with Altun & Sonkaya (2018) in a study entitled "the most common side effects experienced by patients were receiving first cycle of chemotherapy" who reported most of the studied sample had digestive tract problem as a side effect of chemotherapy, also in same line with Mani, (2016) who studied side effect of chemotherapy among patients receiving chemotherapy in china as reported that the most of studied patient complain from gastrointestinal tract as a side effect of chemotherapy.

Regarding total knowledge level regarding chemotherapy, the current study indicated that more than two thirds of the studied patients had satisfactory total knowledge score regarding chemotherapy, this might be due to the information gain from the medical staff or the nurses discussed this with patient and the majority of patients had university education which facilitate discussion with staff member or they had educational problem about chemotherapy before starting it. This result is disagreed with Berger, et al., (2018) who carried out a study about cancer patients' knowledge about their disease and treatment before, during and after treatment and reported that the participant knowledge about chemotherapy is improved during treatment, also agree with a study carried out by Jiang et al., (2016) about beliefs in chemotherapy and knowledge of cancer and treatment among African American women with newly diagnosed breast cancer and reported that, the participant women had poor knowledge about chemotherapy and all patients acquired a higher level of knowledge about their disease and planned treatment after being informed by physicians and other health care personnel throughout their treatment period.

Concerning studied patients according to their total score of self-care practices items regarding chemotherapy's side effects , the current study revealed that more than three quarter of the studied patient had satisfactory total self-care practices score regarding chemotherapy side effects related fever, sore throat and mouth ulcers , this might be due to adequate information about the side effects of chemotherapy and how to manage , Abu El-Kass (2021) and reported that the studied patient had good satisfactory practice regarding fever and mouth ulcer , also this result is supported by Shams, et al., (2018) in a study entitled "influence of supportive care on chemotherapy patients' self-care behaviour and satisfaction: A pilot study conducted in Karachi" who reported that the studied patient had good knowledge about fever.

Concerning activities of daily living, the current study revealed that about half of the studied patients were totally dependent on others in taking their kids to and from the school as well as in putting on and undressing, this might be due to enhance psychological status of them and practice activities freely or the ability to cope with disease or they didn't had any one to do this activities.

According to studied activities of daily living, the current study revealed that About three quarter of the studied patients were totally dependent on others during vacuum cleaning as well as during bathing and grooming , this might be due to fatigue as side effect of chemotherapy, this result agree with Shimoda et al., (2019) who studied factors affecting the performance of activities of daily living in patients with advanced cancer undergoing inpatient rehabilitation and

reported that, adequate rehabilitation positively affects performance of activities of daily living, especially in patients with advanced cancer who lost their grooming ability at the onset of rehabilitation. Importantly, rehabilitation may be beneficial for patients with advanced cancer. Also this result agree with a study carried out by Neo et al., (2017) about disability in activities of daily living among adults with cancer: that more than half of adults with cancer have difficulty or dependent on other to perform basic and instrumental ADLs.

Regarding activities of daily living , the current study revealed that about tree quarter of the studied patients were dependent on others in performing their activities of daily living , from the investigator point of view , this might be due to the fatigue they had from chemotherapy, this result is congruent with Neo et al., (2017) recommended highlight the need for rehabilitation focused on functional independence, and underscore the importance of professionals skilled in occupational assessment and therapy within cancer services. Also this result in same line with Lindahl-Jacobsen, et al., (2015) who studied performance of activities of daily living among hospitalized cancer patients, and found that adult hospitalized disabled cancer patients experience a high degree and variation in difficulties performing ADL, illustrating the need for a comprehensively planned assessment of problems and needs.

Regarding correlation between the studied patients' total knowledge regarding chemotherapy and their total self-care practices regarding chemotherapy's side effects, the current study revealed that, there were highly statistically significant positive correlation between the studied patients' total knowledge regarding chemotherapy and their total self-care practices regarding chemotherapy's side effects at ($P < 0.001$)., this indicating that increasing or good knowledge reflect on practices positively, this result is supported by Almohammadi et al., (2019) who studied assessment of patients' knowledge in managing side Effects of Chemotherapy: Case of King Abdul-Aziz University Hospital, and reported complete compliance with the self-care behaviors to manage chemotherapy side effects , with statistically positive correlation between total knowledge regarding chemotherapy and its side effect and their total self-care.

Correlation between the studied patients' total knowledge regarding chemotherapy and their total activities of daily living, the current study illustrated , there were highly statistically significant positive correlation between the studied patients' total knowledge regarding chemotherapy and their total activities of daily living , this indicated that good knowledge reflect positively on the practice and activities, this result contradicted with Subathra et al., (2021) who reported there was no statistically correlation between studied patients' total knowledge regarding chemotherapy and their total activities of daily living , and concluded that it was essential to enhance awareness and overcome adverse chemotherapy effects via counseling services using current modalities for better self-care practices.

As regards correlation between the studied patients' total self-care practices regarding chemotherapy's side effects and their total activities of daily living, the current study revealed that, there were highly statistically significant positive correlation between the studied patients' total self-care practices regarding

chemotherapy's side effects and their total activities of daily living at ($P < 0.001$). this result in same line with Sivakumar & Susila (2021) who studied Effectiveness of Self-care Measures on Knowledge, Self-efficacy and Performance Status among Cancer Patients, and found that there were statistically significant positive correlation between the studied patients' total self-care practices regarding chemotherapy's side effects and their total activities of daily living, also; in same line with Subathra et al., (2021) who reported significant positive correlation between the studied patients' total self-care practices regarding chemotherapy's side effects and their total activities of daily living.

Table (1): Frequency distribution of the studied patients according to their socio-demographic characteristics, (n= 117)

Socio-demographic characteristics	No.	%
Age (Years):		
18 - < 25	10	8.5
25 - < 35	23	19.7
35 - < 45	65	55.6
45 - 60	19	16.2
$\bar{X} \pm SD$ 37.79 \pm 9.41		
Marital status:		
Single	10	8.5
Married	80	68.4
Divorced	15	12.8
Widowed	12	10.3
Educational level:		
Can't read and write	8	6.8
Read and write	15	12.8
Intermediate education	32	27.4
University education	55	47.0
Postgraduate studies	7	6.0
Residence:		
Urban	100	85.5
Rural	17	14.5
Occupation:		
Work	70	59.8
Don't work	47	40.2
Monthly income for treatment expenses:		
Sufficient	30	25.6
Insufficient	87	74.4

Table (2): Frequency distribution of the studied patients according to their total chemotherapy side effects on their body systems, (n= 117)

Body systems	Yes		No	
	No.	%	No.	%
1. Respiratory system	68	58.1	49	41.9
2. Digestive system	84	71.8	33	28.2

3.	Circulatory system	83	70.9	34	29.1
4.	Nervous system	94	80.3	23	19.7
5.	Musculoskeletal system	76	65.0	41	35.0
6.	Urinary system	74	63.2	43	36.8
7.	Reproductive system	67	57.3	50	42.7
8.	Integumentary system	89	76.1	28	23.9
9.	Other symptoms	99	84.6	18	15.4

Figure (1): Percentage distribution of the studied patients according to their total knowledge score regarding chemotherapy, (n = 117)

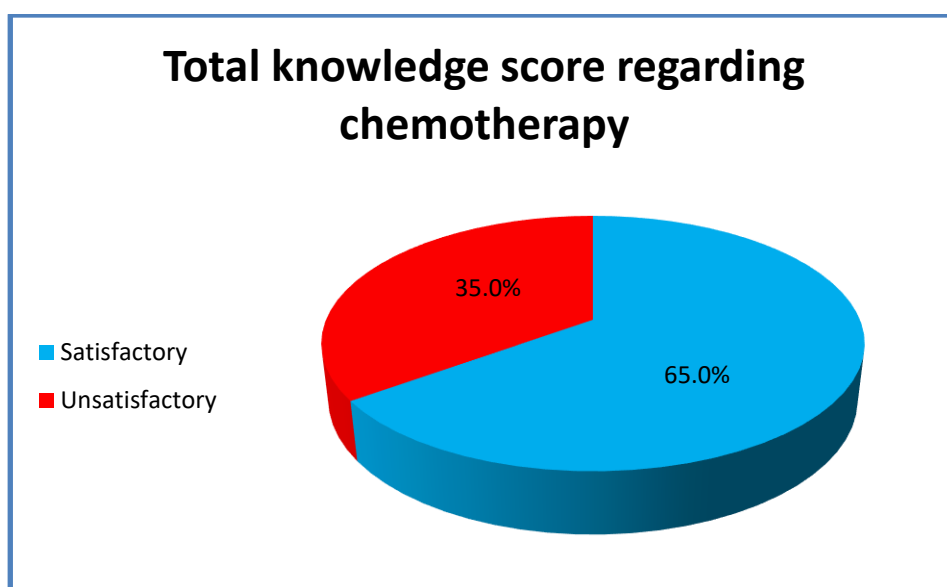


Table (3): Frequency distribution of the studied patients according to their total score of self-care practices items regarding chemotherapy's side effects, (n= 117)

Items	Satisfactory		Unsatisfactory	
	No.	%	No.	%
1- Recurrent infections and oral hygiene.	77	65.8	40	34.2
2- Severe body pain.	92	78.6	25	21.4
3- Cough or dyspnea.	93	79.5	24	20.5
4- Fever.	103	88.0	14	12.0
5- Constipation.	87	74.4	30	25.6
6- Diarrhea.	78	66.7	39	33.3
7- Nausea and vomiting.	81	69.2	36	30.8
8- Loss of appetite.	88	75.2	29	24.8
9- Sore throat and mouth ulcers.	95	81.2	22	18.8
10- Changing the taste of food.	84	71.8	33	28.2

11-Hair loss, skin rashes and dryness of the skin.	84	71.8	33	28.2
12-Bleeding.	90	76.9	27	23.1
13-Fatigue.	74	63.2	43	36.8
14-Insomnia.	74	63.2	43	36.8
15-Chemotherapy spills.	85	72.6	32	27.4
16-Sexual life and fertility.	63	53.8	54	46.2
17-Social life.	78	66.7	39	33.3
18-Getting rid of psychological pressure at home and work.	102	87.2	15	12.8
19-Achieving the spiritual aspects.	103	88.0	14	12.0

Figure (2): Percentage distribution of the studied patients according to their total activities of daily living score, (n = 117)

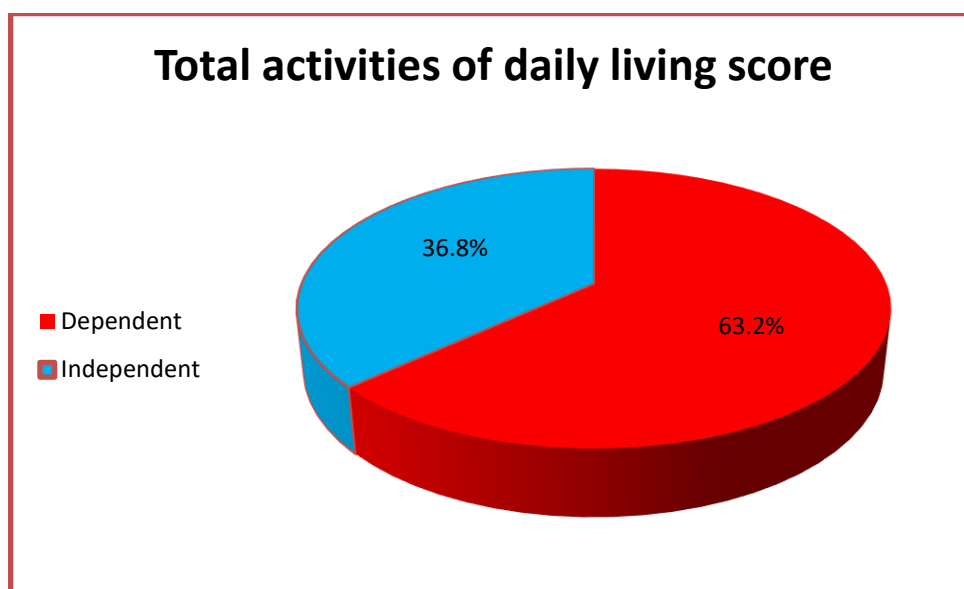


Table (4): Table (35): Correlation between the studied patients' total knowledge regarding chemotherapy and their total self-care practices regarding chemotherapy's side effects, (n = 117)

Items	Total knowledge	
	r	P-value
Total self-care practices	0.865	0.001**

**Correlation is highly significant at the 0.001 level

Table (5): Correlation between the studied patients' total knowledge regarding chemotherapy and their total activities of daily living, (n = 117)

Items	Total knowledge	
	r	P-value
Total activities of daily living	0.978	0.001**

**Correlation is highly significant at the 0.001 level

Table (6): Correlation between the studied patients' total self-care practices regarding chemotherapy's side effects and their total activities of daily living, (n = 117)

Items	Total self-care practices	
	r	P-value
Total activities of daily living	0.997	0.001**

**Correlation is highly significant at the 0.001 level

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