The Relationshipbetween Socio-demographic Characteristics and Qualityof Life among Breast CancerWomen Undergoing Adjuvant Chemotherapy.

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Abstract

Background: One of the most common malignancies is breast cancer.It leads to almost 0.5 million deaths annually around the world.**Aim of**this study was to assess the relationship between sociodemographic characteristics and quality of life among breast cancer women undergoing adjuvant chemotherapy.**A descriptive study design** was utilized at Oncology Center, Mansoura University Hospital during the period from the beginning of March 2018 up to the end of August 2018. **A total sample of** 130breast cancer women receiving chemotherapy.**Three tools were used**an interview schedule, quality of life scale& cancer patient quality of life scale.**Results**obtained from this study revealed that the highest mean scoreswere reported for the physical &emotionalfunctioning with a mean of (11.33± 3.96 & 8.40 ± 2.66 respectively). Meanwhile the higher symptom scores forQLQ-C30 were found to be fatigue, pain, nausea and vomiting. **Conclusion**: positive relationship was foundbetween quality of life and age as well as marital status, education & income of women. While there were no statistical significance differences between quality of life, residence andoccupation.

Key words: Breastcancer, chemotherapy, quality of life

I. Introduction

The second most common type of cancer that affects women worldwide is the breast cancer *(Siegel et al., 2016).*Mortality rates from all active breast cancer patients were 12.3 to 12.9 %, while number of incidents from breast cancer was 39 to 43.2 per 100.000 people*(Advanced Breast Cancer Conference, 2016).*

Breast cancer rates are rising among developing countries such as Egypt, Lebanon, Syria, Jordan, Saudi Arabia, and Iraq *(Ibrahim et al., 2013& Saudi Cancer Registry, 2016).* Between Egyptian women, a high frequency (33.8%, 26.8% and 38.7% respectively) dominated carcinoma trends in Lower, Middle and Upper Egypt *(Ibrahim et.al, 2014).*

Many variables are monitored to raise the risk of breast cancer such as age, patient history, breast density, height, menstrual cycle, and age of first pregnancy, fertility drug, hormone replacement therapy and hormonal birth control *(American Cancer Society, 2017).*Women with one affected first-degree female relative is two times more risk for breast cancer*(Bertrandet al., 2015).*Also those who have the first child before the age of thirty five, as more children decrease incidence of breast cancer*(Lambertiniet al., 2016).*

Breast cancer can be treated by surgical, chemotherapy, radiotherapy and hormone therapy *(El Fakir et. al., 2016)*. Chemotherapy is a cornerstone of cancer treatment for different types of tumors*(Chopra et al., 2016).*It is a technique that uses chemical agents or drugs to destroy cancer cells within the cell cycle or inhibit it'sgrowth and spread,it is usually given in cycles every three weeks for 6 to 8 cycles *(Lawrie et al., 2015).*

The influence of a disease and it's treatments on patientsis usually investigated by quality of life(QoL) scores*(Kulesza-Bronczyk et al. 2014).*(QoL) is a multidimensional concept that refers to how a medical condition and it's treatment affects the normal physical, emotional and social well-being of patients*(Pensri et al., 2007)*.QoL problems in breast cancer are particularly important;lately they have become the focus of many research studies as well as incorporated into clinical trials *(Zhu, 2005).*Life quality assessment among women with breast cancer womenleads to improve treatment and prognosis *(HaddouRahou et. al., 2016).*

Womenundergoing chemotherapy have fears, worries about their health and need support in order to cope with the side effectsof treatment*(Bayram, et al., 2014).Taylor & Davis., (2011)* reported that the nurses have important duties such as educator, counselor and guidance in determining the factors associated with physical, social and psychological functions of breast cancer women.

SIGNIFICANCE OF THE STUDY

The most common type of cancer among females is breast cancer *(Chopra, et al., 2016)*. The age-standardized rates 74.1/100,000 (more developed), 31.3/100,000 (less developed), and 48.8/100,000 (Egypt).Breast and carcinoma occupied the highest ranks accounting for around 45% of all women cancers*(Ibrahim et.al., 2014)*.

Side effects of chemotherapy are fatigue, pain, stomatitis, loss of appetite, nausea, vomiting, dyspnea, diarrhea, constipation, and lymphedema *(Evangelista et al., 2016)*.QoL assessment tools evaluate the influence of a disease and its treatments on life of affectedpatients*(Kulesza-Bronczyk et al. 2014)*.

Because data on the quality of life among women with breast cancer is scarce at Oncology Center, Mansoura University. Therefore, it is considered of paramount importance to assess the relationship between sociodemographic characteristics and quality of life among breast cancer women undergoing adjuvant chemotherapy.

AIM of THE STUDY:
Aim of the study was: To assess the relationship between socio-demographic characteristics and quality of life among breast cancer women undergoing adjuvant chemotherapy.

RESEARCH QUESTION:
Is there is a significant relationship between socio-demographic characteristics &quality of life among breast cancer women undergoing adjuvant chemotherapy?

SUBJECTS &METHOD:
Study Design: A descriptive studywas utilized.
Study Setting: This study was conducted atChemotherapy Outpatient Clinic, Oncology Center at Mansoura University Hospital during the period from the beginning of March 2018 up to the end of August 2018.
Type of Sample: Convenience sample
Subjects: A total number of (275)women diagnosed as breast cancer and receiving chemotherapy during (6 months) of the study.According to the formula of *Thompson, (2012)*, the calculated sample consisted of (160) women divided into (130) women participated in the study and (30)women were recruited for the pilot study.

$$n = \frac{N \times p(1-p)}{\left[\left[N-1 \times \left(d^2 \div z^2\right)\right] + p(1-p)\right]}$$

Where,
n: Sample size (160)
N: Population size (275)
Z: Confidence level at 95 % (1.96)
d:Error proportion(0.05)
p:Propability(50%)

Inclusion Criteria:
Criteria for selection included:
- Women>18 years old with breast cancer.
- Women had a surgical treatment for breast cancer andreceiving at least one cycle of chemotherapy post mastectomy.
- Women agree to participate in the study.

Tools of Data Collection
Based on the current related literature, four tools were utilized to obtain the necessary data.
Tool I: An interview schedule including two parts:
-Part I: Included the socio-demographic characteristics as age, level of education, occupation, marital status, monthly incomeand residence of women.
- Part II:Included history of the woman regarding breast cancer as type of treatment and time of starting chemotherapy after surgery.
Tool II: Quality of Life Scale (EORTC QLQ-C30)(Version 3.0)
This scale was developed by theEuropean Organization for Research on Treatment of Cancerto assess quality of life and side effects of cancer patients. It is included nine scales (30 items): one global (two items), fivefunctional as (physical, role play, cognitive, emotional, and social) (fifteen items). In addition to three symptomsas (nausea and vomiting, fatigue& pain) (seven items) and six single items as(dyspnea, insomnia,

appetite loss, constipation, diarrhea, and financial problems) *adopted from (Awad et. al., 2008 &Fayers et al., 2001)*.

Scoring system for tool 2

Each scale is scored separately. Seven questions have yes/no response. For the two global QoL items, respondents have to answer by using a five point scale, one = very poorand five = excellent. The remaining questions have a four-point Likert scale, ranging from one = not at all to four = very much. The total score was transformed linearly to (0- 100). Higher functional score representing better Qol, while higher level of symptoms representing poor Qol**.**

Tool III: Breast cancer(EORTC QLQ‑ BR23)Scale:

This scale contained 23 items to assess the quality of life for patients with breast cancer. Elements of the scale are functional as body image (4items), sexual function and enjoyment (3items) & future perspective (1item). In addition to systematic side effects (7 items), breast symptoms (4 items), arm symptoms (3 items) &up set by hair loss (1 item)**adopted from** *(El Fakir et al, 2014, Fayers et al., 2001).*

Scoring system for tool 3

Responses to the scale were graded according toLikert scale of 4 levels, and the total score was transformed linearly from 0 to 100. Higher functional score indicating better Qol, while higher level of symptoms indicating poor Qol.

The content validity of the Tool

Five panels of experts in the fields of nursing and medicine reviewed these tools to test it's validity. In order to review the developed tools for clarity, relevance, comprehensivenessand applicability.Minor modifications were made according to experts' opinion.

Reliability:

Reliability of tools was done by Cronbach's Alpha test; it was 0.97& 0.93 for tools (II&III respectively). It could be said that it is a coefficient with good significance for research aim.

Pilot study:

It was carried on 10% of breast cancer women undergoing chemotherapy for 3 months to test applicability and efficacy of the tools. Simple modifications were done in the form of deleting and paraphrasing of certain items. Themain study sample wasn't contained the pilot sample.

Administrative and ethical considerations:

An official permission was obtained by submission of official letter issued from the director of the faculty of nursing as well as from the Faculty of Nursing Mansoura University's ethical review committee. The Mansoura Oncology Hospital director's permission was also taken to conduct this report. Each woman had obtained informed consent prior to the study. They were informed about their rightsto refuse or withdraw at any time. Study technique can not hurt participants or focus on issues of morality, religion or culture.

Field work:

The study was conducted during the period from the beginning of March 2018 up to the end of August 2018. Firstly, informed consent was obtained from each breast cancer woman undergoing adjuvant chemotherapy to carry out the study. The researcher interviewed each woman separately in a private area of the clinic from 30-45 minutes to assess their sociodemographic characteristics and quality of life related to breast cancer.The collected data were categorized, tabulated and analyzed.

Statistical Analysis:

Statistical analysis was done using Statistical Packages for Social Science (SPSS version 20.0). Data was presented in the form of number, frequency, mean, median and standard deviations for quantitative variables. Quantitative variables were compared using independent and paired t test. Multiple parametric by ANOVA, correlation by Pearson's correlation Statistical significance was considered at p-value <0.05.The observed differences were considered atP≤0.05.

II. Results:

Table (1): Distribution of the studied women according to their socio-demographic characteristics (n= 130).

General characteristics	N	%
Age groups (in years)		
32- < 42	39	30
42- < 52	61	46.1
≥ 52	30	23.1
Mean ± SD = 45.66 ± 8.06		
Marital status		
Single	19	14.6
Married	94	72.3
Widow	17	13.1

Educational level		
Illiterate/ read and write	16	12.3
Primary/preparatory	25	19.2
Secondary/ Middle	60	46.2
University	29	22.3
Residence		
Rural	96	73.8
Urban	34	26.2
Occupation		
Working women	33	25.4
House wife	97	74.6
Income		
Enough	44	33.8
Not enough	86	66.2

Table (1): shows that 46.1% of women belonged to the age group ranged from 42to less than52 years old with mean age of 45.66 ± 8.06years. 12.3% of them were illiterate, 72.3% were currently married, 73.8% were living in rural areas and 74.6% were house wives.Finallyone quarter of the sample(33.8%) have enough income.

Table (2): Frequencydistribution of the studied women according to their treatment modality (n=130).

Variables	N	%
Treatment Modality		
Surgical treatment	130	100
Chemotherapy	130	100
Radiotherapy after chemotherapy	30	23.07
Time of starting chemotherapy after surgery		
Less than three months	100	76.92
More than three months	30	23.07
Patient's compliance for the treatment		
Yes	100	76.92
No	30	23.07

Table (2): displays that 100.0% of the studied women underwent surgical treatment and received chemotherapy, while radiation treatment was received by only 23.07% of them. As much as 76.92 % of them had received chemotherapy after surgery of less than three months and76.92 % of them were compliance with the treatment.

Table (3): Quality of life scale among the studied women (n=130).

Quality of life scale	Mean	SD	Median	Minimum	Maximum
Symptom Scale					
Pain	4.72	1.57	5	2	7
Fatigue	6.92	2.51	7	3	11
Vomiting	4.51	1.76	4	2	8
Dyspnea	2.39	0.99	3	1	4
Loss of sleep	2.28	0.89	2	1	4
Loss of appetite	2.15	0.88	2	1	4
Diarrhea	2.34	0.93	2	1	4
Constipation	2.22	0.87	2	1	4
Financial difficulties	2.16	0.88	2	1	4
Functional Scale					
Physical	11.33	3.96	11	5	18
Functional (role play)	4.43	1.64	4	2	8
Emotional	8.40	2.66	8	4	15
Cognitive	4.02	1.38	4	2	6
Social	3.98	1.29	4	2	6
Global Health Scale	3.93	1.31	4	2	7

Table (3): represents baseline QoL scores and the global health status among the studied women. According to QLQ-C30, symptomswere fatigue (mean 6.92), pain (mean 4.72), nausea and vomiting (mean 4.51), dyspnea (mean 2.39), diarrhea (mean 2.34). The higher scores were presented in the physical scale (mean 11.33), emotional (mean 8.40), functional (mean 4.43), in addition to cognitive and social functioning scale (means 4.02 &3.98 respectively). Finally the global health status (3.93 ± 1.31).

Table (4): Breastcancer moduleamong the studied women (n=130).

Variables	Mean	SD	Median	Minimum	Maximum
Symptom Scale					
Systematic therapy side effects	15.51	5.58	17	9	26
Breast symptoms	9.06	3.30	11	5	15
Arm symptoms	6.54	2.36	6	3	12
Upset by hair loss	2.12	1.02	2	1	4
Functional Scale					
Body image	11.36	4.28	13	6	20
Sexual functioning	4.38	1.74	5	2	8
Sexual enjoyment	2.24	1.04	3	1	4
Future perspective	2.21	0.98	3	1	4

Table (4): illustrates that higher mean scores was evident for systematic therapy side effects (15.51 ± 5.58) followed by breast symptoms, arm symptoms and upset by hair loss (9.06 ±3.30, 6.54 ± 2.36& 2.12 ± 1.02 respectively)**.**The same table shows the highest mean scores of functional scales were body image and sexual functioning (11.36±4.28, 4.38± 1.74 respectively), following bysexual enjoyment &future perspective respectively(2.24±1.04 &2.21± 0.98).

Table (5): Relation between women's age and global quality of life score and breast cancer scale among the studied women (n=130).

Scale	Source of variance	Sum of squares	df	Mean square	F	P- value
Global Quality of Life Score QLQ –C 30	Between groups	20442.56	2	10221.28	37.06*	0.001
	Within group	35031.63	127	275.84		
	Total	55474.19	129			
breast cancer QLQ-BR23	Between groups	26217.41	2	13108.71	86.58*	0.001
	Within group	19227.89	127	151.40		
	Total	45445.30	129			

*Significant at the level of 0.05.

Table (5) reveals the presence of highly statistically significant differences at the level of "0.05" between all the mean age scores in the quality of life and breast cancer scales, and table (6) illustrates the direction of differences related to women's age using the Scheffe'stest.

Table (6): Comparison of means difference among the studied women's age using least significant difference(LSD).

Scale	age	Mean difference		
		32- <42	42-<52	≥ 52
Global Quality of Life Score	32- <42		-17.16*	-34.60*
	42-<52			-17.44*
	≥ 52			
Breast cancer QLQ-BR23	32- <42		-18.43*	-39.28*
	42-<52			-20.85*
	≥ 52			

* The mean difference is significant at the 0.05 level

Table (6): describesthe presence of statistically significant differences at the level of (0.05) in both quality of life and breast cancer scales related to women's age for the older age group.
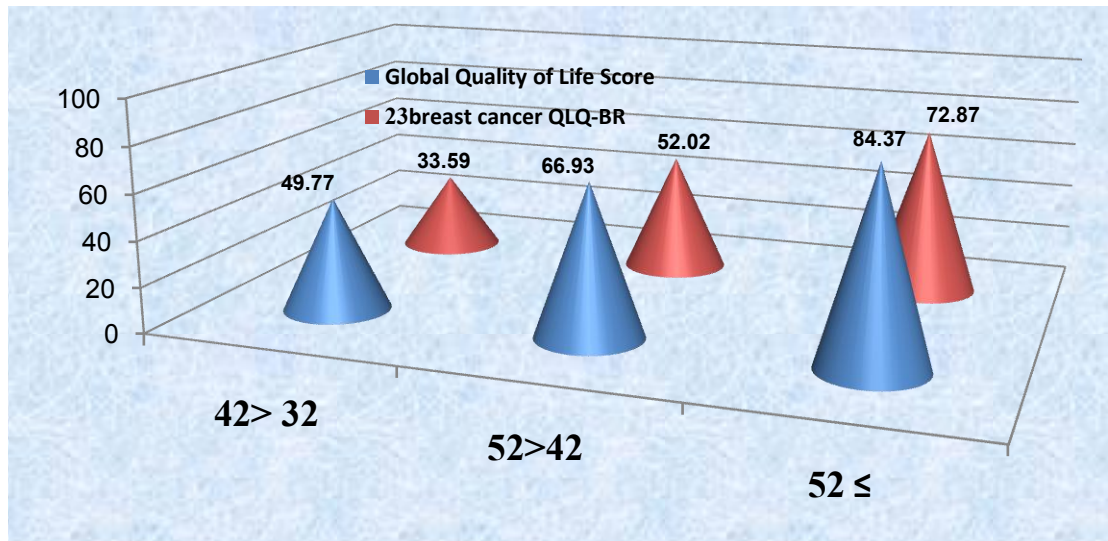
Figure (1): Mean differences of the studied women's age for both global quality of life and breast cancer scale.

Table (7): Relation between marital status and global quality of life score andbreast cancer module for the studied women (n=130).

Scale	Source of variance	Sum of squares	df	Mean square	F	P- value
Global Quality of Life Score	Between groups	18061.90	2	9030.95	30.66*	0.001
	Within group	37412.29	127	294.59		
	Total	55474.19	129			
Breast Cancer Scale	Between groups	15210.64	2	7605.32	31.95*	0.001
	Within group	30234.66	127	238.07		
	Total	45445.30	129			

*Significant at the level of 0.05.

Table (7):demonstrates the presence ofhighlystatistically significant differences at the level of "0.05" between maritalstatus of women and their quality of life and breast cancer scale. The following table shows the direction of this difference.

Table (8): Comparison of women'smarital status means difference using Least Significant Difference (LSD).

Scale	Marital Status	Mean difference		
		Single	Married	Widow
Global Quality of Life Score	Single		-31.54*	-13.67*
	Married			17.87*
	Widow			
Breast Cancer Scale	Single		-24.88*	-1.54
	Married			23.34*
	Widow			

* The mean difference is significant at the level of 0.05.

Table (8): explainsthe presence of a statistical significant difference at the level of (0.05) in the quality of life scale and marital status in favor of the married followed by the widow women.
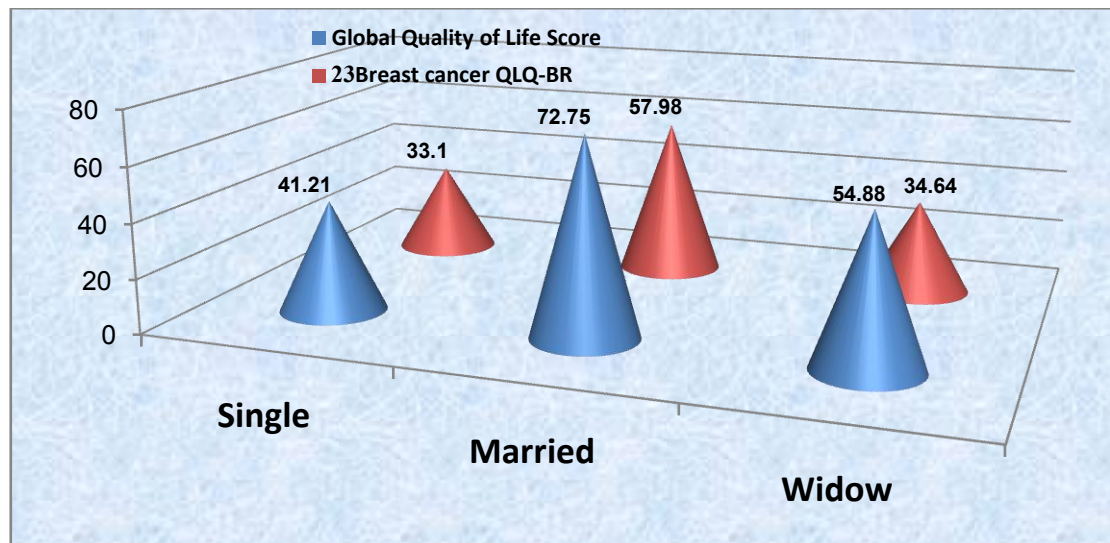
Figure (2): Mean differences of the studied women's marital status in relation to global quality of life & breast cancer scale.

Table (9): Relation between level of education and global quality of life scoreand breast cancer of the studied women (n=130).

Scale	Source of variance	Sum of squares	df	Mean square	F	P- value
Global Quality of Life Score	Between groups	1785.89	3	5951.63	19.93*	0.001
	Within group	37619.30	126	298.57		
	Total	55474.19	129			
Breast cancer QLQ-BR23	Between groups	21098.14	3	7032.71	36.40*	0.001
	Within group	24347.16	126	193.23		
	Total	45445.30	129			

*Significant at the level of 0.05.

Table (9): exhibitshighly statistically difference at the level of "0.05" between levels of education and the quality of life and breast cancer scales. Table (10) clarifies the direction of differences using the Scheffe'stest.

Table (10): Comparison of women's education means difference using Least Significant Difference (LSD).

Scale	Levels of Education	Mean difference			
		Illiterate/ read and write	Primary/ preparatory	Secondary/ middle	University
Global Quality of Life Score QLQ –C 30	Illiterate/ read and write		-16.09*	-34.89*	-24.29*
	Primary/ preparatory			-18.80*	-8.20
	Secondary/ middle				10.60*
	University				
Breast cancer QLQ-BR23	Illiterate/ read and write		-2.77	-30.95*	-21.75*
	Primary/ preparatory			-28.18*	-18.98*
	Secondary/ middle				9.20*
	University				

* The mean difference is significant at the level of 0.05.

Table (10): revealsstatistically significant differences were found between levels of education in quality of life scale and breast cancer in favor of the high level educationat the level of (0.05).
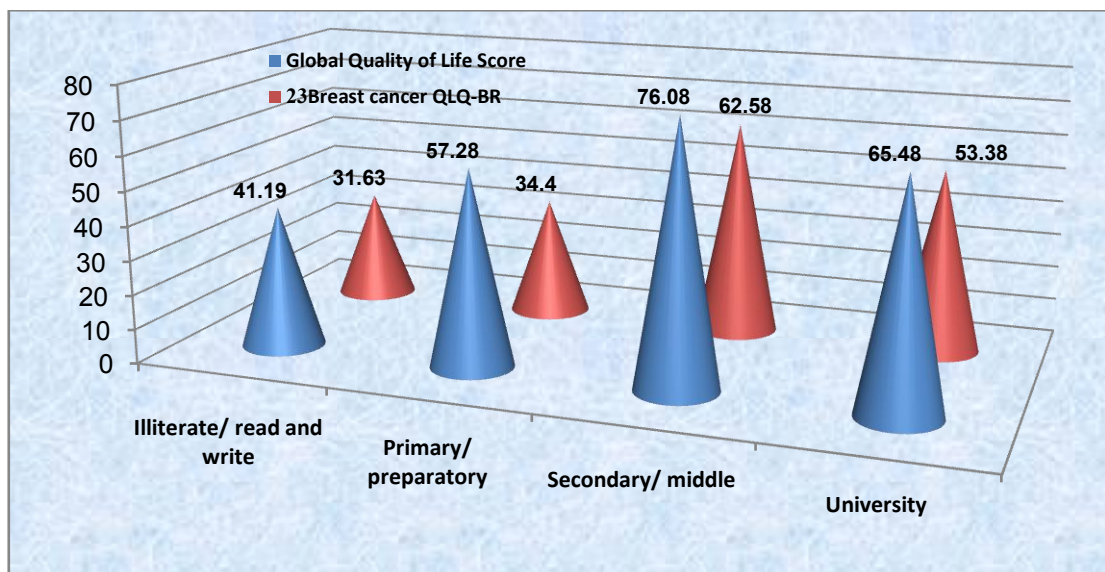
Figure (3): Mean Differences of the studied women'seducational level in relation to global quality of life & breast cancer scale.

Table (11): Relation between residence, occupation, income and global quality of life score and breast cancer scaleof the studied women (n=130).

Scale	Variables	Groups	Mean	SD	Mean Difference	T-test	P-Value
Global Quality of Life Score	**Residence**	Rural	66.86	20.85	4.04	0.98	0.33
		Urban	62.82	20.43			
	Occupation	Working women	64.45	21.58	-1.82	0.43	0.67
		House wife	66.27	20.54			
	Income	Not enough	71.77	20.71	9.01	2.39*	0.02
		Enough	62.76	20.19			
Breast cancer Scale	**Residence**	Rural	52	19.09	2.68	0.71	0.48
		Urban	49.32	17.97			
	Occupation	Working women	51.48	18.06	0.24	0.07	0.95
		House wife	51.24	19.10			
	Income	Not enough	57.07	19.35	8.72	2.56*	0.01
		Enough	48.35	17.87			

*Significant if p ≤ 0.05

Table (11): explainsno statistically significant differences were foundbetween residence, occupation and global quality of life scoreand breast cancer among the studied women. While a statistically significant difference was found between income and global quality and breast cancer at p= 0.05.

III. Discussion

Breast cancer is a major health issue which affects the quality of life of women *(Kamińska1 et. al., 2015).* Assessment quality of life among women have breast cancer is considered as an important prognostic factor in improving treatment *(HaddouRahou, 2016).*

This study was carried out to assess the relationship between sociodemographic characteristics and quality of life among breast cancer women undergoing adjuvant chemotherapy.

Regarding to the QoL-C30 symptom scale, the present study found that,fatigue, pain, nausea& vomiting, dyspnea, diarrhea were the most common symptoms reported among the studied women.This result is congruent with the finding of*Saadoon, et.al.,(2015),* that studiedtheeffect of a self- care educational program on alleviating side effects of parenteral chemotherapyfor mastectomy women. Reported that fatigue, pain, nausea, vomiting and loss of appetite were the most common side effects of chemotherapy.

In addition to *Kim et. al., (2017*) who studied depression in breast cancer patients have undergone mastectomy, and the most common problems reported by patients were high level of fatigue, anxiety, stress, depression, pain, and sleeping trouble. In contrast, *El Fakir, (2016)*reported that the most common symptoms was financial trouble (mean score= 63.2 ±38.2) followed by fatigue(mean scores=29.2±24.5).

Concerning functional scale, results of the present study reveals that physical,emotional& role play functioning were the highest mean scores while the lowestmean scores were recorded for cognitive and social with a low score for a global health status. These findings are in agreement with **El- Sabagh&Shaban, (2018)**, reported that the physical and rolefunction scales were the highest mean score while the lowestmean scores were recorded for social and cognitive functionswith a low score for a global health status.

Such results are in accordance with **EL-Sayed & Ali (2011)**, who studied the effect of intervention counseling for post mastectomy women treated by chemotherapy on their quality of life at Helwan City's Naser Insurance Hospital. The pervious study clarified that the highest mean sores were reported for physical and emotional functions followed by cognitive and role play.

Result of the present study reveals that mean of theglobal health status reported by the studied women was (3.93± 1.31). The same was reported by **EL-Sayed & Ali (2011)**.In addition to**Kamińska, et,. al., 2015,**reported that quality of life is significantly reduced during treatment with cytostatic drugs and after finishing the course of treatment.

Considering the scale of symptoms (QLQ BR-23), findings of the current study showed that, the majority of women suffered from systematic therapy side effects, breast symptoms, arm symptoms and hair loss (15.51± 5.58, 9.06± 3.30, 6.54± 2.36& 2.12± 1.02 respectively).

In respect to arm symptoms,**Letellier, (2016)** who studied the impact of breast cancer and its treatment on arm dysfunction and quality of life, clarified that, breast surgery can lead to nerve and muscle damage of the arm, that restrict it's movement and activity.Regarding hair loss**Javeth et al., (2017)** explained that almost all women undergoing chemotherapy were highly affected by alopecia.

In addition to the most common functional disability reported by women was impaired body image. This may be related to the fact that self- esteem is affected by body image, disfigurement&loss of femininity after surgical operation in breast. In addition, breast loss may lead to anxiety associated with the partner's lack of acceptance or even disturbance of social communication.

This is similar to**Rugo et al.,2017** who studied association between use of a scalp cooling device and alopecia after chemotherapy for breast cancerand **Choi et al, (2014)**whostudied effectof chemotherapy-induced alopecia distress on psychosocial well-being, body image, and depression among breast cancer patients. The previous studies reported that half of the samplesuffered from chemotherapy-induced alopecia,impaired body image.

Regarding relation between socio-demographic characteristics of women and the global quality of life score, it is clarified that association between quality of life and women belonged to 42<52 and their aged≥52 years has been substantially positive.

The researcher interpreted that, quality of life is likely to be more improved in older women, becausefinancial stability and decrease sense of responsibility may increase their QoL. While younger patients may be more negatively affected than older patients for the psychological and emotional well-being domains, because of changes in their physical appearance from treatment.

Results of this study are consistent with **Gangane, et al., (2017)**who studiedquality of life determinants in breast cancer patients in Central Rural India&**Velenik et al., (2017)**who reported that patients over the age of 50 showed a significant positive association with environmental factors only. In contrast a study of **Oliveiraet. al., (2014),** they researched the measuring properties of quality of life questionnaires in Brazilian women with breast cancer, found a negative relationship between age, physical and emotional well-being.

As regards to relationship between women's quality of life and their marital status. A significant positive relationship has been found between marital status and quality of life in favor of the married and widow women.Reasons for this include the financial and emotional support provided to patients by their partners.The same as in a study of **Yanet al., (2016),**they studied determinants of quality of life for breast cancer patients in Shanghai, China.They observedthat married or co-habiting patients had higher QoL scores than those living alone or who were divorced.

Concerning to the relationship between quality of life and education of women. There were highly statistically significant differences between levels of education in the quality of life and breast cancer scales.
It can be interpreted as patients who had high educational level, improved in their physical and psychosocial conditions. This may be due to that high educated recipients had knowledge related to the disease process and how to cope with chemotherapy side effectsfor enhancing their quality of life. In addition to more educated patients may require less time and attention from the health care team members who provide information about medical treatment and follow-up care, compared to less educated patients.The same as in a study of**Gangane et al, (2017)**showed that lower education (below secondary and illiterate) was negatively associated with environmental factors.

Results of this study clarified a statistically significant association between the income and quality of life. The researcher interpreted that unemployed women may face financial difficultiesfrommedical care and transportation costs, which lead to poorer quality of life than those who are working or had enough income.

The same as a study of ***Yan et al., (2016)***Who researched quality of life determinants for breast cancer patients in Shanghai, China, also***Kannan et al., (2011)***conducted a study of quality of life in a tertiary care hospital for women with breast cancer. They were reported that higher income was correlated with many aspects of improved patient care, such as early diagnosis, access to better recovery, less concern for the financial burdens that affect positively on quality of life. In addition to ***Velenik et al., 2017*** reported that gender, age, and social class had a vital impact on HRQL.

Results of the present study reported that no statistical significant relationship was found between quality of life and residence& occupation of breast cancer women.These findings are in accordance with ***Rabin et al., (2008)*** conducted a study about quality of life predictors in breast cancer women. They demonstrated no association was found between quality of life and being employed, type of surgery, time since surgery, staging, duration of the disease, and chemotherapy. Also ***Stavraka et al., (2012)*** who noticed that there was no major difference in QoL outcomes and occupation, stage, histology, and co-morbidities. Finally, the researcher can concluded that the research questionwas answered through the previous mentioned results which revealed that, positive relationship was found between some of sociodemographic characteristics and quality of life among breast cancer women.

IV. Conclusion

It is concluded that adjuvant chemotherapy has an average effect on quality of life for different domains and the highest affected dimension for QLQ-C30 was for physical, emotional function.Fatigue,pain, nausea were the higher symptom ratings for quality of life. In addition to the domains of the breast cancer module, breast & arm symptoms accompanied by hair loss were the highest mean scores for symptom scales. In comparison,for the functional scale, the higher mean score was body image&sexual functioning. Alsothere was positive association between the quality of life and age, marital status, education and income of the studied women, while there was negative relation between residence, occupation of and women's quality of life.

V. Recommendations

On the basis of the most important findings of the study, the following recommendations are suggested:
- Evaluation of all factors affecting the women's health to alleviate symptoms associated with the treatment.
- Adequate counseling should be given to women prior to beginning chemotherapy treatment to avoid the adverse effects of breast cancer.
- Health professionals should raise awareness of psychological issues in order to assist women and their families to cope with the disease.
- Further researches about factors that affect qualityof life for women after chemotherapy on a large samplein a various settings in order to generalize the results**.**

STUDY LIMITATION

Because of the subjective nature of quality of life, it is not possible to fully know the impact of standardized scales and closed-ended questions on breast cancer patients where respondents may be compelled to choose responses that have not really articulated their views or status.

Acknowledgement

Conflicts of Interest Disclosure

No conflict of interest in this research**.**

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