

EFFECT OF SELF-MANAGEMENT GUIDELINES ON THE QUALITY OF LIFE FOR POST-MASTECTOMY PATIENTS

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Abstract:

Background: Mastectomy causes negative impact on patients' quality of life (QOL), thus highlight critical clues for improving QOL through enhancement self-management for these patients are needed. **The aim of the study** was to determine the effect of self-management guidelines on the QOL for post-mastectomy patients. **Method:** This quasi-experimental study was conducted in Oncology Department, Suez Canal University Hospital, Ismailia, Egypt. A purposive sample of 72 patients with post-mastectomy was included. **Study tools** (1) Interviewing questionnaire comprised of three parts was used; first part included socio demographic characteristics, second part included medical data, third part included patients' knowledge questionnaire (2) self-management scale. (3) QOL scale included Short-Form 36 (SF-36) Health Survey. Three tools were used pre- and post-implementation of the self-management guidelines. **Results:** The patients' knowledge scores and self- management scales were both significantly improved after implementation of guidelines. SF-36 QOL score was extremely better after implementation of guidelines (28.7 ± 7.7 versus 80.0 ± 6.4 , respectively). There was a significant positive correlation between self- management and QOL post-guidelines implementation ($p < 0.0001$). **Conclusions:** There was a significant improvement in post-mastectomy patients QOL after self-management guidelines implementation. There was a significant positive correlation between self- management and QOL post-guidelines implementation for post-mastectomy patients. **Recommendations:** Self-management guidelines should be conducted for post-mastectomy patients as they are the key to improving their QOL.

Keywords: "breast cancer," "mastectomy," "quality of life," and "self-management guidelines."

Introduction

Breast cancer is considered a major significant public health threat throughout the world. In united states, there are 2.5 million cases of breast cancer (Bodai & Tuso, 2015). Also, in Eastern Africa, incidence rates of breast cancer were 19.3 per 100.000 cases, while incidence rates in Western Europe were 89.7 per 100.000 cases (Gavric, 2015).

In Egypt, breast cancer occupied the second rank type of cancer. According to age-standardized incidence rates per

100.000 were 166.6 for both sex, it was found that account for 15.4% for all breast cancer cases among both sex and represented 32% among female breast cancer (Ibrahim, Khaled, Mikhail, Baraka, & Kamel, 2014).

One of the most effective treatment options for breast cancer is a mastectomy, which includes partial or total removal of the breast and axillary lymph nodes to remove the entire tumors. although mastectomy has become an

important adjunct in the management of breast cancer, these surgical procedures result in aggressive responses lead to physical, psychological, and emotional consequences that affect QOL (Paredes et al., 2013; Mendes et al., 2017).

By definition, QOL is a personal sense of well-being encompassing a multidimensional perspective that generally includes physical, psychological, social and spiritual dimensions or domains. Measuring QOL in post-mastectomy patients has been the focus of clinical practices and research in recent decades and is of importance in assessing treatment outcomes (Akça, Ata, Nayır, Erdoğan, & Arıcan, 2014; Almutairi, Alodhayani, Alonazi, & Vinluan, 2017).

Several previous studies illustrated that multiple aspects of one's QOL can be negatively affected post-mastectomy (Fu, 2010; Gautam, Maiya, & Vidyasagar, 2011; Silva, Koetz, Sehnem, & Grave, 2014; Costa, Eleutério, Giraldo, & Gonçalves, 2017). Development of distressing symptoms as pain, swelling, impaired limb movement, scarring complication, lymphedema, respiratory compromised, fatigue, cognitive disturbance, along with a decline in functional capacity and social function and spiritual one. Furthermore, Gahm, Wickman, & Brandberg, (2010) and Mendes et al. (2017) added that mastectomy associated with psychological trauma due to breast loss which contributes to the distortion of self-image, depression, anxiety, and fears that decrease psychological function.

However, mastectomy is associated with negative impact on their patients, thus highlight critical clues for improving QOL through improving self-management for these patients are essential. Self-management is one of the six basic elements determined in chronic care model. As a concept self-management defined as the individual's ability to

manage physical and psychological responses, treatment, symptoms, and lifestyle changes to improve QOL outcomes in living with a chronic condition (Du & Yuan, 2010; Grady & Gough, 2014).

The ultimate purpose of nursing care is to optimize and improve the QOL post-mastectomy patients. Nursing focuses on self-management guidelines in order to improve QOL for these patients based on symptom's management, patient education, communication, and interventions and coping strategies, which will improve their psychological well-being and coordination of care. In addition, Nurses provide education about other treatment options as chemotherapy and radiotherapy. Also, nurses must be more acquainted with QOL among these patients and about patients' profile, health status and their self-management regimen to bring a significant change in patient's QOL (El-Sayed & Ali, 2011; Van Dijck, Nelissen, Verbelen, Tjalma, & Gebruers, 2016).

AIM OF THE STUDY

This study aimed to determine the effect of self-management guidelines on the QOL for post-mastectomy patients.

Hypothesis 1: There is an improvement in QOL of post-mastectomy patients after self-management guidelines implementation. **Hypothesis 2:** There is a correlation between self-management and QOL after guidelines implementation for post-mastectomy patients.

SUBJECTS AND METHOD

Research Design:

A quasi-experimental design was utilized in this study.

Research Setting:

The study was carried out at the Oncology Department, Suez Canal University Hospital, Ismailia, Egypt. Oncology Department consist of 10 patients rooms which contain about 22 beds

Research Sampling:

The study involved 72 post-mastectomy patients attending Oncology Department, Suez Canal University Hospital.

Sampling Method:

A purposive sampling method was used to select those patients.

Inclusion Criteria:

Female patients aged ≥ 20 years with post-mastectomy who were diagnosed to have stages I to III breast cancer confirmed by Oncology Physicians, with no metastasis and undergoing adjuvant therapy were included.

Exclusion Criteria:

Patients with psychiatric, mental diseases, coma and communication disorders.

Sample Size Calculation:

Sample size was determined according to the following equation: $n = Z_{\alpha} * p q / d^2$ (Sahai & Khurshid, 1996), where, n = sample size, Z_{α} = the value of standard normal distribution for type I error probability for the sided test and equals 1.96, p = prevalence of breast cancer in Egypt and equal 15.4% (Ibrahim et al., 2014), $q = 1 - p$ & d^2 = the accuracy of estimate = 0.01. So, according to sample calculation and after adding 20% dropout $n \simeq 60$ patients. To increase the effect size, another 12 patients were added to the sample. The final sample size was 72 patients.

Tools for Data Collection:

Tool (I) Interviewing questionnaire developed by the researchers and divided into three parts: first part included socio-demographic characteristics of the patients e.g. age, gender, level of education, ... etc., second part contained medical data of the patients e.g. family, medical history, comorbid diseases, ... etc. third part included patients' knowledge questionnaire was developed by researchers based on a recent and relevant literature (Asif, Sultana, Akhtar,

Rehman, & Rehman, 2014; Rosenberg et al., 2014; Van Dijck et al., 2016) that assessed knowledge about breast cancer e.g. definitions, signs and symptoms, risk factors types, and treatment. Also, knowledge about mastectomy e.g. types, proper nutrition, arm exercise, treatment modalities, side effect, and complications were assessed.

Scoring system of patient's knowledge items responses were weighted using 4-point Likert's scale for each item. The total score of patient's knowledge ranged from 0 scores to 36, the total of 0 scores indicates the lowest level of self-patient's knowledge and a total score of 36 scores indicates the highest level of patient's knowledge. Reliability of patient knowledge questionnaire was tested through Cronbach's alpha which was 0.77.

Tool (II) self-management scale developed by Loh, Packer, Chinna, & Quek (2013) and it contained 17 items, each item ranged from 1 to 5, a score 1 reflected the lowest level of self-management and a score 5 represented the highest level of self-management. The total score of the scale ranged from 17-85, the total of 17 scores indicated the lowest level of self-management and a total score of 85 scores indicated the highest level of self-management. Reliability of self-management scale was tested through Cronbach's alpha which was 0.89.

Tool (III) The Arabic version of SF-36 QOL scale adopted from Al Abdulmohsin, Coons, Draugalis, & Hays, (1997) and Hassanein, Shamssain, & Hassan, (2015). The SF-36 is a multi-purpose survey of functions and well-being or health-related QOL. It has proven useful internationally in surveys of healthy and patient populations, for monitoring and comparing disease burden as well as determining the health benefits of different treatments.

SF-36 QOL scales had acceptable reliability. The SF-36 consists of 36

questions measuring health in 8 domains including physical functioning, role-physical, bodily pain, general health, energy/fatigue, social functioning, role-emotional and emotional well-being. Each score ranged from 0-100 scores, an increase of total scores indicate a higher level of QOL and decrease in total scores indicates a lower level of QOL.

Content validity of the study tools was tested by using an expert panel of seven experts in the field of Medical-Surgical Nursing two from Suez Canal University, three from Port Said University and two from Oncology Medicine Department, Suez Canal University. These experts assess the tools for clarity, relevance, application, comprehensiveness, and understanding. All recommended modifications in the tools were done.

A pilot study was done before starting data collection on 10% of patients to evaluate the study tools for clarity and applicability and to estimate the time needed to collect data then necessary modification was carried out before actual data collection. Patients included in the pilot study were excluded from the study sample.

Ethical Consideration:

An approval to conduct the study was obtained from the Dean of the Faculty of Nursing, as well as the Head of Oncology Department, Suez Canal University Hospitals. Oral informed consent after brief explanation of the study aim and process was obtained from the patients before data collection. The patients informed about the confidentiality of their data throughout the study.

Field Work:

Data of current study were conducted in the period from October 2016 to April 2017. The actual study was conducted in four phases: assessment, planning and implementation, and evaluation phase.

Assessment phase included assessment of post-mastectomy patient's knowledge, self-management, and QOL. were made for this assessment to shed light and give more insight into the current patient's knowledge, self-management, and QOL deficit.

Planning and implementation phases include a review of current and previous relevant literature using the available local and international books, magazines and periodical to get acquainted with the researchers' problem to develop the content of self-management guidelines (Du & Yuan, 2010; Gautam et al., 2011; El-Sayed & Ali, 2011; Loh et al., 2013; Silva et al., 2014; Sekhar, Thomas, Unnikrishnan, Vijayanarayana, & Rodrigues, 2015; Van Dijck et a., 2016; Hinkle & Cheever, 2016). Guidelines were revised by a group of seven experts in the field of medical-surgical nursing two from Suez Canal University and three from Port Said University. Also, two from oncology medicine, Suez Canal University. Based on the opinion of the panel of experts, some modifications were done and final frame was developed.

Self-management guidelines were implemented to post-mastectomy patients through five educational sessions in a small group (3 patients) at the oncology department with duration of approximately 45-60 minutes for each session.

Basics about breast cancer and mastectomy, in addition, the importance of self-management guidelines to improve QOL were discussed in the first session, while the second session concerned with treatment options post-mastectomy, side effects, managing physical symptoms and prevent complications, as well as, the third session concerned with follow up care post-mastectomy, healthy diet, exercise and weight control. Also, the fourth session includes post mastectomy anxiety and stress management, relaxation

techniques, and adoption of recreational activities.

In addition, the fifth session concerned with breast health, breast self-examination, cope with body changes (prosthesis, wig) and preventions of recurrence was performed. The educational sessions of guidelines started from 9 am to 2 p.m., which was modified sometimes according to the patient free time. The teaching hours were 5 hours/5day/week. Also, media were prepared by the researchers including guidelines hand out, PowerPoint presentation, and audiovisual materials and the real object. Teaching methods used were lecture, discussion, demonstrations, and re-demonstrations.

During the evaluation phase the effect of self-management guidelines was evaluated on post-mastectomy patient knowledge, self-management and QOL by comparing results 1 month after self-management guidelines implementations and used the same format of pretest to determine the effect of implemented self-management guidelines.

RESULTS

The mean age of the patients was 54.1 ± 5.5 years with a range of 42-65 years. About 44.4% of them were illiterate and only 8.3% graduated from university. About 64% of the patients were housewives and 48.6% of them were single. Approximately 47% of the patients had enough income, 63.9% resided in rural regions and 97.2% of their homes contained two or more rooms. Regarding family, 54.2% of them had three kids and the family members are five or more. About 88% of them didn't have health insurance and 68.1% of them reported that health care centers easy to reach. Regarding activities, 48.6% of the patients had moderate activity and 91.7% of them didn't perform regular exercises. Regarding medical history, 76.4% of the patients had menstrual disturbances,

52.8% had previous chronic conditions, 48.6% had family history of breast cancer, 43.1% were hypertensive, 34.7% were diabetic, and 5.6% had chronic kidney disease, as shown in Table 1.

Table (2) shows that there were statistically significant differences between all items of patients' knowledge before and after self-management guidelines implementation ($p < 0.0001$). Total patients' knowledge scores (5.6 ± 2.1 versus 31.8 ± 3.3 , respectively; $p < 0.0001$) were both significantly improved after implementation of guidelines.

Table (3) shows that there were statistically significant differences between all items of self-management scale before and after self-management guidelines implementation ($p < 0.0001$). Total self-management scales (23.3 ± 6.0 versus 63.0 ± 7.6 , respectively; $p < 0.0001$) were both significantly improved after implementation of guidelines.

Table (4) shows that there were statistically significant differences between SF-36 QOL scores before and after self-management guidelines implementation ($p < 0.0001$). SF-36 QOL score was extremely better after implementation of guidelines (28.7 ± 7.7 versus 80.0 ± 6.4 , respectively; $p < 0.0001$).

Figure (1) shows that there was a significant positive correlation between self-management and QOL after guidelines implementation (0.432, $p < 0.0001$).

DISCUSSION

The research results showed that QOL of the patients with breast cancer has been enhanced under the influence of self-management and this improvement has not been only related to the total score of the QOL but has occurred in all its dimensions. Thus, it can be said that self-management enhances physical, social, psychological, and spiritual dimensions of QOL of the patients with breast cancer (Shahsavari, Matory, Zare, Taleghani,

& Kaji, 2015). Numerous studies demonstrated that all aspects of QOL can be affected after mastectomy (**Fu, 2010; Gautam et al., 2011; Silva et al., 2014; Costa et al., 2017).**

Mastectomy is associated with a negative effect on the patients and improving QOL will improve self-management for these patients (**Du & Yuan, 2010; Grady & Gough, 2014).** Nurses must be familiar with QOL among post-mastectomy patients and their self-management schedule to carry a significant modification in patient's QOL (**El-Sayed & Ali, 2011; Van Dijck et al., 2016).**

The present study shown that the patients' knowledge scores and self-management scores were both significantly improved after implementation of guidelines. SF-36 QOL score was extremely better after implementation of guidelines. This finding of the study agrees with **Shahsavari et al. (2015)** conducted a study aimed at evaluating the effectiveness of nurse-led self-management program on QOL in patients with breast cancer. After the intervention, there was significantly greater improvements in QOL status. Furthermore, self-management caused a significant increase in the QOL score related to physical, psychological, social, and emotional dimensions. In my point of view self management not only improve mastectomy patient' knowledge but self management activities help patients to adapt healthy life style and improve their quality of life

In the similar directions studies have investigated the effectiveness of nurse-led education program on post-mastectomy complications (**Sisman, Sahin, Duman, & Tanriverdi, 2012).** Reputed that one of the most important caring points in the patients with breast cancer undergoing mastectomy surgery is an education for preventing complications,

which was one of the aspects of self-management. Also QOL of patients has been considered as an outcome variable

Many studies measuring QOL as an outcome variable have not been limited only to expressing total score of QOL, and its dimensions have also been analyzed. Similarly, in the present study, statistical analyses were performed for a total score of QOL as well as its dimensions. One of the controversial findings in this regard is that among different dimensions of QOL, the highest score in dimensions of QOL after self-management implementation belonged to the spiritual (role-emotional) dimension and physical role dimension. This finding is line with, **Taleghani, Yekta, & Nasrabadi (2006)** have also pointed to the role of religious issues in the lives of the women with breast cancer in Iran and saw it fundamental in enhancing the adjustment of these patients with their disease. In the researcher point of view better physical role suggested that self-management guidelines assisted the patients to control physical symptoms and health problems of treatment modalities

On the other hand, the lowest score in different dimensions of QOL in the patients participating in the research after self-management implementation belonged to the emotional well-being dimension. This finding is consistent with the study of **Arndt et al. (2004)** Based on the results of their study on the women with breast cancer, they reported lower score of emotional well-being dimension performance in these patients compared with the population and the other dimensions were at desired levels. These findings show the necessity of focusing nursing interventions on these domains of QOL. On the other hand, intervention in these dimensions needs participation of other members of the family especially the husbands as a supporting source, as the patients with breast cancer need more

attention and companion by their husbands due to fear from being abandoned by them.

As regard to present study there was correlation between quality of life scores and self-management score this finding supported by Previous studies investigating the effectiveness of self-management in other patients have also emphasized on this point. Among them, focusing on breast cancer survivors **Loh et al. (2013)** state that all dimensions of QOL increased significantly in the intervention group after performing a 1-month self-management program compared with the control one. Of course, **Loh et al. (2013)** have emphasized on self-management education as his intervention. **Loh et al. (2011)** also showed that self-management education program has a remarkable effectiveness in the longer period of 2 years as well. Collectively the finding of the current study suggested that quality of life can be improved by addition self-management guidelines to traditional acute care

CONCLUSIONS

There was a significant improvement in post-mastectomy patients QOL after self-management guidelines implementation. There was a significant positive correlation between self-management and QOL post-guidelines implementation for post-mastectomy patients.

RECOMMENDATIONS

As results of the current research, the following suggestions are proposed:

- Self-management guidelines should be conducted for post-mastectomy patients as they are the key to improving their QOL.
- The study should be replicated on a larger sample and different hospitals setting in order to generalize the results.
- Further researches directed toward self-management guidelines for improving QOL for patients with other

oncology surgeries such as (colectomy, gastrectomy, and thyroidectomy).

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Table (1) Socio demographic characteristics and medical history of post-mastectomy patients (n=72).

Characteristics		Post-mastectomy patients (n=72)
Age	Mean \pm SD	54.1 \pm 5.5
	Range	42-65
Educational level	Illiterate	32 (44.4%)
	Primary/ Preparatory	20 (27.8%)
	Secondary/ Diplomat	14 (19.4%)
	University	6 (8.3%)
Employment	Housewives (unemployed)	46 (63.9%)
	Employed	26 (36.1%)
Marital status	Married	37 (51.4%)
	Single	35 (48.6%)
Income	Enough	34 (47.0%)
	Non-enough	38 (53.0%)
Residence	Rural	46 (63.9%)
	Urban	26 (36.1%)
House rooms	<2 rooms	2 (2.8%)
	\geq 2 rooms	70 (97.2%)
Family members	<3 members	13 (18.1%)
	3-4 members	20 (27.8%)
	\geq 5 members	39 (54.2%)
Kids number	1 kid	10 (13.9%)
	2 kids	23 (31.9%)
	3 kids	39 (54.2%)
Health insurance	Present	9 (12.5%)
	Absent	63 (87.5%)
Health care centers	Easy to reach	49 (68.1%)
	Difficult to reach	23 (31.9%)
Daily activities	Mild	21 (29.2%)
	Moderate	35 (48.6%)
	High	16 (22.2%)
Regular exercises	Yes	6 (8.3%)
	No	66 (91.7%)
Medical history	Menstrual disturbances	55 (76.4%)
	Previous chronic conditions	38 (52.8%)
	Family history of breast cancer	35 (48.6%)
	Hypertension	31 (43.1%)
	Diabetes mellitus	25 (34.7%)
	Chronic kidney disease	4 (5.6%)

Table (2) Patients' knowledge score before and after self-management guidelines implementation for post-mastectomy patients (n=72).

Patients' knowledge	Before		After		t-test	p-value
	Mean	SD	Mean	SD		
Definition of breast cancer	1.04	0.956	2.56	0.500	12.58	<0.0001**
Signs and symptoms of breast cancer	1.21	0.963	2.74	0.444	13.66	<0.0001**
Risk factor of breast cancer	0.96	0.911	2.65	0.609	14.35	<0.0001**
Types of breast cancer	0.36	0.657	2.54	0.502	22.83	<0.0001**
Treatment of breast cancer	0.78	0.907	2.53	0.503	17.78	<0.0001**
Mastectomy definition	0.22	0.510	2.50	0.504	30.54	<0.0001**
Types of mastectomy	0.15	0.362	2.47	0.530	31.54	<0.0001**
Proper nutrition	0.15	0.362	2.64	0.484	32.46	<0.0001**
Arm exercise	0.10	0.298	2.78	0.419	45.62	<0.0001**
Treatment modalities	0.15	0.433	2.79	0.409	36.58	<0.0001**
Side effect of treatment	0.11	0.396	2.75	0.436	35.75	<0.0001**
Prevent complication and recurrence	0.39	0.723	2.82	0.387	25.17	<0.0001**
Total score	5.62	4.106	31.76	3.282	48.90	<0.0001**

*Significant p-value <0.05, **highly significant p-value <0.01.

Table (3) Self-management score before and after self-management guidelines implementation for post-mastectomy patients (n=72).

Patients' self-management	Before		After		t-test	p-value
	Mean	SD	Mean	SD		
Knowledge of treatment options post-mastectomy	1.33	0.628	3.67	0.934	16.85	<0.0001**
Knowledge of managing symptoms for post-mastectomy	1.44	0.767	3.74	0.888	15.85	<0.0001**
Communications with health staff	1.46	0.768	3.94	0.963	15.13	<0.0001**
Asking questions	1.49	0.712	3.65	0.808	15.65	<0.0001**
Resources utilizations	1.49	0.692	3.72	0.907	16.23	<0.0001**
Getting support	1.46	0.711	3.69	0.882	15.91	<0.0001**
Awareness of risk reduction habit	1.42	0.645	3.71	0.759	19.19	<0.0001**
Awareness of ideal body weight	1.40	0.620	3.44	0.690	18.41	<0.0001**
Awareness of diet goals	1.36	0.512	3.57	0.802	20.07	<0.0001**
Awareness of breast health & self-examination	1.29	0.488	3.65	0.715	24.21	<0.0001**
Engaging in health habits (exercise)	1.29	0.458	3.71	0.846	21.68	<0.0001**
Maintain ideal body weight	1.32	0.470	3.78	0.892	21.66	<0.0001**
Perform breast check periodically	1.25	0.436	3.75	0.835	21.36	<0.0001**
Check mental hygiene regularly	1.31	0.464	3.63	0.740	22.23	<0.0001**
Fight negative thoughts	1.29	0.488	3.72	0.826	21.13	<0.0001**
Manage physical symptoms	1.36	0.484	3.72	0.843	20.68	<0.0001**
Adopt social-reactions activities	1.35	0.479	3.88	0.918	20.21	<0.0001**
Total score	23.31	6.027	62.97	7.586	31.90	<0.0001**

*Significant p-value <0.05, **highly significant p-value <0.01.

Table (4) Domains of Short-Form 36 (SF-36) Quality of Life (QOL) score before and after self-management guidelines implementation for post-mastectomy patients (n=72).

Patients' quality of Life	Before		After		t-test	p-value
	Mean	SD	Mean	SD		
Bodily pain	36.458	11.32	78.75	26.53	10.84	<0.0001**
General health	53.89	11.81	84.79	9.44	19.83	<0.0001**
Physical functioning	42.50	30.99	71.53	19.51	6.04	<0.0001**
Role-physical	11.79	1.39	99.65	2.95	22.00	<0.0001**
Role-emotional	46.0	3.93	100.00	0.01	68.87	<0.0001**
Emotional well-being	26.06	8.13	66.28	7.50	29.26	<0.0001**
Energy /fatigue	26.54	8.34	70.83	11.45	25.53	<0.0001**
Social functioning	42.187	25.7	68.40	20.01	6.27	<0.0001**
Total SF-36 QOL score	28.7	7.70	80.00	6.40	20.0	<0.0001**

*Significant p-value <0.05, **highly significant p-value <0.01.

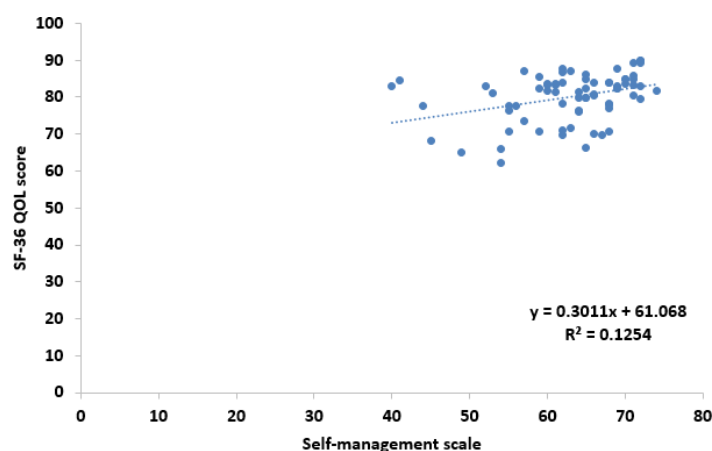


Figure (1) Scatter-plot shows the correlation between Short-Form 36 (SF-36) Quality of Life (QOL) score and self-management scale score after guidelines implementation for post- mastectomy patients (n=72).