Effect of Social Media-Based Instructional Guidelines on Quality of Life and Emotional Status for Women undergoing Mastectomy

Zamzam Ahmed Ahmed[1], Manal Ahmed Mohamed Ismail[2], Shaimaa Mohamed Elghareeb Allam[3], Amany Gomaa[4], Ebtsam Salah Shalaby Salama[5]

(1) Assistant Professor of Psychiatric and Mental Health Nursing Department, Faculty of Nursing, Assiut University
(2) Lecturer at Psychiatric Nursing and Mental Health, Faculty of Nursing, Sohag University
(3) Lecturer at Medical-Surgical Nursing, Faculty of Nursing, Mansoura University, Egypt.
(4) Assistant Professor of Community Health Nursing, Faculty of Nursing, Fayoum University
(5) Assistant Professor of mental health & psychiatric nursing, Faculty of Nursing, El Mansoura University

Abstract

Background: Surgery such as mastectomy is frequently used to treat breast cancer in women, which has an impact on their quality of life. Both the physical and psychological needs of the women having mastectomy should be met, and their families must be involved in this care. However, psychological treatment is frequently neglected, including the giving of competent guidance, emotional support, and knowledge. **Aim:** To determine the effect of social media-based instructional guidelines on emotional status and quality of life for women undergoing mastectomy. **Design**: Pre& post-test using a quasi-experimental study design was used. **Settings**: The study was carried out in Egypt at Sohag City. **Sample**: From Facebook and WhatsApp groups, a purposeful sample of all available (300) women who had undergone mastectomy was collected in 2023. The online Google form spreadsheet was open from February 4 until February 25-2023. **Tools**: (I): A self-administered questionnaire (pre and post-test format) to assess post-mastectomy women's demographic characteristics and medical history; post-mastectomy women's knowledge about mastectomy (II): Depression, Anxiety, and Stress Scale (DASS); and (III): Quality of Life (QoL) scale. **Results:** showed that there was (85%) of women had an unsatisfactory level of knowledge pre-implementation compared to (90%) of them had a satisfactory level of knowledge post-implementation of social media-based instructional guidelines. Also were highly statistically significant variations in the knowledge of mastectomy among women and their levels of stress, anxiety, and depression before and after the adoption of the social media-based instructional guidelines. Additionally, after the social media-based educational guidelines were implemented, there were significant QoL increases (p<0.001). **Conclusion:** The study concluded that social media-based instructional guidelines implementation generated significant gains in the post-mastectomy women's knowledge has a good impact on reducing emotional disturbance such as depression, anxiety, and stress, and quality of life among women having a mastectomy. **Recommendations:** As a new teaching strategy for demonstrating health issues, the social media-based instructional guidelines should be carefully developed and implemented for all women having mastectomy.

Keywords: Social media-based instructional guidelines, Quality of Life, Emotional status, Mastectomy.

Introduction

Over 250,000 Americans are diagnosed with breast cancer each year, making it the most prevalent type of disease in women. Contrary to therapeutic advances, higher five-year survival rates and lower mortality rates have been attained (90.8, 95% CI = 90.5% to 91.1%) (**Martin, et al., 2023**). Because of its high incidence and mortality rates, breast cancer is a serious global public health issue. Breast cancer is a complex condition that affects all aspects of a woman's life while she is receiving treatment. They could also

feel helpless since they are unable to manage their daily obligations, care for their family, and take care of themselves. To enhance daily activities and minimize pain impairment, patients with breast cancer express urgent unmet requirements for information, support, and education. Consequently, women are commonly recommended to exercise following breast cancer surgery (**Mok, Brown, Akam, & Morris., 2022**).

A mastectomy is a surgical surgery that completely or partially removes one or both

breasts. Additionally, it serves as a preventative measure. Skin-sparing mastectomy, subcutaneous mastectomy, simple mastectomy, modified radical mastectomy, and prolonged radical mastectomy are some of the several forms of mastectomy (**Mathieu, et al., 2022**). Although a mastectomy is a highly safe procedure, there are a few potential side effects, such as discomfort, wound infection, bleeding, hematomas, lymphedema, and upper arm numbness. Exercise will maintain joint flexibility, stretch and soften scar tissue, aid in recruiting new lymphatic, promote blood flow, and even help decrease clot formation, all of which may diminish the discomfort of phantom breast sensations following surgery. Many women after mastectomy have phantom breast sensations (**Bruce, et al., 2022**).

A mastectomy, which involves removing the breast and axillary lymph nodes partially or completely, is one of the most efficient therapies for breast cancer to eliminate the entire tumor. Mastectomy has become a vital adjuvant in the treatment of breast cancer, but it has negative effects on QoL that are physical, psychological, and emotional (**Mir & Mir., 2023**).

In recent decades, clinical practice and research have focused on quantifying QoL in post-mastectomy patients, which is crucial for determining treatment outcomes (**Nelson et al., 2022**). Numerous earlier types of research demonstrated that having a mastectomy might harm a person's QoL in numerous ways. Decrease in functional ability, social function, and spiritual function, as well as the symptoms such as pain, swelling, impaired limb movement, scarring complications, lymphedema, respiratory compromise, exhaustion, and cognitive impairment. Additionally, mastectomy is linked to psychological trauma as a result of breast loss, which can lead to melancholy, anxiety, and phobias that impair psychological function (**Lundberg & Phoosuwan., 2022**).

The members of the community use information technology tools like social media to spread knowledge, instruct, and keep track of health-related occurrences (**Kamel Boulos, 2019**). According to this definition, social media refers to websites and applications that let users create and share content or engage in social networking (**Dictionary Social Media Oxford Dictionary, 2019**). Social media tools are websites and networks like Facebook, Whatsapp, and Facebook Messenger that enable multiple users to connect and communicate simultaneously (**Barrett & Mac Sweeney, 2019**).

Over 3.2 billion people are active users of social media worldwide, and this figure is steadily growing. Social media's function differs depending on users and non-users, age ranges, and demographic groups. Social media's function is evolving regularly since technological change is connected to language and cultural shift patterns. Social media is increasingly used in the healthcare industry to speed up communication, spread correct information, and spread awareness about support, therapies, and self-care alternatives (**Cherak et al., 2020**).

The goal of measuring the QoL in oncology is to keep track of the health care given to patients by looking at their social, emotional, and physical well-being. In addition to the anticipated advantages, such as complete healing or a longer survival period, there are also drawbacks, such as the emergence of a string of unfavorable symptoms. The application of optimal nursing care and improved collaboration between the patient, family, and medical professionals may be made possible by the analysis of the advantages and disadvantages of medical intervention and the knowledge acquired regarding the quality of a cancer patient's life (**Sangruangake, Summart, Songthamwat & Sangchart., 2022**).

In nursing care and psychotherapy, teaching is a technique used to assist patients in making decisions depending on reliable knowledge offered by the nurses to enhance their understanding of the causes of their issues, contributing elements, and potential solutions. In place of making suggestions or giving advice, the nurse only offers assistance when required (**Timmerberg, Chesbro, Jensen, Dole & Jette, 2022**). One of the main responsibilities of nurses is teaching, and providing nursing care for women who have undergone mastectomy increases the importance of this job by assisting them in coping with the stress and anxiety that accompany this terrible experience (**Cardoso, Baixinho, Silva & Ferreira., 2023**).

The patient was advised to exercise regularly to hasten recovery after a mastectomy by the doctor and nurse. On the side where the breast

was removed, the patient may feel stiffness in the arm. To recover a full range of motion, ease pain and stiffness, and lessen edema, patients can help themselves by engaging in basic arm exercises (**Rodrigues, Moreira, Lima, Fernandes & Gomes., 2023**). As key members of the treatment team, nurses play a critical role in the diagnosis, care, and treatment of patients with breast cancer. They help the patient more than the other members of the treatment team, so they may be the first to detect their needs. They are also successful in reducing the effects of disease and treatments and improving patients' quality of life, which includes activities of daily living (**Bokkers et al., 2023**).

The majority of healthcare providers who have direct patient contact are nurses. By providing specific instructions regarding postoperative exercises and protective care measures to prevent shoulder dysfunction, nurses play a critical role in restoring the full range of motion of the shoulder and arm after modified radical mastectomy and improving shoulder functions (**Luo, et al., 2023**). According to **Bashkin, Asna, Amoyal & Dopelt., 2023),** nurse management of breast cancer patients entails evaluating the patient's needs, establishing care plans, making the proper nursing diagnoses, and assisting the patient in coping with her emotions.

Significance of the study:

Breast cancer accounted for 35.1% of all female cancer cases in Egypt. There were 685 000 deaths from breast cancer worldwide and 2.3 million new cases among women. Breast cancer is the most common disease in the world, with 7.8 million women alive as of the end of 2020 having received a diagnosis within the previous five years (**World Health Organisation, 2021**). There were 9. 148 breast cancer deaths in Egypt and 22. 038 new breast cancer diagnoses. 61.160 women who received a breast cancer diagnosis within the previous five years were still alive as of the end of 2020. In terms of cancer sites, breast cancer came in second place after liver cancer (**World Health Organisation, International Agency for Research on Cancer: Egypt, December 2020).**

Breast cancer, the second most frequent type of cancer worldwide, is especially prevalent in women. Breast cancer will kill 685 000 individuals worldwide in 2020 and impact 2.3

million women. At the end of 2020, 7.8 million women who had been diagnosed with breast cancer in the previous five years were still alive (**Wild, Weiderpass & Stewart., 2020**). The major risk factor for breast cancer is getting older. More than 40% of newly diagnosed breast cancer patients are 65 years or older, and the average age of breast cancer diagnosis is 60 (**National Cancer Institute., 2021**). According to (**Shao, Rodrigues, Corter & Baxter., 2019**), a woman's life is traumatized by the loss of a breast and thus lowers her quality of life. To more immediately address women's issues and to modify treatment methods, it is helpful to evaluate their quality of life.

Families must be involved in the care of the women having a mastectomy to address both their physical and psychological requirements. However, psychological care is sometimes overlooked, including the giving of solid guidance, emotional support, and knowledge. As a result, women who have undergone mastectomy frequently express interest in seeking counseling and joining support groups because they believe that sharing knowledge and experiences would reduce their psychological distress (**Muzzatti, Bomben, Flaiban, Piccinin, & Annunziata., 2020**). So, the study aimed to determine the effect of social media-based instructional guidelines on emotional status and quality of life for women undergoing mastectomy.

Aim of the study:

The study aimed to determine the effect of social media-based instructional guidelines on the emotional status and quality of life of women undergoing mastectomy through:

- Assessing Post-mastectomy women's knowledge pre and post-social media-based instructional guidelines.

- Designing and implementing social media-based instructional guidelines based on women's needs.

- Evaluating the effect of social media-based instructional guidelines regarding mastectomy on Post-mastectomy women's emotional status and quality of life**.**

Research hypothesis:

- Post-mastectomy woman's knowledge about mastectomy is expected to improve after

receiving social media-based instructional guidelines.

- Post-mastectomy women undergoing mastectomy post-social media-based instructional guidelines, there will be a decrease in the intensity of emotional disturbances such as stress, anxiety, and depression related to mastectomy.

- Post-mastectomy women undergoing mastectomy post-social media-based instructional guidelines, there will have an improved quality of life.

Subjects and Method:

Research design:

Quasi-experimental research design pre-post-test was utilized.

Settings:

The study was conducted at Sohag City in Egypt**.**

Sample:

For this study, a purposeful sample of all available women (300) who had undergone a mastectomy, from the age of 20 to 60 years old, who had undergone a mastectomy and had their diagnosis of stage I to stage III breast cancer confirmed by oncologists were included in the study. They also had to be post-mastectomy, educated, without a history of mental illness, and free from mental and chronic illness. Women were gathered through Facebook and WhatsApp groups in 2023. The online Google form spreadsheet was open from February 4 until February 25-2023, at which point it was closed.

Data collection tool:

After evaluating the pertinent literature and research data, the researchers created

Tool I: A self-administered questionnaire in pre and post-test formats. The following three components were present:

Part 1: Demographic data about post-mastectomy women: This included information on age, education, employment status, and place of residence.

Part 2: The medical history of the post-mastectomy woman included information about the patient's family, medical history, comorbid disorders, etc. The diagnosis, length, symptoms, the woman's past and present medical history, and information sources were all considered in the evaluation of the current illness.

Part 3: Post-mastectomy woman's knowledge: As pre and post-test format: This section was developed by researchers based on recent and pertinent literature (**Milne et al., 2018; Pakseresht et al., 2019, Shao et al., 2019, Muzzatti et al., 2020)** that evaluated knowledge about breast cancer, including definitions, signs and symptoms, risk factor types, complications, and treatment. Additionally, understanding of mastectomy, including types, healthy eating, arm exercise, therapy, side effects, and consequences, was evaluated. Additionally, what to anticipate following a mastectomy through the Whats App and Facebook groups' social media-based teaching program.

Scoring system for women's knowledge about mastectomy:

Each question received a score of two marks for a valid response, one mark for an incomplete response, and zero points for an incorrect response, for a total of 40 points. Following that, a percentage score was created using these scores. If the percentage score was 60% or higher, the women's knowledge was deemed satisfactory; if it was less than 60%, it was deemed unsatisfactory. Cronbach's Alpha test result, r = 0.84, demonstrated the tool's dependability.

Tool II: Depression, Anxiety, and Stress Scale (DASS-21):

The Depression, Anxiety, and Stress Scale were used by the researchers to measure which was adopted from Lovibond & Lovibond (1995). The scale, which had 21 items, was made up of three self-report ratings that were intended to measure the signs of depression, anxiety, and stress. Seven items make up each of the three DASS-21 subscales. The depression scale measures anhedonia, lethargy, dysphoria, lack of interest or involvement, self-deprecation, dysphoria, and devaluation of life. The anxiety scale assesses situational anxiety, skeletal muscle symptoms, autonomic arousal, and subjective experiences of anxious affect. The chronic non-specific arousal levels are sensitive to the stress scale. It evaluates anxious arousal, trouble

unwinding, readily becoming irritated or angry, irritability/over-reacting, and impatient. The replies on the rating scale varied from (3) applied to me very much or most of the time to (2) applied to me to a significant extent or a good part of the time, (1) applied to me some of the time or to some degree, and (zero) did not apply to me at all. The validity and reliability studies of the Turkish version of the DASS-21 were performed by Sarıçam et al. in 2018 and it was concluded that the scale was a valid and reliable instrument in the assessment of depression, anxiety, and stress levels (Sariçam, 2018).

Scoring system for Depression, Anxiety, and Stress Scale (DASS):

According to the cutoff, it classify stress, anxiety, and depression, the answers were categorized. Following are the levels of symptoms (severe, moderate, mild, and no symptoms):

Level of DASS Symptoms Depression Anxiety Stress

DASS (42) Scoring	Depression	Stress
Normal	0-9	0-14
Mild	10-13	15-18
Moderate	14-20	19-25
Severe	21-27	26-33

Tool III: Quality of Life (QoL) scale:

It was created by Brucker in 2014. It had 33 items and assessed four aspects of quality of life: sleep/activity, work relationships, and family/social relationships. The answers are on a 3-point Likert scale that reads agree/uncertain/disagree. These received scores of 2, 1, and 0 correspondingly. For negative items, the scoring was inverted so that a higher score denotes a higher quality of life. The entire scale score and the scores of the items in each domain were added up, divided by the total number of items, and translated into percent scores. If the score was 60% or above or less than 60%, the QoL was deemed to be high and low, respectively.

Social media-based instructional guidelines characteristics:

In this section, the impact of social media is evaluated created by researchers after a literature review. It contained five questions: were the social media-based instructional guidelines sufficiently informative; were the social media-based instructional guidelines satisfactorily received; Did the social media-based instructional guidelines increase student knowledge; What were the social media-based instructional guidelines' benefits?

Procedure:

Beginning on February 4th and continuing until February 25th, 2023, fieldwork was done.

Tool validity and reliability:

Five experts in the fields of medical-surgical nursing, oncology, mental health nursing, and medicine evaluated the data collection tool's validity for its clarity, thoroughness, appropriateness, and relevance. The internal consistency approach was used in the current study to evaluate the reliability of the two scales. With Cronbach alpha ratings of 0.95 for the DAS scale and 0.96 for the QoL scale, both showed very excellent reliability.

Pilot study:

For testing the usefulness of the instrument and the time required to complete it, 10% of the total sample size (30 Post-mastectomy women) was used. The women who took part in the pilot study were incorporated into the main study sample because no alterations were made.

Ethical considerations:

To conduct this study, approval was obtained from the Institutional Review Board of the Faculty of Nursing, Sohag University official approval was secured through a letter from the dean of the nursing faculty at Sohag University. An informed consent form was attached to the online questionnaire's initial page. An overview of the study's goals was provided on the questionnaire's cover page. The researcher explained to the participants that they might decline to participate in the study at any moment and that they could

withdraw from it at any time, without having to give a reason, before starting the questionnaire that would be delivered to them. The first segment gave the women an explanation of the goal of the study. The online survey's link, quick response (QR) code, and instructions for completing it. Women answered the questionnaire after reading the consent form. Additionally, participants received guarantees that the information they provided would be kept private and used only for the study.

The study was done through the assessment, planning, implementation, and evaluation phases.

The assessment phase:

It involved reviewing the current and historical literature as well as textbooks, journals, magazines, and internet searches to construct the instructional guidelines and develop the methods for data collection.

The planning phase:

The social media-based instructional guidelines were thoroughly explained by the researcher. The researcher came to the following conclusions during this period.

1. The session's structure

Based on preliminary evaluation data and relevant literature, the researcher created social media-based instructional guidelines. The instructional guidelines that used social media to spread information covered the meaning, causes, signs, and symptoms of mastectomy.

2. Relaxation technique:

With the aid of images and videos for deep breathing, progressive muscle relaxation, and meditation, as well as a poster outlining the steps of relaxation techniques, stress management, and relaxation techniques.

The implementation phase:

This study made the following hypothesis: Following the implementation of the social media-based instructional guidelines Intervention, the women who will take part in the program will have decreased mean scores for anxiety and depression symptoms as well as a high degree of quality of life.

Online-created Google Form was given to participants to complete and submit. During the COVID pandemic, the Google form link was distributed to women via Facebook and WhatsApp groups (https://docs.google.com/forms/dle/1FALPS Lsd). Each woman was examined using an online questionnaire as a (pretest) to assess their demographic characteristics, and knowledge about mastectomy, DASS, and QoL before the online films and presentation. On the first page of the online survey, women were given information on the purpose of the study, its anticipated results, the tools' contents, and how to respond. The researchers' guidebook comprised an overview, of signs and symptoms, causes and risk factors, types of mastectomy, and management of the procedure.

The average amount of time needed for women to complete the online questionnaire, the DASS, and the QoL scale was about 30 minutes. The goal of the study, the elements of the tools, and instructions for completing the online questionnaire and scale were explained to every woman who participated in the study.

Those who took part in the pre-test through Facebook and WhatsApp groups received the booklet via social media. To explain mastectomy to women, the researchers employed the right movies, PowerPoint slideshows, and posters. Additionally, the researchers produced online videos and audio summarizing the information in the booklet to improve women's comprehension of mastectomy.

The researcher's design was concentrated on the following eight sessions:

Sessions	Items
Session one	• Introduction to the purpose of social media-based instructional principles.
Session two	• Presentation of information on the causes and risk factors, types, and management of mastectomy.
Session three	• Effect of mastectomy on women's emotional status and QoL.
Session four	• Practice relaxation training as a deep breathing exercise.
Session five	• Practice relaxation training as a method of progressive muscle relaxation.
Session six	• Practice meditation as relaxation training.
Session seven	• Effect of a mastectomy on a woman's QoL.
Session eight	• Evaluation of the social media-based instructional guidelines utilizing a post-test.

The evaluation phase:

A posttest using the same tools was used to gauge the impact of the social media-based teaching instructions. The questionnaire was once again posted to the participants on the Google Form for collection (post-test) after one month of sending the booklet, videos, PowerPoint presentation, and posters.

The sessions for the social media-based instructional guidelines were:

Session 1: Introduction and orientation:

1. The researcher introduces herself, describes the nature and goal of the study, and discusses the likelihood of persuading the women that the program is crucial.

2. Obtaining the verbal informed consent of the participants in the program and agreeing on the program's duration, frequency, and number of sessions before deciding on the next session's topic.

3. Informing the patients about the suggested instruction (8 sessions, lasting 60 to 90 minutes each). Patients who join the Whatsapp group must confirm the privacy and confidentiality of study data, adhere to the dates and times of sessions, refrain from making fun of other people's viewpoints, and complete necessary tasks during each session.

4. The DASS Scale and quality of life pretest was given to them.

Session 2: Overview of mastectomy:-

At the beginning of the session, the researcher welcomes all women and thanked them for their participation. Participants were asked to fill out and submit a Google Form that had been prepared online. The Google form link was shared with women via Facebook and WhatsApp groups during the COVID-19 pandemic about the meaning, causes, indications, signs, and symptoms of mastectomy.

Session (3): Overview of the effect of mastectomy on women's emotional status:-

What impact having a mastectomy has on women's emotional status is the topic of this session, and the researcher goes into great depth on how a mastectomy affects a woman's emotional state.

Session (4): Relaxation training: -

Deep breathing exercises that introduced Whatsapp and a Facebook group were shown to ladies by the researcher. The researcher displays images and video clips that demonstrate how to perform deep breathing exercises. Women are asked to practice deep breathing techniques by the researcher.

Session (5): Relaxation training: -

Women were invited to watch as the researcher gradually relaxed their muscles. The researcher used Whatsapp and a Facebook group to show women examples of progressive muscle

relaxation techniques through videos and photographs.

Session (6): Relaxation training –

Women were asked to observe the researcher's meditation. The researcher displays pictures and movies that demonstrate how to meditate.

Session (7): Effect of mastectomy on women's QoL:

The researcher talks with the participants about ways to strengthen their relationship with God and seek him for guidance.

Develop positive behavior by:

- Replacing negative thoughts with positive ones

- Avoiding negative individuals

Session (8): the evaluation of the social media-based instructional guidelines:

Women were informed by the researcher that this was the final session in which the social media-based instructional guidelines would be evaluated using the same pre-test and post-test research methods.

Statistical analysis:

The Statistical Package for the Social Sciences (SPSS Version 20.0) released in 2013, Armonk, NY: IBM Corp, was used for data entry and analysis. The Chi-squared test was used to analyze categorical variables. Multiple linear regression analyses with the analysis of variance of the generated models were conducted to determine the predictors of improvement of the QoL and DASS scores. $P < 0.05$ was used to define the statistical significance level.

Results:

Table 1 shows that post-mastectomy women ranged in age from 20 to 60, with a mean age of 50.29.4 years. It was discovered that 46% of the study group had only completed their secondary education. 70% of the women in the study are housewives in terms of occupation. Furthermore, it was found that 65% of the women who had been studied lived in rural areas.

Table 2 information on the medical backgrounds of post-mastectomy women shows that (32%) of them had chronic illnesses, (29%) had relatives who had breast cancer, and (15%)

had undergone previous surgery. Chemotherapy was used to treat (70%) of them in conjunction with other treatments.

Figure (1), which depicts the study's post-mastectomy women's primary sources of information, shows that nurses and doctors (45% and 75%, respectively), were the main sources of information for these women regarding mastectomy.

The impact of implementing instructional guidelines based on social media on postwomen's understanding of mastectomy is seen in Table 3. There was no doubt that most of them knew more about mastectomy after the social media-based instructional guidelines' deployment than before, and there was a highly statistically significant difference between pre and post guidelines implementation. Pre- and post-social media-based instruction's deployment, women's understanding of mastectomy (P<0.001).

Figure 2 demonstrates that, before the implementation of social media-based instructional guidelines, the majority of post-mastectomy women (85%) had an unsatisfactory level of knowledge about mastectomy. However, after the implementation of the guidelines, (90%) of them had a satisfactory level of knowledge.

Regarding post-mastectomy women's overall scores for depression, anxiety, and stress related to mastectomy, it was noted from Table (4) that the scores were severe before using social media as a basis for instructional guidelines. Subsequently, highly statistically significant improvements were seen in post-mastectomy women's overall scores for depression, anxiety, and stress related to mastectomy at (P<0.001).

Figure 3 shows that, before the implementation of social media-based instructional guidelines, (50%) of the study's post-mastectomy women had a severe level of stress, (52%) had a severe level of anxiety, and (70%) had severe depression. However, post-implementation, these percentages decreased to moderate for more than half of them.

Table 5 showed a strong correlation between the emotional status of the post-mastectomy women under study (depression, anxiety, and stress levels) and their overall level of knowledge before and after the application of social media-based instructional guidelines (P 0.05). While less

than half of those with insufficient information suffered from psychological disorders like depression and anxiety post instructional guidelines based on social media

Table (6) demonstrates that there were statistically significant variations between QoL scores before and following the deployment of social media-based instructional guidelines (P 0.0001). After the adoption of social media-based instructional guidelines, the QoL score significantly improved (29.8 compared to 83.32 against 7.67; P 0.0001).

Table (7): Displayed that the majority of the post-mastectomy women who were studied (96%) said the contents were sufficient, and that (95%) of them were happy with the social media-based instructional guidelines. (92%) of them stated that it enhanced their QoL and emotional condition when asked about the impact of these factors. Nearly all of them (94%) stated that internet disruption was a drawback of social media-based instructional guidelines.

Table (1) Demographic characteristics of post-mastectomy women (n=300).

Characteristics		Post-mastectomy women(n=300)	
		N	%
Age	Mean ±SD	50.2±9.4	
Educational level	Illiterate	138	20%
	Primary education	72	24%
	Secondary education	60	46%
	University education	30	10%
Occupation:	Housewives	210	70%
	Employed	90	30%
Residence	Rural	195	65%
	Urban	105	35%

Table (2): Percentage distribution of the studied post-mastectomy women regarding their medical history (n=300).

| Characteristics	N	%
Family history of breast cancer	87	29%
Presence chronic disease	96	32%
Having previous surgery	45	15%
Treatments		
Chemotherapy	210	70%
Radiotherapy	90	30%
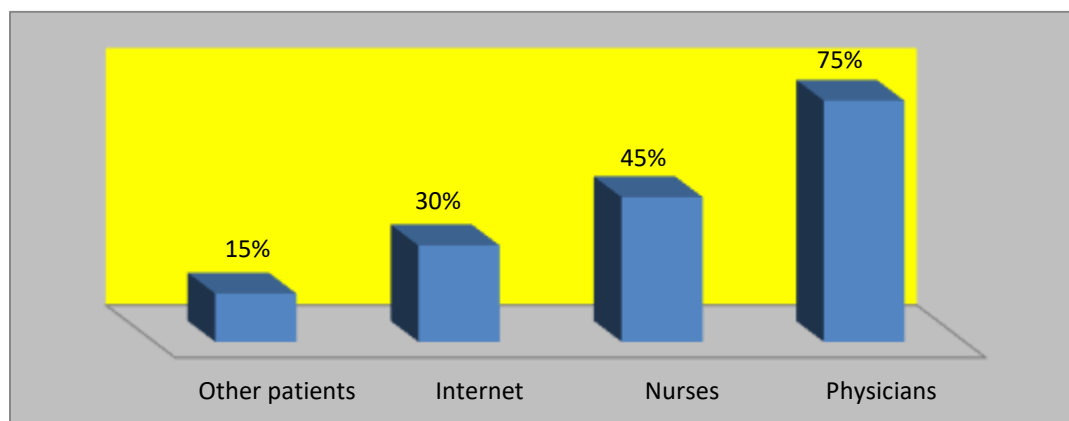
Figure (1): The studied post-mastectomy women distribution regarding their source of knowledge regarding mastectomy (n=300)

Table (3): The studied post-mastectomy woman's knowledge about mastectomy pre and post-social media-based instructional guidelines implementation.

Woman's knowledge	Pre-social media-based instructional guidelines implementation		Post social media-based instructional guidelines implementation		P-value
	N	%	N	%	
Meaning of mastectomy	75	25%	282	94%	<0.001*
Signs and symptoms of mastectomy	105	35%	270	90%	<0.001*
Risk factors of mastectomy	90	30%	288	96%	<0.001*
Types of mastectomy	99	33%	285	95%	<0.001*
High-risk persons for mastectomy	45	15%	282	94%	<0.001*
Complications of mastectomy	60	20%	276	92%	<0.001*
Treatment of mastectomy	93	31%	255	85%	<0.001*
What to expect after a mastectomy	105	355	270	90%	<0.001*

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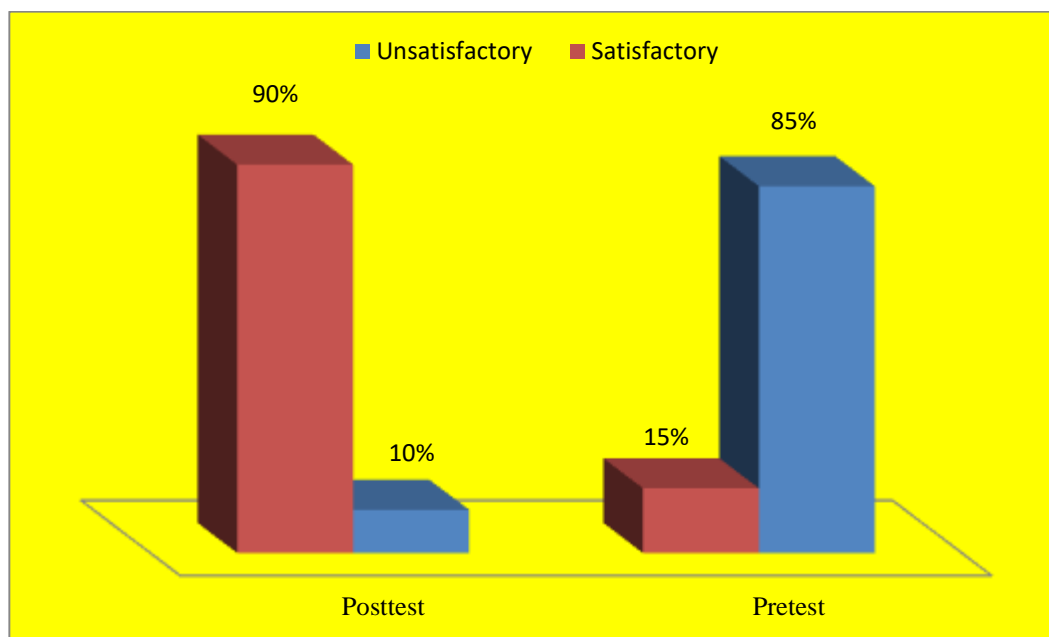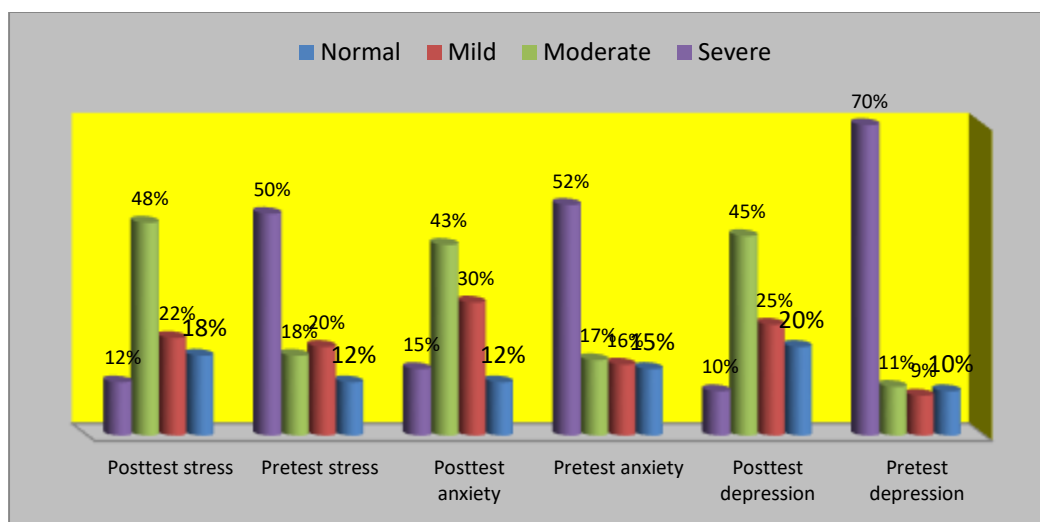

Figure (2): The total women's knowledge level about mastectomy

Table (4): Post-mastectomy women's Total mean scores regarding emotional status (depression, anxiety, and stress) regarding mastectomy pre and post-social media-based instructional guidelines implementation

DASS	n=(300)		t-test	p-value
	Pre	Post		
Depression	26.77 ± 2.45	14.53 ± 1.33	36.22	<0.001*
Anxiety	19.66 ± 1.22	10.69 ± 1.24	49.44	<0.001*
Stress	32.55 ± 4.67	20.78 ± 3.57	57.33	<0.001*

**highly Significance at 0.001 levels

Figure (3): Post-mastectomy women's emotional status (depression, anxiety, and stress level) regarding mastectomy pre and post-social media-basedinstructional guidelines implementation.

Table (5): Relationship between post-mastectomy women's level of depression, anxiety, and stress and their total level of knowledge about mastectomy pre and post-social media-based instructional guidelines implementation

DASS	Pre				Post				X2	P-value
	Satisfactory (n=45)		Unsatisfactory (n=255)		Satisfactory (n=270)		Unsatisfactory (n=30)			
	N	%	N	%	N	%	N	%		
Depression	11	25.0	51	20.0	70	26.0	10	33.3	46.33	<0.0001*
Anxiety	11	25.0	102	40.0	119	44.0	10	33.3		
Stress	23	50.0	102	40.0	81	30.0	10	33.4		

**highly Significance at 0.001 levels

Table (6): Pre-Post- social media- based instructional guidelines Improvement in Domains and Total Score of Quality ofLife among the studied post-mastectomy women (n=300)

Quality of Life Domains	Pre		Post		t-test	p-value
	Mean	SD	Mean	SD		
General Health	52.33	12.77	85.88	8.55	20.77	<0.0001**
Physical functioning	43.44	31.88	72.66	18.44	7.22	<0.0001**
Emotional well-being	25.34	7.22	65.33	8.62	30.33	<0.0001**
Social functioning	41.67	22.6	67.53	22.13	8.45	<0.0001**
Total QoL score	29.8	8.66	83.32	7.67	23.12	<0.0001**

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

Table (7): The studied percentage distribution of post-mastectomy women regarding their feedbackregarding social media-based instructional guidelines (n=300).

Social media-based instructional guidelines	N	%
Is the content enough?		
-Yes	288	96%
-No	12	4%
Satisfaction with the social media-based instructional guidelines		
-Yes	285	95%
-No	15	5%
Did social media-based instructional guidelines improve QoL and emotional status		
-Yes	276	92%
-No	24	8%

Discussion:

The capacity of post-mastectomy patients to control their physical and psychological reactions, treatments, symptoms, and lifestyle adjustments to enhance their quality of life (**Kumar& Mattoo, 2022**). The main goal of nursing care is to maximize and raise patients' quality of life after mastectomy. Nursing emphasizes self-management measures to enhance patients' QoL through symptom management and patient education, which will enhance their psychological wellness and care coordination. Additionally, nurses educate patients about alternative treatment alternatives like radiotherapy and chemotherapy. To significantly improve patients' QoL, nurses must also be better aware of QoL among patients as well as patients' profiles, health statuses, and self-management practices (**Mokhatri-Hesari & Montazeri, 2020).**

According to demographic information, the post-mastectomy women's ages ranged from 20 to 60 years old, with a mean age of 50.29.4 years, according to the current study. This outcome is consistent with a 2019 study by Omar et al., "Breast cancer in Egypt: a review of disease presentation and detection strategies." According to that study, Egyptian patients have a younger age distribution, with the majority of instances occurring in people between the ages of 30 and 60. Furthermore, **Pakseresht et al. (2019)** found that Egyptian women, with a median age of 46, are most likely to develop breast cancer. The majority of the analyzed samples were between the ages of 40 and 55, according to **Shabaan (2019)**, whose research led to this conclusion. According to the current survey, the majority of people in both categories were older than fifty.

Similar findings were made by **David et al. (2019)**, who found that a third of the study group was over fifty. Also, The study group's mean age was 51.79, while the control group was (49.7), according to **Sri et al. (2019)**. Additionally, the National Cancer Institute reports that in 2019, women between the ages of 65 and 74 are most commonly diagnosed with female breast cancer. Additionally, the study by **Moey et al., 2020** discovered that the majority of the respondents were between the ages of 35 and 40.

Less than half of the post-mastectomy women had at least a secondary education, according to the findings of the current study. This finding was in line with a study by **Beiki et al. (2018)** titled "Breast cancer incidence and case fatality among 4.7 million women concerning the Social and ethnic background," which discovered that women with higher educational levels had a significantly higher incidence of breast cancer than those with lower education. The study (**Abd El Razik et al., 2020**) on "The Effect of Educational Programme on Quality of Life for Patients with Cancer Undergoing Chemotherapy" found that the majority of the examined groups were illiterate, which is not the same as what is being said above.

The latest study's analysis of demographic data revealed that nearly two-thirds of the women it looked at were in rural areas. This conclusion was further supported by a study by **Milne et al. (2018)** titled "The Efficacy of Protocol of Care on Post Mastectomies Women Outcomes," which revealed that both the study group and the control group—which comprised more than half of the sample—lived in rural areas. **Pakseresht et al., (2019)**, also confirmed this finding.

Less than one-third of post-mastectomy women had a family history of breast cancer, according to information on their medical histories. This finding conflict with a Chinese study by **Zhou et al., (2014)** who discovered breast cancer clusters in families with many cancer types, including digestive system cancer. According to the findings of the current study, one-tenth of the women had a family history of breast cancer and one-fifth of the women had a family history of cancer of the reproductive organs, which highlights the importance of family history in the development of breast cancer. In line with the findings of the current investigation, **Moey et al., (2020)** discovered that 12.3% of their participants had a positive family history of breast cancer. The CDC stated in 2021 that a woman's risk for breast cancer is increased if she has a mother, sister, or daughter (first-degree relative) or multiple family members on either her mother's or father's side of the family who has had breast or ovarian cancer. These findings are also in line with that statement. In the same vein, the **Breast Cancer Organisation reported in 2021** that women who have close relatives who have the condition are more likely to get it themselves.

Regarding post-mastectomy women's sources of information, the current study's findings indicated that doctors and nurses were the subjects' primary sources of information about mastectomy. This finding indicated that women were seeking information from medical professionals.

The results of the current study showed a highly statistically significant difference and improvement between women's knowledge about mastectomy before and after the adoption of social media-based instructional guidelines. This demonstrated the significance of providing women with social media-based teaching on mastectomy standards. Also, the findings revealed that knowledge of the definition of breast cancer, the type of breast cancer, risk factors, clinical manifestation, diagnosis, treatment modalities, types of mastectomy, and complications of mastectomy differed significantly before and after the implementation of social media-based instructional guidelines. Differences in the knowledge of the excisional breast cancer definition were also quite significant. The researchers found that using instructional guidelines had a positive effect on the knowledge of the study's participants.

This research supports **Mahdy & Ali, (2018**), which indicated that before receiving pre-discharge educational guidelines intervention, patients had insufficient knowledge. However, after receiving guidelines intervention, this knowledge was significantly higher for the majority of patients.

In the study that was conducted, by **Qalawa et al. (2017)** and the study findings are consistent with their study" At the oncology clinic of Port Said General Hospital in Egypt, forty-four female patients were examined to determine the impact of implementing an educational program for post-mastectomy ladies regarding post-mastectomy exercises. The study's results showed that patients' understanding of mastectomy after the implementation of instructional guidelines greatly increased.

The current study found that after the application of instructional guidelines based on social media, the majority of post-mastectomy women had a satisfactory level of knowledge. It showed the good impact of social media-based

educational principles, according to the researchers.

The results of the current study showed that the total level of women's depression, anxiety, and stress scores was severe at the time of the pretest, but after the application of social media-based instructional guidelines, highly statistically significant improvements were seen in the total emotional disturbance scores of women for mastectomy, including depression, anxiety, and stress. These findings explained the information gap that contributes to rising emotional instability and fear of the unknown.

Additionally, a recent study has shown that half of the post-mastectomy women experienced high levels of stress. In particular, in this operation where a priceless organ symbolizing femininity is destroyed, this is related to the significant alterations in women's body image, with both physical and psychological consequences. The results of the current study, however, show that there have been notable reductions in the severity of stress, anxiety, and depression across the board, especially concerning the intrusive re-experiencing symptoms that followed the program. As a result, the program had a positive impact largely on the intensity of the symptoms, which is crucial for reducing their level of stress.

It was confirmed that the improvement had both a direct impact on stress and an indirect impact on stress by enhancing women's quality of life. The effectiveness of the social media-based instructional instructions may be related to the program's coping component, which aimed to assist women in choosing the most effective coping mechanism to employ to reduce their stress. In line with this, **Kjlhede et al. (2019)** emphasized the significance of coping to lower the degree of stress among women who are exposed to such operations. The findings further support the evidence of the beneficial impacts of social media-based instructional recommendations on a variety of patient-related events **(Navidian et al., 2017).**

The results of the current study show that there was a substantial correlation between the post-mastectomy women's emotional status (levels of despair, anxiety, and stress) and their overall level of knowledge before and after the application of social media-based instructional

guidelines. Additionally, there has been an increase in post-mastectomy women's knowledge, which has been linked to lower levels of stress, anxiety, and sadness. This outcome demonstrates the value of using social media-based instructional guidelines that catered to the needs of post-mastectomy women and gave them the knowledge they needed to manage this illness.

However, the current study's findings revealed that more than half of the investigated women had low quality of life before the intervention, which is consistent with the findings of **Hashemi et al. (2019)**, who found that just 21% of patients had good QoL. In addition, **Arajo Neto et al., (2017)** study discovered that among women, the physical domain had the lowest quality of life score. Additionally, the study by **Kuliski and Kosno, (2021)** discovered that mastectomy affects women's ipsilateral upper limb function and makes it difficult for them to perform daily tasks including cleaning, cooking, brushing their hair, bathing, and dressing.

The results of this study show that all domains and the overall quality of life measure showed statistically significant post-intervention improvements. According to the researchers, the results supported their research hypothesis by showing how well the social media instructional guidelines worked to reduce these women's stress and consequently enhance their quality of life. The results of the current study indicate that before the introduction of the social media instructional guidelines and after mastectomy, the majority of women had unsatisfactory quality of life.

According to the study's findings, the QoL of breast cancer patients improved under the effect of instructional guidelines, and this improvement affected all aspects of QoL rather than just the overall score. So, it is true that instructional guidelines improve the physical, social, psychological, and spiritual aspects of patients' QoL who are dealing with breast cancer (**Dewi, Gartika, Sanusi, & Suryatiningsih, 2023**).

This study's findings are consistent with those of **Shahsavari et al. (2015)**, who looked at the impact of nurse-led self-management programs on patients with breast cancer's QoL. The improvement in QoL status was much greater after the intervention. A considerable improvement in the QoL score in the areas of physical, psychological, social, and emotional aspects was also brought about by the program. In my opinion, the program helps patients adopt a healthy lifestyle and enhances their quality of life in addition to improving their awareness of mastectomy procedures.

According to studies in a similar vein, nurse-led education programs' usefulness in reducing post-mastectomy problems was examined (**Sisman et al., 2012**). Reported that teaching about reducing complications, one of the components of self-management is one of the most crucial aspects of care for patients with breast cancer having mastectomy surgery. Patient QoL has also been taken into account as an outcome variable.

These results are corroborated by this point has also been emphasized in prior studies examining the efficacy of self-management in different patients. Regarding breast cancer survivors specifically, **Loh et al. (2013)** report that after completing a 1-month self-management program, all QoL measures significantly rose in the intervention group compared to the control group. Self-management education has been emphasized by **Loh et al. (2013)** as their intervention.

The post-mastectomy women who were subjected to the study's social media educational guidelines expressed satisfaction with the information provided, saying it increased their knowledge. It showed the positive effects of social media-based educational principles, according to the researchers.

Limitation:

This study was subject to some restrictions. Data collection used self-reporting, which is susceptible to biases related to social desirability and recollection. By allotting enough time, clearly stating the research's objectives, and conducting both informational interviews and data collection, this barrier was overcome. Additionally, we monitored the women for 1 month because a longer follow-up period would produce more reliable results. Therefore, it is advised that the educational program, the mother follow-up, and the evaluation of the outcomes be done over extended periods following the intervention.

Conclusion:

Based on the study's findings, the authors of the current study concluded that the findings are consistent with their research hypothesis, according to which the use of social media-based instructional guidelines to increase women's knowledge has a positive effect on reducing emotional disturbances like depression, anxiety, and stress as well as improving quality of life for those who had a mastectomy.

Recommendations:

The following suggestions are made based on the current study's findings:

- As a new teaching strategy for demonstrating health issues, the social media-based instructional guidelines should be carefully developed and implemented for all women having a mastectomy

- Taught to the women using the booklet and illustrated pamphlets for each one to improve their knowledge and emotional status.

- Psychological support and intervention activities should be carried out to help them become more resilient regarding mastectomy.

- For the results to be generalized, the current study must be replicated with a large sample of women in varied settings.

References:

Abd El Razik S. (2020). Effect of educational program on quality of life for patients with cancer undergoing chemotherapy, Unpublished Doctorate thesis, Faculty of Nursing, Banha University.

Araújo Neto, E. A., Alves, B. C. A., Gehrke, F. S., Azzalis, L. A., Junqueira, V. C. B., Sousa, L. V. A., Adami, F., & Fonseca, F. L. A. (2017). Quality of Life of Post-Mastectomy Women Living in a Semi-Arid Region of Brazil. *International Journal of environmental research and public health*, 14(6).

Barrett, K.P. & Mac Sweeney, R. (2019). Social Media in Critical Care. International anesthesiology clinics; 57(2):103–17. https://doi.org/10.1097/AIA.0000000000000227 PMID: 30864994.

Bashkin, O., Asna, N., Amoyal, M., & Dopelt, K. (2023, April). The Role of Nurses in the Quality of Cancer Care Management: Perceptions of Cancer Survivors and Oncology Teams. *In Seminars in Oncology Nursing* (p. 151423). WB Saunders.

Beiki, O., Hall, P., Ekbom, A., & Moradi, T. (2018). Breast cancer incidence and case fatality among 4.7 million women about the social and ethnic background: a population-based cohort study. Breast Cancer Research, 14, 1-13.

Bokkers, K., Bleiker, E. M. A., Aalfs, C. M., van Dalen, T., Velthuizen, M. E., Duijveman, P., ... & Ausems, M. G. E. M. (2023). Surgical oncologists and nurses in breast cancer care are ready to provide pre-test genetic counseling. *Annals of surgical oncology*, 30(6), 3248-3258.

Breast cancer organization. (2021). Breast Cancer https://www.breastcancer.org/risk/riskfactors/family-history

Bruce, J., Mazuquin, B., Mistry, P., Rees, S., Canaway, A., Hossain, A., ... & Thompson, A. M. (2022). Exercise to prevent shoulder problems after breast cancer surgery: the PROSPER RCT. Health Technology Assessment, 26(15).

Brucker, S.Y., Taran, F.A., Bogdanyova, S., Ebersoll, S., Wallwiener, C.W., Schönfisch, B., Krämer, B., Abele, H., Neis, F., Sohn, C., Gawlik, S., Wallwiener, D., Wallwiener, M. (2014). Patient-reported quality-of-life and after mastectomy: a prospective, questionnaire-based follow-up study in 915 patients

Cardoso, M. M., Baixinho, C. L., Silva, G. T. R., & Ferreira, Ó. (2023, June). Nursing Interventions in the Perioperative Pathway of the Patient with Breast Cancer: *A Scoping Review. In Healthcare* (Vol. 11, No. 12, p. 1717). MDPI.

Cherak, S.J., Rosgen, B.K., Amarbayan, M., Plotnikoff, K., Wollny, K., Stelfox, H.T., & Fiest, K.M. (2020). Impact of social media interventions and tools among informal caregivers of critically ill patients after

patient admission to the intensive care unit: *A scoping review. PloS one*; 15(9), e0238803.

David M., John T., & Kenneth D., (2019): Mastectomy or Breast-Conserving Therapy: Which Factors Influence A Patient's Decision, *The Permanente Journal Perm J* 2019;23:18-049 during adjuvant treatment ACTA ONCOLOGICAL 2019, VOL. 58, NO. 5, 650–657 https://doi.org/10.1080/0284186X.2018.1560497.

Dewi, I. P., Gartika, N., Sanusi, S., & Suryatiningsih, D. (2023). Determinants of Spiritual Well-Being That Impact Breast Cancer Patients' Quality of Life. Journal of Holistic Nursing, 08980101231181272.

Dictionary O. Social media: Oxford Dictionary. (2019). Available from: https://www.lexico.com/en/definition/social_media.

Hashemi S M, Balouchi A, Al-Mawali A, Rafiemanesh H, Rezaie-Keikhaie K, BouyaS, Dehghan B., Farahani M.A. (2019). Health-related quality of life of breast cancer patients in the Eastern Mediterranean region: *A systematic review and meta-analysis. Breast Cancer Res*. Treat. 2019;174:585–596.

Kamel Boulos, M.N., Peng, G. & VoPham, T. (2019). An overview of Geo AI applications in health and healthcare. *Int J Health Geogr*; 18(1):7.

Kjolhede, P., Borendal Wodlin, N., Nilsson, L., Fredrikson, M., & Wijma, K. (2019). Impact of stress coping capacity on recovery from an abdominal hysterectomy in a fast-track program: a prospective longitudinal study. BJOG: *An International Journal of Obstetrics & Gynaecology*, 119(8), 998-1007. doi: 10.1111/j.1471- 0528.2012.03342.

Kuliński, W., & Kosno, M. (2021). Quality of life in women after mastectomy. Clinical and social study. Wiadomosci lekarskie (Warsaw, Poland : 1960), 74(3 cz 1), 429– 435.

Kumar, K., & Mattoo, S. K. (2022). Psychosocial Aspects of Breast Cancer. In Breast Cancer: Comprehensive Management (pp. 567-575). Singapore: Springer Nature Singapore.

Loh, S. Y., Packer, T., Chinna, K., & Quek, K. F. (2013). Effectiveness of a patient self-management program for breast cancer as a chronic illness: a non-randomized controlled clinical trial. *Journal of Cancer Survivorship*, 7(3), 331-342.

Lovibond, P.F., & Lovibond, S. H. (1995). The structure of negative emotional states: Comparison of the Depression Anxiety Stress Scales (DASS) with the Beck Depression and Anxiety Inventories, Behavior research and therapy, 33(3), 335-343.

Lundberg, P. C., & Phoosuwan, N. (2022). Life situations of Swedish women after mastectomy due to breast cancer: A qualitative study. *European Journal of Oncology Nursing*, 57, 102116.

Luo, Z., Luo, B., Wang, P., Wu, J., Chen, C., Guo, Z., & Wang, Y. (2023). Predictive Model of Functional Exercise Compliance of Patients with Breast Cancer Based on Decision Tree. *International Journal of Women's Health*, 397-410.

Mahdy, M., & Ali, N (2018): Effect of early post-mastectomy exercises program for women on their upper limb function, Unpublished Doctorate thesis, Faculty of Nursing, Banha University.

Martin, K. J., Denyse, T., Pageot, Y. K., Kim, J. H., Owoyemi, P., DeLuz, K. D., & Stanton, A. L. (2023). "I'm fighting for my life": Exploring interactions between Black women with breast cancer and healthcare providers. Qualitative Health Research, 10497323231168581.

Mathieu, J., Daneau, C., Lemeunier, N., Doyon, A., Marchand, A. A., & Descarreaux, M. (2022). Conservative interventions and clinical outcome measures used in the perioperative rehabilitation of breast cancer patients undergoing mastectomy: *a scoping review. BMC Women's Health*, 22(1), 1-36

Milne HM, Wallman KE, Gordon S, Courneya KS. (2018): Effects of a combined aerobic and resistance exercise program in breast cancer survivors: A

randomized controlled trial. Breast Cancer Res Treat; 108:279- 88.

Mir, M. A., & Mir, A. Y. (2023). Current Treatment Approaches to Breast Cancer. In Therapeutic potential of Cell Cycle Kinases in Breast Cancer (pp. 23-51). *Singapore: Springer Nature Singapore*.

Moey S-F M, Aaina M A M, Norfariha C M and Nursyahirah S. (2020). The relationship of socio-demographic characteristics and knowledge of breast cancer on the stage of behavioral adoption of breast self-examination. AIMS Public Health, 7(3): 620–633. http://www.aimspress.com/journal/aimsph

Mok, J., Brown, M. J., Akam, E. C., & Morris, M. A. (2022). The lasting effects of resistance and endurance exercise interventions on breast cancer patient mental well-being and physical fitness. *Scientific Reports*, 12(1), 3504.

Mokhatri-Hesari, P., & Montazeri, A. (2020). Health-related quality of life in breast cancer patients: a review of reviews from 2008 to 2018. Health and quality of life outcomes, 18, 1-25.

Muzzatti, B., Bomben, F., Flaiban, C., Piccinin, M., & Annunziata, M. A. (2020). Quality of life and psychological distress during cancer: a prospective observational study involving young breast cancer female patients. *BMC Cancer*, 20, 1-8.: https://doi.org/10.1186/s12885-020- 07272-8.

National Cancer Institute (2021): Incidence rates by age at diagnosis, all cancer types. Source: SEER 21 2013–2017, all races, both sexes. https://www.cancer.gov/about-cancer/causesprevention/risk/age.

National Cancer Institute. (2019). Breast cancer report. Available at https://seer.cancer.gov/statfacts/html/breast.html

Navidian, A., Saravani, Z., Shakiba, M. (2017). Impact of Psychological GriefCounseling on the Severity of Post-Traumatic Stress Symptoms in Mothers after Rana, M., Sayem, A., Karim, R., Islam, N., Islam, R., Zaman, T.K. (2020): Assessment of knowledge regarding tuberculosis among non-medical university students in Bangladesh: a cross-sectional study. *BMC Public Health[Internet],* 2015 Dec [cited 2020 May12]; 15(1).

Nelson, J. A., Chu, J. J., McCarthy, C. M., Stern, C. S., Shamsunder, M. G., Pusic, A. L., & Mehrara, B. J. (2022). BREAST-Q REACT: Clinical reference values for the BREAST-Q in post-mastectomy breast reconstruction patients. *Annals of Surgical Oncology*, 29(8), 5280-5293.

Pakseresht S, Ingle GK, Bahadur AK, Ramteke VK, Singh MM, Garg S, et al. (2019): Risk factors with breast cancer among women in Delhi. *Indian J Cancer*; (46):132- 8 .

Qalawa, S. A., Elden, S. M. A., El-Sheikh, E. I., El-Gawly, H. W., & Elzawawy, A. M. (2012). Effect of an instructional scheme on post-mastectomy exercises in breast cancer. African Journal Of Haematology And Oncology, 2(2).

Rodrigues, T., Moreira, M. T., Lima, A., Fernandes, R., & Gomes, B. (2023). Contributions of a Rehabilitation Nursing Program in the Self-Care of Women Undergoing Breast Surgery. *Nursing Reports,* 13(2), 913-922.

Sangruangake, M., Summart, U., Songthamwat, M., & Sangchart, B. (2022). The Relationship between Unmet Need, Physical Symptoms, Psychological Well-Being and Health-Related Quality of Life in Cholangiocarcinoma Survivors. *Asian Pacific Journal of Cancer Prevention*, 23(8), 2821-2828.

Sarıçam, H. (2018). The psychometric properties of the Turkish version of Depression Anxiety Stress Scale-21 (DASS-21) in health control and clinical samples.*J. Cognit.Behav.Psychother.Res.*7,19.

Shabaan A. (2019): Effect of Educational Program Regarding Therapeutic Exercises for Women Undergoing Mastectomy. Unpublished Doctorate Thesis, Faculty of Nursing, Mansoura University.

Shahsavari, H., Matory, P., Zare, Z., Taleghani, F., & Kaji, M. A. (2015). Effect of self-care education on the quality of life in patients with breast cancer. Journal of Education and health promotion, 4.

Shao, J., Rodrigues, M., Corter, A. L., & Baxter, N. N. (2019). Multidisciplinary care of breast cancer patients: a scoping review of multidisciplinary styles, processes, and outcomes. Current Oncology (Toronto, Ont.), 26(3), e385–e397. https://doi.org/10.3747/co.26.4713

Sisman, H., Sahin, B., Duman, B. B., & Tanriverdi, G. (2012). Nurse-assisted education and exercise decrease the prevalence and morbidity of lymphedema following breast cancer surgery. *Journal of BUON*, 17(3), 565-569.

Sri A., Sathasivam., Vijayakumar C., Vikram K, & Srinivasan K., (2019): Effect of exercise on shoulder function and morbidity following mastectomy with axillary dissection in patients with breast cancer: a prospective randomized clinical study, International Surgery Journal Das SAP et al. Int Surg J. 2018 Oct;5(10):3217-3225 http://www.ijsurgery.com

Timmerberg, J. F., Chesbro, S. B., Jensen, G. M., Dole, R. L., & Jette, D. U. (2022). Competency-based education and practice in physical therapy: It's time to act! Physical therapy, 102(5), pzac018.

Wild CP, Weiderpass E, & Stewart BW, (2020): World Cancer Report: Cancer Research for Cancer Prevention. Lyon, France: *International Agency for Research on Cancer.* Available from: http://publications.iarc.fr/586.

World Health Organization, International Agency for Research on Cancer: Egypt. (December 2020). Accessed March 5, 2021. Available from: https://gco.iarc.fr/today/data/factsheets/populations/818-egypt-fact-sheets.pdf

World Health Organization. (2021). Breast cancer: international agency for Research in cancer 2021. [Cited 26 March 2021]. Available from: https://www.who.int/news-room/fact- sheets/detail/breast-cancer

Zhou, W., Ding, Q., Pan, H., Wu, N., Liang, M., Huang, Y., ... & Wang, S. (2014). Risk of breast cancer and family history of other cancers in first-degree relatives in Chinese women: a case-control study. *BMC Cancer*, 14, 1-7.https://doi.org/10.1186/1471-2407-14-662