Quality of Life and Psychological Reaction among Newly Diagnosed Women with Breast Cancer

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Abstract

Background: Measuring quality of life (QoL) in breast cancer women has been the focus of clinical practice and research in recent decades and is of importance in assessing treatment outcomes. **Aim:** To assess quality of life among newly diagnosed women with breast cancer. **Design:** A cross-sectional design used to achieve the aim of this study. **Setting:** This study was conducted at the out-patient clinics of El Salam Oncology Center affiliated to Specialized Medical Centers. **Subject:** 175 newly diagnosed women with breast cancer. **Data collection tools:** Tool I: Structured interview questionnaire including demographic data, clinical data, and knowledge of women regarding breast cancer, Tool II: Quality of Life Instrument- (Breast Cancer Patient Version), and Tool III: Psychological reactions Questionnaires. **Results:** Data analysis of the current study showed that two thirds of the newly diagnosed women with breast cancer under study had low total quality of life level. Additionally, less than two thirds of them had mild psychological reaction to cancer diagnosis. **Conclusion:** The majority of the studied women had low quality of life and mild levels of psychological reactions to cancer diagnosis. **Recommendation:** Developing and implementing rehabilitation programs to enhance breast cancer women's self-care and quality of life. Psycho-educational awareness programs should be applied to promote stress management, emotional resilience, self-regulation, and coping mechanisms.

Keywords: Breast cancer, Newly diagnosed, Quality of life, Psychological reaction

Introduction

Breast cancer (BC) is the most common cancer affecting women worldwide **(Wilkinson et al., 2022).** It is a complex, heterogeneous, and multifactorial disease that usually presents with a lump in the breast, with or without other manifestations **(Smolarz et al., 2022).**

Assessment of quality of life (QoL) can significantly impact the diagnosis and treatment course of breast cancer, resulting in a better prognosis among women **(Al Zahrani et al., 2019).**

Women undergoing breast cancer treatment especially, newly diagnosed, may suffer functional inability, altered self-image, loss of breast sensitivity, anxiety, depression, and other physical, emotional, and psychological alterations due to fear of death **(Paterson et al., 2016).**

Surgery is still the cornerstone treatment for BC, chemotherapy, radiotherapy, immune-therapy, anti HER2 targeted therapy, and hormonal therapy are additional systemic anti-cancer therapy. Some women undergo a combination of treatments depending on the cancer type, stage, and size, as well as their socio-demographics and clinical history. All types of anti-cancer therapies are delivered with the aim of reducing the risk of local and distant BC recurrence **(Gennari et al., 2021).**

An increase in the survival rate of women with breast cancer has been observed, which has diverted the attention of clinicians to assess the impact of various treatments on the health-related quality of life (QoL) of women **(Zaid et al., 2017).** So, quality of life (QoL) is one of the treatment outcome measures in patients with breast cancer which can help to alter treatment plans, or it can be contingent on treatment plans for women **(Yusoff, et al., 2022).**

Quality of life is a complex and a multidimensional measure that encompasses the

diagnostic impact, the impact of disease treatment, its progression on daily routine activities, and recovery of women with breast cancer. Currently in oncology, QoL is considered to be an indicator for assessing the quality of care and its management. QoL subjectively assesses physical, psychological, social, and spiritual well-being which provides insight into daily living during the treatment of breast cancer **(Ferrell et al., 1997 & Ferrell et al., 1998).**

A diagnosis of cancer can cause serious psychological problems due to many factors such as; uncertainties in treatment, physical symptoms, fear of recurrence and death, and changes in the woman's personality, body image, and sexual life. Difficulties in daily activities, family problems, and lack of support are also serious factors that affect psychological aspects **(Saidin et al., 2024).**

Negative psychological distress and unmet social demands were significantly associated with poor QoL. Consequently, the effect of internal psychological state and external social factors on QoL in breast cancer women should be given enough attention **(Ban et al., 2021).**

Significance of the study:

Breast cancer remains a significant public health challenge globally, representing the most common cancer among women and a leading cause of cancer-related mortality. In 2020 alone, it was estimated that over 2.3 million new cases were diagnosed worldwide, accounting for approximately 11.7% of all cancer cases resulting in nearly 685,000 deaths **(Sung et al., 2021).**

In Egypt, breast cancer is the most common malignancy in women, accounting for 38.8% of cancers in this vulnerable group, with the estimated number of breast cancer cases nearly 22,700 in 2020 and forecasted to be approximately 46,000 in 2050 **(Alorabi et al , 2021).**

In Egypt, the study results showed that the quality of life among breast cancer patients was dramatically affected in the form of persistent pain (92.8%), anxiety (84%), limitation in activity (81.6%), limitation in mobility (70.4%), and limitation in self-care (56.8%). Age, social standard, and cancer stage had variable effects on the dimensions of quality of life **(El Sayed et al., 2024).**

Studies have shown that the prevalence of psychological distress among breast cancer patients' rates of 49.0% in China were reported in 2022 and 47% were reported in Germany. In contrast, the prevalence was low in Jordan (36.3%) and Spain (24.5%) **(Tang et al., 2024).**

Aim Of The Study

The aim of this study was to assess quality of life among newly diagnosed women with breast cancer.

Research question:

1.What are the levels of quality of life among newly diagnosed women with breast cancer?

2.What are the levels of psychological reactions among newly diagnosed women with breast cancer?

SUBJECTS AND METHODS

Research design:

A descriptive cross-sectional study was used to assess the aim of the study.

Research Setting:

This study was conducted at the out-patient clinics of El Salam Oncology Center affiliated to Specialized Medical Centers and Egyptian's Ministry of Health and Population.

Subjects:

All available married and newly diagnosed with breast cancer along the data collection period in the previously mentioned setting.

The criteria of the Subjects:

- Females 18 years and above.
- Married women.

Sample size:

A purposive sample of all married, newly diagnosed women with breast cancer who were agreeing to participate in the study., based on inclusion criteria, using the following equation developed by **Krejcie and Morgan (1970).**

$$S = \frac{(X^2 \times N) \times P(1-P)}{(d^2(N-1) + (X^2 \times P(1-P))}$$

S= required sample size.

X^2= the table value of chi-square for 1 degree of freedom at the desired confidence level (1.96×1.96= 3.841)

N= the population size

p= the population proportion (assumed to be 0.50 since this would provide the maximum sample size).

d= the degree of accuracy expressed as a proportion (.05).

Using the previous formula and considering the population size equals 320, the sample size will be:

S= {3.841 × 320 × 0.50 × (1-0.50)} ÷ {(0.05 × 0.05) × (320-1) + 3.841 × 320 × (320-1)} = 175).

Data Collection Tools:

1- Structured interview questionnaire: The structured interview questionnaire was developed by the researcher in a simple Arabic language after reviewing the related literature concerning breast cancer, it included three parts:

a) Socio-demographic data of newly diagnosed women with breast cancer : The socio-demographic data was developed to assess the newly diagnosed women's socio-demographic data including age, residence, educational level, employment, adequacy of monthly income.

b) Clinical data: The clinical data was developed after reviewing the related literature concerning breast cancer. It included: duration of complaints, current cancer treatment, site of cancer, and family history of breast cancer.

c) Knowledge of woman regarding breast cancer: Knowledge of woman regarding breast cancer included 17 statements regarding concept of breast cancer, risk factor, symptoms, screening methods, and one statement for the source of information. **Scoring:** Each statement was scored as follows: Yes=2 and No=1. Unsatisfactory knowledge ≤60% (17-27.2), and satisfactory knowledge >60% (27.3-34).

2-Quality of Life Instrument (Breast Cancer Patient Version): The quality of life instrument (Breast Cancer Patient Version) is a 46-items scale that measures the quality of life of a breast cancer patient. It was adopted from the final version from **Ferrell et al., (2012)** to represent the four domains of quality of life including: physical well-being (8 statements), psychological well-being (22 statements), social well-being (9 statements), and spiritual well-being (7 statements) of breast cancer patients **(Ferrell, Dow & Grant, 2012).**

Scoring System: The scoring is based on a 3point Likert scale in which 0 = not a problem /not at all, 1 = moderate problem/sometimes, and 2= sever problem/extremely. Several items have reverse anchors. The items to be reversed are: 1-7, 9, 10, 17-29, 31, 33-39 & 43.

Subscales created for analysis purposes by adding all of the items within a subscale and creating a mean score.

Level	Low	High
Physical well-being	0:9.6	9.7:16
Psychological well-being	0:26.4	26.5:44
Social well-being	0:10.8	10.9:18
Spiritual well-being	0:8.4	8.5:14
Total QoL	0:55.2	55.3:92

3-Psychological Reactions Questionnaire: The psychological reactions questionnaire was developed by **Medhat Rabee**

Abdo (2018), to assess levels of psychological reactions among newly diagnosed patients with lung cancer. This tool was modified by replacing the word lung with breast and the needed modifications were done. It covers 5 categories of reactions (anxiety reaction, shame reaction, denial reaction, doubt reaction, guilt reaction).

1- Anxiety reaction among newly patients with breast cancer (21 statements) e.g., I feel more nervous and anxious than usual.

2- Shame reaction among newly patients with breast cancer (25 statements) e.g., I feel like I am never quite good enough as before.

3- Denial reaction among newly patients with breast cancer (34 statements) e.g., I feel I have been doing things that I believe will improve my health.

4-Doubt reaction among newly patients with breast cancer (20 statements) e.g., l am not sure from this diagnosis being uncertain means that a person is disorganized.

5-Guilt reaction among newly patients with breast cancer (10 statements) e.g., I feel with a remorse for what I am now.

Scoring System: Each item is scored in a 3point Likert scale in which 1= Never, 2= Sometimes, and 3= Always, several items have reverse score in which 1= Always, 2= Sometimes, and 3= Never. The items to be reversed are:

- Anxiety (reversed scored): (items numbers 5, 9, 13, 18)

- Shame (reversed scored) :(items numbers 4, 7, 8, 14, 15, 16, 23)

- Denial (reversed scored): (items numbers1, 2, 3, 5, 8, 9, 10, 11, 12, 14, 18, 19, 20, 21, 24, 25, 27, 32, 33, 34, 35, 36)

- Doubt (reversed scored): (items numbers 8, 15)

- Guilt (reversed scored): (items numbers 10)

Scoring for each statement was the following:

Items	Scoring system
Anxiety	Low (22-37) Moderate (38-52) High (53-66)
Shame	Low (25-42) Moderate (43-59) High (60-75)
Denial	Low (36-60) Moderate (61-84) High (85-108)
Doubt	Low (20-34) Moderate (35-48) High (49-60)
Guilt	Low (11-19) Moderate (20-27) High (28-33)

Preparatory phase:

The preparatory phase included reviewing past and current, local and international related literature, and theoretical knowledge of various aspects of the study using books, articles, internet, periodicals, and journals regarding the quality of life among newly diagnosed women with breast cancer.

Validity: The standard tools were translated into a simple Arabic language by language expert and then translated into the original language by an English language expert, any discrepancy between the original tools and back translated tools was considered a translation error. The face and content validity were reviewed by five experts: three experts from Psychiatric-Mental Health Nursing specialty and two experts from Medical-Surgical Nursing specialty of the Nursing Faculty members, Ain Shams University. The experts were asked to respond to each statement of the translated tools to assess its validity and no modifications were made after the jury.

Reliability: Quality of Life Instrument (Breast Cancer Patient Version) is a standardized tool and no modifications were done, the overall QoL-CS tool test re-test reliability was 0 .89 with subscales of physical r= 0.88, psychological r= 0.88, social r= 0.81, spiritual r= 0.90. The second measure of

reliability was computed for consistency using Cronbach's alpha co-efficient as a measure of agreement between items and subscales. Analysis revealed an overall r= 0.93. Subscale alphas ranged from r=0.71 for spiritual wellbeing, r= 0.77 for physical, r= 0.81 for social, and r= 0.89 for psychological **(Ferrell, Dow & Grant, 2012).**

Psychological Reactions Questionnaire is a standardized tool and no modifications were made, its reliability was assessed through measuring internal consistency by determining Cronbach's alpha co-efficient, proved to be high as indicated in the following table:

Cronbach's alpha reliability analysis of psychological reactions **(Medhat, 2018).**

Tool	Reliability co-efficient	Reliability Cronbach's alpha
Anxiety scale	0.79	0.83
Shame scale	0.69	0.72
Denial scale	0.71	0.82
Doubt scale	0.73	0.79
Guilt scale	0.65	0.71

Ethical considerations:

After securing the official requirements for carrying out this study, the women were informed about choosing to participate or not. The researcher took a written informed consent from each woman if they agreed to participate; they were also informed about their rights to withdraw from the study at any time without giving a reason. Each woman was assured that anonymity and confidentiality would be guaranteed and all information will only be used for a scientific reason.

Ethical values and cultural beliefs were also respected.

Ethical code: 25.01.478

Pilot study:

The pilot study was carried out at the end of November 2023 before data collection in El Salam Oncology Center on a group of 10% (17 newly diagnosed women with breast cancer) to test and evaluate the clarity, feasibility, and applicability of the tools, and to estimate the time needed to fill the sheet down. No modification was made, and the pilot sample was included in the study sample.

Field work:

The data was collected along three months period, started at the beginning of December 2023 to the end of February 2024.

Data collection of this study was carried out once permission was granted by the Scientific Research Ethics Committee, Faculty of Nursing, Ain Shams University and the hospital authoritative personnel to proceed the study. The researcher visited the study setting and met with the newly diagnosed women. The purpose of the study was explained to them. The researcher started the interview with each woman individually by using the data collection tools when, they stayed in the waiting area of the out-patient department. The time needed to fill all the tools down was 25-30 minutes. Data was collected for five days (Sunday, Monday, Tuesday, Wednesday, and Thursday) per week for 3 months at the out-patient clinics at the morning shift. The researcher interviewed with 2-3 patients of newly diagnosed women with breast cancer for each visit

Statistical Analysis:

The statistical analysis of data was done by using the computer software of Microsoft Excel Program and Statistical Package for Social Science (SPSS) version 22. Data was presented using descriptive statistics in the form of frequencies and percentage for categorical data, the arithmetic mean (X) and standard deviation (SD) for quantitative data. Qualitative variables were compared using chi square test (x^2), P-value to test association between two variables and Pearson correlation test (r- test) to the correlation between the study variables. A statistically significant difference was considered if p-value was< 0.05. A highly significant difference was considered if the p-value was< 0.001.

Results

The study's results showed the following:

Table (1) reveals that 30.9% of the women are in age the group from 40 to less than 50 years old and the mean age of the total sample is 47.46 ± 13.74 years. Regarding the residence, 76.6% of them lived in urban areas.

In relation to women's educational level and employment, 37.1% and 71.4% of them are of secondary education and housewives respectively. Regarding the adequacy of monthly income, 58.3% of them reported a barely enough monthly income.

Table (2) illustrates that that 44.6% of the women reported their duration of complain from 1-4 weeks with a mean **5.33± 2.756** weeks. Concerning the current cancer treatment, chemotherapy shows 58.3% followed by radiotherapy 28.6%. As regards the site of cancer, 52.6% of them have left side breast cancer. Regarding the family history of breast cancer, 67.4% of them have no family history.

Table (3) illustrates that the women have unsatisfactory cancer knowledge regarding risk factors for breast cancer (98.9%), the symptoms of breast cancer (97.1%), and the screening methods of breast cancer (100%). Based on total knowledge scores, the table shows that all of them have unsatisfactory knowledge regarding breast cancer as their maximum scores are 25 and minimum scores are 18 with a Mean ±SD= 21.54± .89.

Table (4) 42.3% of the newly diagnosed women with breast cancer under the study had moderate physical health level, 81.2% of them had low psychological well-being level, 60.6% of them had low social concern level, 47.4% of them had moderate spiritual well-being level, and 66.9% of them had low total quality of life levels.

Table (5) 54.3% of the newly diagnosed women with breast cancer under the study had moderate anxiety reaction level, 67.4% of them had low denial reaction level, 48.6% of them had low doubt reaction level, 46.9% of them had moderate Guilt reaction level, 56.0% of them had low shame reaction level, and 64.0% of them had low total psychological reaction levels.

Table (6) shows that there was a strong negative correlation between quality of life and psychological reaction among the women. This indicates that lower quality of life is strongly associated with more severe psychological reactions.

Table (1): Frequency distribution of the newly diagnosed women with breast cancer under the study according to their socio-demographic data (n=175).

Items	No.	%
Age (year)		
18 < 30 years old	15	8.6
30 <40 years old	35	20.0
40 <50 years old	54	**30.9**
50 <60 years old	32	18.3
≥60 years	39	22.3
Mean ±SD	**47.46 ± 13.74**	
Residence		
Rural	41	23.4
Urban	134	**76.6**
Educational level		
Illiterate	40	22.9
Primary education	40	22.9
Secondary education	65	**37.1**
University education	30	17.1
Employment		
Employed	34	19.4
Retired	11	6.3
Housewife	125	**71.4**
Other	5	2.9
Adequacy of monthly income		
Enough=adequate	23	13.1
Not enough	50	28.6
Barely enough	102	**58.3**

Table (2): Frequency distribution of the newly diagnosed women with breast cancer under the study according to their clinical data (n=175)

Items	No.	%
Duration of complains "in weeks"		
1-4	78	**44.6**
5-8	73	41.7
9-10	24	13.7
Mean ±SD	**5.33± 2.756**	
Current cancer treatment		
Chemotherapy	102	**58.3**
Radiotherapy	50	28.6
Surgery	15	8.6
Hormonal therapy	8	4.6
Site of cancer		
Right breast	59	33.7
Left breast	92	**52.6**
Both breasts	24	13.7
Family history of breast cancer		
Yes	57	32.6
No	118	**67.4**

Table (3): Frequency distribution of the newly diagnosed women with breast cancer under the study according to their knowledge (n=175).

Items	Yes		No	
	No.	%	No.	%
Definition	118	67.4	57	32.6
Risk factors for breast cancer	2	1.1	173	98.9
The symptoms of breast cancer	5	2.9	170	97.1
Screening methods of breast cancer	0	0.0	175	100.0
Mean ±SD= 21.54± .89 Range=7 Maximum= 25 Minimum=18				

Table (4): Frequency distribution of the Quality of Life among the newly women diagnosed with breast cancer under the study (n=175).

Domains	Low		Moderate		High	
	No.	%	No.	%	No.	%
Physical	72	41.1	74	42.3	29	16.6
Psychological	142	81.2	30	17.1	3	1.7
Social	106	60.6	62	35.4	7	4
Spiritual	14	8	83	47.4	78	44.6
Total quality of life	117	66.9	53	30.3	5	2.9

Table (5): Frequency distribution of psychological reactions among the newly women diagnosed with breast cancer under the study (n=175)

Domains	Mild		Moderate		Sever	
	No.	%	No.	%	No.	%
Anxiety reaction	**71**	**40.6**	**95**	**54.3**	**9**	**5.1**
Denial reaction	**118**	**67.4**	**53**	**30.3**	**4**	**2.3**
Doubt reaction	**85**	**48.6**	**84**	**48.0**	**6**	**3.4**
Guilt reaction	**80**	**45.7**	**82**	**46.9**	**13**	**7.4**
Shame reaction	**98**	**56.0**	**74**	**42.3**	**3**	**1.7**
Total psychological reaction	**112**	**64.0**	**60**	**34.3**	**3**	**1.7**

Table (6): Correlation between the quality of life and psychological reaction among the newly diagnosed women with breast cancer under the study (n=175)

The studied Variables		Psychological reaction
Quality of life	r test	-.676**
	p value	.000

** Highly significant at p ‹ 0.01.

Discussion

Breast cancer is considered the most common neoplasm in women, and its resultant mortality rate is increasing every year **(Coughlin, 2019 & Babazadeh Namini et al., 2021).** Research has shown that the diagnosis and treatment of breast cancer trigger a variety of negative psychological reactions and emotional changes such as: guilt, shame, doubt, stress, anxiety, fear, and significant depression **(Dinapoli et al, 2021, Liberacka-Dwojak et al., 2023, and Aitken & Hossan, 2022),** and these emotional responses can considerably disrupt the quality of life **(Migerode et al., 2012, Aitken & Hossan, 2022 and Oliva et al., 2019).** Quality of life is a crucial factor in evaluating the treatment effects and women's functional capabilities throughout their lives **(Zhou et al., 2022).**

So, the current study aimed to assess quality of life among newly diagnosed women with breast cancer.

Concerning Socio-demographic and clinical data of the newly diagnosed women with breast cancer under the study, less than one-third of them were at the age group of 40 to less than 50 years old, and their mean age was 47.46 ± 13.74 years. Regarding residence, more than three-quarters of the studied women lived in urban areas.

Regarding education, the current study result revealed that more than one-third of the studied women finished their secondary education.

As regards occupation, the current study showed that less than three-quarters of them were housewives. In relation to the adequacy of monthly income, the current study result showed that more than half of the studied women had barely enough income.

According to the clinical data, the current study result revealed that less than half of the women had a duration of complains from 1-4 weeks of a mean 5.33± 2.756 weeks, more than half of them had chemotherapy as a current prescribed treatment, more than half of them also had left side breast cancer, and more than two-thirds of them had no family history

As regard Knowledge of the women regarding breast cancer, the majority of the women reported No for "exposure to radiation or chemicals is a risk factor for breast cancer", "Reflection of nipple is a symptom of breast cancer", "No breast feeding is a risk factor for breast cancer", "Self-body examination is a method of screening", and "swelling and redness around nipple is a symptom of breast cancer". In general, all of them had unsatisfactory cancer knowledge. This result may be due to their lower levels of education which emphasize the importance of organized and conducting breast cancer campaigns to improve the public's awareness through lectures, workshops, videos, and other source materials.

This result was at the same line with **Guthigar and Naik's (2023)** study entitled: "Assessment of knowledge, attitude, and practice regarding breast cancer among the women in rural Karnataka, South India," they reported that knowledge of the symptoms and risk factors of breast cancer among the participants was low and in general, most of them had poor knowledge regarding breast cancer.

This result was supported with **Omar et al. (2020)** who reported that most of the studied women didn't know symptoms and risk factors of breast cancer in their study of "Female awareness, attitudes, and knowledge about early detection of breast cancer in Syrian Private University, Syria."

The result was in accordance with **Eldessouki et al. (2019)** who carried out a study entitled: " Assessment of knowledge on breast cancer risk factors and the practice of breast self-examination among college educated female administrative employees in Fayoum University," and mentioned that out of the 78 participants, more than one-tenth of them had very good knowledge about breast cancer risk factors, while less than half of them had poor or very poor knowledge, less than two-thirds of participants had very good and good knowledge on breast self-examination additionally, most of the participants were aware that being a woman is a risk factor of breast cancer.

This result was contradicting with **Almeshari et al. (2023)** who applied a study entitled: "Awareness level, knowledge and attitude towards breast cancer among staff and students of Hail University, Saudi Arabia" and reported that more than half of the studied women had average knowledge about risk factors, as well as signs and symptoms respectively.

According to source of cancer knowledge, the current study result illustrated that more than half of the women had their information from health care provider, while low percentage of them, their source of cancer information was media, followed by relatives, television, and books. This result may be due to follow up after diagnosis and more attention about their health. The variations regarding the source of information could also be due to different social lifestyles and cultures.

This result was supported with **Almeshari et al. (2023)** who showed that most of the participants were students who had learned about breast cancer through the Ministry of Health's university-based breast cancer education program. While this result was disagreed with **Hassan et al. (2018)** who conducted a study entitled: "Awareness about breast cancer and its screening among rural Egyptian women, Minia District: A population-based study" and reported that a high percentage of the study participants had no source of knowledge.

Quality of Life among the newly diagnosed women with breast cancer under the study:

Regarding physical well-being domain of quality of life, the current study result demonstrated that more than two- fifths of the women had moderate and low physical well-being

levels respectively, as less than two-thirds and more than half of them mentioned that fatigue and appetite changes as moderate problems. The results also illustrated that less than two-thirds of them rate their overall physical well-being as a moderate problem. This result may be due to the nature of the disease and its effect on body function. It may also be due to the side effect of drugs, as more than half of them received chemotherapy and less than one-third received radiotherapy.

This finding was supported by **Al-Sharman, et al. (2024)** who conducted a study about "Quality-of-life among women with breast cancer: application of the international classification of functioning, disability, and health model," they found that fatigue and appetite change are frequently reported as physical consequences of BC. These finding was agreed with the study carried out by **AboulEnien et al. (2021)** who reported that more than quarter of the women under study experienced lack of energy (fatigue).

The result was at the same line with **Gangane et al. (2017)** who reported in their study of "Quality of life determinants in breast cancer patients in central rural India" that the women experienced a moderate level of physical health.

This result was contradicted with **Kudiarasu et al. (2023)** who conducted a study entitled: "What are the most effective exercise, physical activity, and dietary interventions to improve body composition in women diagnosed with or at high risk of breast cancer? A systematic review and network meta-analysis.", and reported that less than three-quarters of the studied women had good physical well- being.

Regarding psychological well-being domain of quality of life, the present study result showed that most of the women under study had low psychological well-being levels, as around three-quarters of them mentioned that spreading (metastasis) of their cancer, their initial diagnosis, and chemotherapy treatment were extremely distressing. From the researcher's point of view, these findings could be due to the nature of the disease and/or receiving a breast cancer diagnosis can be a traumatic experience, leading to feelings of anxiety, uncertainty about the future, and fear of death. Women with breast cancer may experience social isolation due to fatigue, physical limitations, or changes in their appearance which impact their psychological well-being.

This result was congurent with **Azam et al. (2021)** who carried out a study entitled: "An empirical study on quality of life and related factors of Pakistani breast cancer survivors." They found that most of the studied women reported distress after initial diagnosis and less than three-quarters of them were afraid of a recurrence of cancer in the future.

This result was agreed with **Jin (2022)** who reported that most breast cancer survivors experience moderate and severe distress even after the completion of chemotherapy treatment due to persistent physical symptoms, fear, and anxiety about recurrence of metastasis in their study of "Factors associated with the quality of work life among working breast cancer survivors."

This result was contradicting with **Abu-Helalah et al. (2022)** who performed a study entitled: "Quality of life and psychological wellbeing of breast cancer survivors in the Kingdom of Saudi Arabia," they showed a good quality of life and psychological wellbeing of breast cancer survivors in different regions in the Kingdom of Saudi Arabia. The result was also disagreed with **Atta et al. (2022)** who mentioned that less than two-fifths of the studied women had poor level of emotional well- being.

Regarding social well-being domain of quality of life, less than two-thirds of the newly diagnosed women with breast cancer under the study had low social well-being levels. As less than two-thirds of them mentioned that their illness has been extremely distressing for their family and their illness and treatment sometimes interfered with their activities at home.

From the researcher's point of view, this result could be due to the nature of disease, its severity, and progression makes the woman in need for frequent family, cultural, and religious support, as household activities can be influenced by cultural and social norms. In Arabic traditional societies, it is the responsibility of the mother to perform all household activities.

The result was supported by **Al Zahrani et al. (2019)** who explained that the studied women reported family's distress due to their disease. This result was parallel with **Graells-Sans et al. (2018)** who conducted a study entitled: "Social inequalities in quality of life in a cohort of women

diagnosed with breast cancer in Barcelona," they indicated that about two-thirds of the studied women had high level of social function. This result was also agreed with **Sun et al. (2023)** in a study entitled: "Social functioning, depression, and quality of life among breast cancer patients: A path analysis," they reported that the studied women had better social functioning.

The result was incongruent with **Fisher et al. (2021)** who explained that more than one-third of the studied sample reported disease interference with daily activities in their study about "Relationship between social support, physical symptoms, and depression in women with breast cancer and pain."

According to spiritual well-being domain of quality of life, the current study result revealed that less than half and more than two-fifths of the newly diagnosed women with breast cancer under the study had moderate and high spiritual well-being levels respectively, as high percentage of the women mentioned that spiritual activities such as; meditation or praying were extremely important for them, their participation in religious activities such as praying, going to mosque or church were extremely important, and their spiritual life was extremely changed as a result of cancer diagnosis respectively. From the researcher's point of view, the studied women considered performing spiritual practices like prayer, meditation, and/or spending time in nature can provide a sense of peace and connection, helping them manage the emotional and physical challenges of breast cancer treatment, spiritual well-being can also be associated with lower levels of anxiety and depression in cancer breast women.

This result was parallel with **Levine et al. (2009)** who carried out a study entitled: "The benefits of prayer on mood and well-being of breast cancer survivors" and found that most of the studied women experiencing prayer. The result was also at the same line with **Rajendran's et al. (2021)** study entitled: "quality of life among breast cancer survivors seeking healthcare- a mixed study. They mentioned that the studied women reported that "they feel happy when they go to temple and added that they go there and sit for a while to feel relax."

The present study's result was consistent with **Firouzbakht's et al. (2020)** study entitled: "Analysis of quality of life in breast cancer survivors using structural equation modelling: the role of spirituality, social support, and psychological well-being." They illustrated that most of the studied women had high spiritual beliefs.

In relation to the total quality of life levels, the present study's result revealed that two-thirds of the newly diagnosed women with breast cancer had low total quality of life. From the researcher's point of view, low quality of life could be due to insufficient monthly income, physical side effects of chemotherapy as fatigue, hair loss, nerve damage, scarring as a result of surgery, potential limitations in arm movement, the diagnosis and treatment process can be overwhelming, leading to fear, anxiety, depression, and absence of health education and lack of awareness related to illness. Body image issues such as: surgery, chemotherapy, and radiation can affect a woman's body image and self-esteem.

This result was agreed with **Ośmiałowska et al. (2022)** who carried out a study entitled: "Illness perception and quality of life in patients with breast cancer," and describe that about more than two-thirds of the studied women had low quality of life.

This result was contradicting with **Kumar et al. (2023)** who performed a study entitled: "Psychosocial well-being and quality of life in women with breast cancer in foothills of North India" and explained that the studied women with breast cancer have an overall good QoL. This result was also disagreed with **Rajendran et al. (2021)** who showed that two- thirds of the studied women had moderate QoL, while one- fifths of them had good QoL.

Psychological reactions among the newly diagnosed women with breast cancer under the study:

Concerning anxiety reaction to cancer diagnosis, the current study's result revealed that more than half of the studied women had moderate anxiety reaction levels, as less than three-quarters of them mentioned that their arms and legs sometimes shake, and tremble and they sometimes feel calm and can sit still easily. Around two-thirds of them sometimes feel that everything was all right and nothing bad would happen, they sometimes can feel their heart beating fast, and they sometimes feel weak and get tired easily. This result may be due to fear from disease consequences, the trip of treatment, and women

didn't know how to cope with anxiety related to breast cancer and complications.

This result was congruent with **Baqutayan (2012)** who explained that various symptoms are frequently reported by patients with cancer during or after treatment. Some of these symptoms are psychological in nature and others are physical in nature. Fatigue, nausea, trembling, and feeling their heart beating fast, are among the most common symptoms in his study of "The effect of anxiety on breast cancer patients."

This result was at the same line with **Yektatalab et al. (2020)** who conducted a study entitled: "The Relationship between anxiety and self-esteem in women suffering from breast cancer," they found more than half of the studied women had moderate levels of anxiety. This result was disagreed with **Alagizy et al. (2020)** who reported that more than one-quarter of the studied women had very low levels of anxiety.

Regarding denial reaction to cancer diagnosis, the current study's result showed that more than two-thirds of the studied women had mild denial reaction levels, as around two-thirds of them mentioned that they sometimes feel the importance of planning for the future, become very busy with what they do from the daily activities, feel the other patients are worse off than them, feel very tired about what happened, and feel that their illness has become a source of challenge for them. Around two-thirds of them also mentioned that they always put themselves in the hands of God, feel the remaining of their life is a gift from God, and they sometimes feel that they don't have the ability to do anything. This result could be due to the personality traits that make some individuals naturally more accepting and less prone to denial as a coping mechanism, having a supportive network of family and friends can make it easier to face the diagnosis and avoid denial. Patients who have access to reliable information about breast cancer and treatment options may also feel more control and less likely to resort to denial reaction.

This result in accordance with **Saeed et al. (2021)** who carried out a study entitled: "Fears and barriers: problems in breast cancer diagnosis and treatment in Pakistan" and reported that the studied women mentioned; "when I was diagnosed with breast cancer, it challenged my position in my home". They were also felt that these changes would disfigure their body image, felt that only God could heal them, and believed that their future was in God's hands, as God has the greatest power and control over our lives.

The result was consistent with **Savard et al. (2021)** who conducted a study to explore how breast cancer patients experienced the first wave of the COVID-19 outbreak. They described that the studied women weren't able to do everything, while this result was disagreed with **Vos et al. (2007)** who applied a study entitled: "Denial in cancer patients, an explorative review" and displayed that more than one-tenth of the studied patients were deniers. The result was also at the opposite way of **Iddrisu's et al. (2020)** findings in their qualitative study entitled: "Psychological and physical effects of breast cancer diagnosis and treatment on young Ghanaian women," they illustrated that the studied women mentioned that the negative effects of treatment incapacitated most of the women and limited their activities of daily living.

According to doubt reaction to cancer diagnosis levels, the current study's result showed that less than half of the studied women had sometimes doubt reaction levels. From the researcher's point of view, this result could be due to fear and uncertainty about the future sometimes cause women to doubt of their ability to cope with the diagnosis or treatment process, and the diagnosis sometimes brings concerns about physical changes (hair loss, scaring, mastectomy) which can lead to self-doubt and feelings of inadequacy.

The result was supported by **Khazi et al. (2023)** who reported that most of the studied women had low level of doubt reaction in their qualitative study of "Psychosocial impact at diagnosis and coping strategies among women with breast cancer."

As regard guilt reaction to cancer diagnosis, the current study's result illustrated that less than half of the studied women had moderate guilt reaction levels. As around two-thirds of them mentioned that they sometimes feel that life has become difficult and hopeless, feel with dislike meeting others, feel without control and lose matters from their hands, and feel that they don't care about their health. This result could be due to fear of disease, fear of family and children, feeling some patients responsible for their illness due to lifestyle choices or past actions, and patients may feel guilty about the emotional and practical

burden their illnesses places on family and friends.

The result was agreed with **Wisher (2020)** who applied a study entitled: "Survivor guilt among breast cancer patients: do some feel guilty for winning the fight" and reported that more than one-quarter of the studied breast cancer patients had at least moderate guilt reaction levels. This result is also in accordance with **Fekih-Romdhane et al. (2020)** who found that more than one-quarter of the studied women had high level of hopelessness in their study of "Hopelessness is associated with poor sleep quality after breast cancer surgery among Tunisian women." **Saeed et al. (2021)** also reported that the studied women reported that "they avoid meeting with other who show sympathy towards them" and "they need love but they don't need sympathy because it makes them feel doomed", and "avoid seeking care due to lack of money."

This result was in accordance with **Van et al. (2021)** who conducted a study entitled: "Breast cancer patients' experiences of psychological distress, hopelessness, and suicidal ideation" and showed that breast cancer patients experienced notably higher levels of guilt reactions.

Concerning shame reaction to cancer diagnosis, the current study's result revealed that more than half of the women had mild shame reaction levels, as two-thirds of them mentioned that they sometimes feel, they have much to be proud of, compared to other people, feel like measure up, feel with controlling painful events over and over in their mind until they were overwhelmed, feel in a lot of time, they were crushed (broken), and feel that they have an overpower fear that their faults will be revealed in front of others. This result could be due to the strong network of family, friends, colleagues and/or other support groups make the women feel mild level of shame as they feel loved and acceptance regardless of their physical changes, and women who had a positive body image before their diagnosis may be more resilient and less likely to experience shame related to physical changes.

The result was parallel with **Brennan et al. (2023)** who applied a study entitled: "Consumer experiences of shame in clinical encounters for breast cancer treatment." They explained that highly percentage of the studied women had shame reaction. While more than one-tenth of them didn't experience shame but shared a story of a potentially shame-inducing situation that was mitigated.

This result was supported by **Stracke et al. (2022)** who applied a qualitative interview study entitled: "You always have it in the back of your mind-feelings, coping, and support needs of women with pathogenic variants in moderate-risk genes for hereditary breast cancer attending genetic counseling in Germany" and displayed that one-quarter of the studied women didn't feel overwhelmed. This result was also at the same line with **Hamid and Khan (2021)** in a study entitled: "Experiences of social support among Kashmiri women with breast cancer" and showed that the studied women with breast cancer had feeling of "I was shattered."

According to total psychological reaction to cancer diagnosis levels, the current study's result illustrated that less than two-thirds of the newly diagnosed women with breast cancer had mild psychological reaction levels. This result could be due to family and social support that decrease psychological reaction levels among the women.

Conversely, **Tsaras et al. (2018)** displayed that most of the studied women had psychological reactions in their study entitled: "Assessment of depression and anxiety in breast cancer patients: prevalence and associated factors."

Correlation between the studied variables:

As regard the correlation between quality of life and psychological reaction among the newly diagnosed women with breast cancer, the current study result presented that there was a strong negative correlation between quality of life and psychological reaction among the women. This result may be due to the devastating shock, leading to feelings of disbelief, fear, and uncertainty about the future. These intense emotions can significantly lower a woman's overall quality of life. The diagnosis can trigger a range of psychological reactions, including; anxiety, depression, anger, sadness, and fear. These negative emotions can negatively impact a woman's well-being and overall quality of life. Breast cancer treatment such as radiotherapy or chemotherapy can cause physical changes to the body, impacting a woman's body image and self-esteem, and these changes can lead to feelings of shame, embarrassment, and further lowering their

quality of life. Additionally, the emotional and physical challenges associated with breast cancer can lead to social isolation, withdrawal, and women may feel overwhelmed and inability to participate in social activities, leading to feelings of loneliness and a diminished quality of life. These indicate that lower quality of life is strongly associated with more severe psychological reactions.

This result was consistant with **Charalambous et al. (2017)** who conducted a study entitled: "The effects on anxiety and quality of life of breast cancer patients following completion of the first cycle of chemotherapy" and reported that there was a statistically significant negative correlation between anxiety and quality of life. This result was at the same line with **Kugbey et al. (2020)** in their study entitled: "Depression, anxiety, and quality of life among women living with breast cancer in Ghana: mediating roles of social support and religiosity" and found that there were significant direct negative effects of depression and anxiety on quality of life.

Conclusion

Based on the study findings, it can be concluded that:

- The majority of the studied newly diagnosed women with breast cancer had low quality of life levels.
- The majority of the studied newly diagnosed women with breast cancer had mild levels of psychological reactions to cancer diagnosis.

Recommendations

This study recommends the following:

1-Psycho-educational awareness programs should be performed to promote stress management, emotional resilience, self-regulation, and coping mechanisms.

2-Peer-support groups to be established for reducing isolation and promote shared experiences.

3-Pre-and post- treatment counseling programs to prepare women for physical and emotional challenges of chemotherapy.

4-Developing and implementing rehabilitation programs to enhance breast cancer women's self-care and quality of life.

5-Family-focused educational sessions to encourage active involvement of spouses and family members in patient's treatment journey.

6-Longitudinal studies should be established to monitor changes in quality of life and psychological reactions over time.

7-Further research on a large sample of women with breast cancer to be carried out for providing more reliable and generalized results.

8-Designing regular and updating educational programs for nurses working with breast cancer women and their families to help them acquiring knowledge and skills needed for dealing with patients' and families' problems to improve health-care outcomes.

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