

## Effect of Instructional Guidelines on Knowledge, Practices, and Self-esteem regarding External Breast Prosthesis among Post Mastectomy Women

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### Abstract

Women who have had a mastectomy for breast cancer deal with two significant issues: the fact that they have cancer and the loss of their physical attractiveness. Following a mastectomy, an appropriate breast prosthesis can help to improve body image and quality of life while also reducing emotional stress. **Aim:** To evaluate the effect of instructional guidelines on knowledge, practices, and self-esteem regarding external breast prosthesis (EBP) among post-mastectomy women. **Subjects and method: Design:** A quasi-experimental research design was utilized to attain the study's goal. **Setting:** the study was conducted in Fayoum Oncology Center's Inpatient and Outpatient clinics Fayoum Governate/ Egypt. **Subjects:** A total of 100 post-mastectomy women were selected from previous settings based on convenient sampling. **Four tools were used:** Tool (I) women' structured interviewing questionnaire, it included two parts: (a) demographic characteristics of post-mastectomy women; (b) post-mastectomy women ' medical data, Tool (II) post-mastectomy women ' knowledge regarding external breast prosthesis, Tool (III) post-mastectomy women ' practice regarding external breast prosthesis (pre/post), and Tool (IV) self-esteem scale (pre/post). **Results:** The study's findings demonstrated that there was a statistically significant improvement in post-intervention knowledge, practice, and self-esteem than pre-intervention among post-mastectomy women. **Conclusion:** The results of the study concluded that the instructional guidelines were effective in improving knowledge, practice, and self-esteem regarding external breast prosthesis among post-mastectomy women. **Recommendations:** It recommended raising awareness of the post-mastectomy women about external breast prosthesis during follow-up by incorporating this information in their care and follow-up.

**Keywords:** External Breast Prosthesis, Knowledge, Practice, Post- Mastectomy, Self-esteem.

### Introduction:

Breast cancer is a global health issue and a leading cause of death among women internationally, is the disease women fear most. Breast cancer is caused by the uncontrolled growth of abnormal cells in the breast. Breast cancer refers to the erratic growth and proliferation of cells that originate in the breast tissue. Worldwide, breast cancer is the most common invasive cancer in women. It affects about 12% of women around the world. Women who had breast cancer have an increased risk of getting breast cancer in another breast (Khuwaja & Abu-Rezq, 2019).

A mastectomy is usually carried out to treat breast cancer. Mastectomy is the medical term for the surgical removal of one or both breasts, partially or completely. A mastectomy is usually carried out to treat breast cancer to

prevent the further spread of infection (Wikipedia, 2018).

Women who have had a mastectomy for breast cancer have to cope with two major problems: first, that have cancer, and second that they have lost their physical appearance. Therefore rehabilitation after mastectomy is integral to women's health promotion. Most of the women select breast restoration and symmetry through breast reconstruction or external breast prosthesis. The provision of appropriate prosthesis breast forms has an opportunity to choose between them, and to be satisfied with their choice. After mastectomy, the provision of an appropriate breast prosthesis help to improve body image, self-esteem and reduce associated emotional distress (Jetha, 2017).

Purposes of external breast prosthesis are to recreate the appearance of the breast, improve symmetry and balance, protect the posture, improve self-confidence, prevent shoulder drop, prevent problems with the curvature of the spine and muscular pain in the neck and back, ptosis of the contralateral breast, and improve quality of life (**Wikipedia, 2019**).

Reasons for choosing to wear the external breast prosthesis are replacing the weight of the lost breast, creating symmetry when wearing clothing, restoring self-esteem, and adjusting to the diagnosis and treatment and may help cope better with the experience of cancer (**Cancer Council Victoria, 2017**)

Indications of external breast prosthesis are to replace the natural breast after a complete mastectomy, improve their body image, posture, and self-esteem, provide only after mastectomy wound healing women, autofocus reconstruction, contralateral symmetry procedure, and improve the physical and psychological health of mastectomy women (**Cancer Australia, 2018**).

After a mastectomy, both the physical and psychological health of women can be affected as an outcome of tissue removal. It can leave women with an altered center of gravity and could have negative impacts on posture as well as balance. The prosthesis may help to correct balance and posture deficiencies caused by tissue removal. Breast prostheses also have psychological benefits by providing a sense of femininity for women (**Jetha, 2017**).

Medical-surgical nurses play an important role in educating them about care regarding external breast prosthesis for post-mastectomy women such as hand washing the prosthesis after every wear, washing it daily in warm soapy water and drying it with a towel, rinsing the breast form well in clean water soon after swimming to remove any chlorine or Saltwater, use a soft, fiber-filled form in a sauna or spa-silicone prosthesis may heat up against your skin, avoid using perfumed deodorant, as this can damage the breast form, and take care not be to catch the prosthesis with sharp objects such as rights or brooches as these may damage it, causing the silicone to leak. If it does get damaged, can usually seal the year temporarily with a sticking plaster (**Guire et al., 2015**)

### Significance of the study:

Breast cancer affects about 12% of women around the world. The use of external breast prostheses draws attention to the global problem of breast cancer. It's also following a mastectomy; women's physical, psychological, social, spiritual, and sexual health have all improved. They can improve their body image, self-esteem, and posture by wearing external breast prostheses. An external breast prosthesis is a valuable means of improving the quality of life for post-mastectomy women. In addition, little is known about external breast prosthesis education in developing countries. Nurses who provide care should be able to inform women about the importance of external breast prostheses (**Jetha, 2017**). As a result, this research was conducted.

### Operational Definitions:

An external breast prosthesis is an artificial breast that is worn under clothing to imitate the shape of the breast. It fits in a bra cup with or without a bra pocket (**Wikipedia, 2019**).

### Aim of the study

To evaluate the effect of instructional guidelines on knowledge, health practices, and self-esteem regarding external breast prosthesis among post-mastectomy women through:

- Assess post-mastectomy women's knowledge level regarding external breast prosthesis.
- Assess post-mastectomy women's practice level regarding external breast prosthesis.
- Assess post-mastectomy women's self-esteem level regarding external breast prosthesis.
- Design and implement instructional guidelines based on the post mastectomy women's needs.
- Investigate the association between demographic characteristics of post-mastectomy women and their knowledge and practice regarding external breast prosthesis.
- Assess the effect of instructional guidelines on knowledge, practice, and self-esteem regarding external breast prosthesis.

**Research hypothesis:**

**H1:** Post mastectomy women's knowledge and practices regarding external breast prosthesis will be improved after implementing the instructional guidelines.

**H1:** Post mastectomy women's self-esteem level regarding external breast prosthesis will be improved after implementing the instructional guidelines.

**H3:** Instructional guidelines regarding external breast prosthesis will have a positive effect on post-mastectomy women's knowledge and practices.

**Subjects and Method****Research design:**

A quasi-experimental research design was utilized to attain the study's goal.

**Setting:**

The study was conducted in Fayoum Oncology Center's Inpatient and Outpatient clinics / Fayoum Governate/ Egypt. These settings were chosen because of the high prevalence of patients in the selected setting, as well as the fact that it serves the most populous region of the country.

**Subjects:**

All post-mastectomy women of 100 women were selected from previous settings based on convenient sampling within six months and received education from the previously mentioned setting during the study. Their ages ranged from 18-40 years old and those who are available at the previously mentioned setting at the time of data collection had willing to participate in this study.

**Data collection tools:**

**Tool (I): A structured interview questionnaire** was developed by the researchers after reviewing the related literature and research studies; (Guire et al., 2015), it consists of 9 items categorized into two parts.

**Part (1):** It included demographic data of post-mastectomy women such as age, educational level, occupation, and residence.

**Part (2):** It included medical data of post-mastectomy women-related items such as duration of disease, stages of the disease, treatment received, type of tumor, and family history.

**Tool (II): Post mastectomy women's knowledge regarding external breast prosthesis assessment (Khuwaja & Abu-Rezq, 2019; Jetha, 2017; Guire et al., 2015):** It was developed by the researchers and included 10 questions (multiple choice questions). It was created to collect information of post-mastectomy women's knowledge regarding external breast prostheses such as definition, purposes, reasons for choosing to wear the external breast prosthesis, indications, contra Indications, types of external breast prosthesis, external breast prosthesis available materials in the market, weights of external breast prosthesis, and shapes of external breast prosthesis.

**Scoring system:**

The tool was given a score of 2 for correct answers and 0 for incorrect answers. The overall knowledge score ranged from 0 to 20, with 0 being the lowest and 20 being the highest. The knowledge score went from 0 to 9, was considered to have unsatisfactory knowledge (< 50%), and those who scored from 10 to 20 were considered to have satisfactory knowledge (≥50%).

**Tool (III): post-mastectomy women ' practice regarding external breast prosthesis assessment (pre/post) (Breast Prostheses from Wikipedia, 2019):**

It included six steps. It was designed to assess post-mastectomy women's practice regarding external breast prosthesis related to care of the external breast prosthesis such as washing the prosthesis after every wear, washing it daily in warm soapy water and drying it with a towel, rinsing the breast form well in clean water soon after swimming to remove any chlorine or Saltwater, use a soft, fiber-filled from in a sauna or spa-silicone prosthesis may heat up against your skin, avoid using perfumed deodorant, as this can damage the breast form, and take care not be to catch the prosthesis with sharp objects such as rights

or brooches as these may damage it, causing the silicone to leak. If it does get damaged, can usually seal the year temporarily with a sticking plaster

#### **The scoring system:**

It was calculated as zero for "not done step", and one for "done step ". The total score was 0 – 6. The total score was categorized into "adequate and inadequate practices" as follows: inadequate less than 50% and adequate more than 50%.

#### **Tool (IV): Self-esteem was measured by Rosenberg self-esteem scale (Rosenberg, 1965) (pre/post):**

It included the following items: (1) On the whole, I am satisfied with myself. (2) At times I think I am no good at all. (3) I feel that I have several good qualities. (4) I can do things as well as most other people. (5) I feel I do not have much to be proud of. (6) I feel that I'm a person of worth, at least on an equal plane with others. (7) I wish I could have more respect for myself. (8) All in all, I am inclined to feel that I am a failure. (9) I certainly feel useless at times. With Likert scale: Strongly agree (SA) =3, Agree (A) =2, Disagree (D) =1, strongly disagree.

**Scoring system:** Regarding questions 1, 3, 4, 7, and 10 (score was SA=3, A=2, D=1, and SD=0), while for questions 2, 5, 6, 8, and 9 (score was SA=0, A=1, D=2, and SD=3). A score below 15 is considered low self-esteem; a score between 15 to 25 is considered average self-esteem and a score over 25 is considered high self-esteem.

Two tools were used to collect the data of the study as the following:

#### **Validity of the tools:**

Five professors assessed the tools' and instructional guidelines' content validity, as well as their clarity, comprehensiveness, appropriateness, and relevance. The content validity of the tools and the instructional guideline were examined by three experts in medical-surgical nursing and two experts in oncology. Changes were made based on the panel's judgment to ensure sentence clarity and content appropriateness.

#### **Reliability of the tools:**

Tool one's reliability was 0.87, whereas tool two's dependability was 0.89, tool three's reliability was 0.85, and tool four's reliability was 0.83, according to the Cronbach's test.

#### **Methods of data collection:**

##### **Filed work:**

The data collection was conducted from the beginning of January 2020 to the end of June 2020. The maneuver of Intervention: The current research was divided into three stages: preparatory, implementation, and evaluation. A total of 100 were enrolled in the study. The researchers collected data from post-mastectomy women two days a week from 9 A.m. to 1 P.m. during the morning shift (Sunday and Monday) for six months. Each interview took approximately 45-55 minutes to complete tools.

##### **A-Preparatory phase:**

The data collection tools were distributed to the post-mastectomy women twice: (1) as a pre-test to assess their knowledge, practice, and self-esteem before adopting instructional guidelines, and (2) as a post-test to assess their knowledge, practice, and self-esteem after the instructional guidelines were implemented.

After reviewing the related literature and assessing the actual needs of the studied post-mastectomy women, the simplified booklet was used as a supportive material and given to post-mastectomy women in the Arabic language to cover all items regarding the knowledge, practice, and self-esteem regarding external breast prosthesis. Lectures, discussions, photographs, and posters were all employed as instructional methods.

##### **A pilot study**

A pilot study was conducted on 10% (10 post-mastectomy women) of the total sample to test the clarity and feasibility of the research process. No modifications were carried out to develop the final form of the tools. Post-mastectomy women who were in the pilot were excluded from the research study.

##### **Ethical considerations:**

Official approval was done and obtained through an issued letter from the Dean of

Faculty of Nursing, Fayoum University to conduct this study. The researchers visited with the medical and nursing director of the chosen setting to explain the study's aim and obtain their agreement. To gain post-mastectomy women cooperation, oral consent was acquired. To secure authorization for data collection, the purpose of the study was stated, as well as the expected outcomes from its implementation. The study's aim was explained to the post-mastectomy women. The post-mastectomy women were advised that participation in the study was entirely optional, and they were free to decline. Post-mastectomy women have the right to drop out of the study at any time and for no reason. Post-mastectomy women were told that their information would be kept private and only utilized for research.

### **B-Implementation phase:**

The study included 100 post-mastectomy women. The researchers collected data from the post-mastectomy women who attended previously selected settings. The researchers met post-mastectomy women individually at the waiting area present at previously selected settings and explain the aim of the study after introducing themselves to post-mastectomy women.

The researchers created and implemented educational guidelines regarding external breast prostheses that included theoretical and practical components. Post-mastectomy women's knowledge and practice of external breast prosthesis were incorporated in the theoretical and practical portion. It was implemented through lectures, posters, educational films, scenarios, and role-plays. Post-mastectomy women were given an educational booklet written in simple Arabic with illustrative photos provided by the researchers regarding external breast prosthesis.

For the theoretical section, the subject information was divided into two sessions, each lasting roughly 20-30 minutes. Total one took a half-hour to complete. The first session began with an introduction to the educational guidelines regarding external breast prosthesis, and each subsequent session began with a summary of the previous session's feedback.

The practical part was contained information regarding external breast prosthesis practices. The interview took approximately 20-30 minutes for each post-mastectomy woman to answer and fill the questionnaire to assess the external breast prosthesis practices of women. It was implemented through lectures, posters, educational films.

### **The instructional guidelines included knowledge and practice regarding external breast prosthesis as follow:**

- Definition of external breast prosthesis
- Purposes of external breast prosthesis
- Reasons for choosing to wear the external breast prosthesis
- Indications and contraindications of external breast prosthesis
- Types of external breast prosthesis
- External breast prosthesis available materials in the market
- Weights of external breast prosthesis
- Shapes of external breast prosthesis.
- Care of external breast prosthesis.

### **Evaluation:**

The evaluation was applied after three months, each post-mastectomy woman was re-interviewed to assess their knowledge, practice, and self-esteem using the same pre-test tools that were evaluated according to the same method of scoring that was used before the application of the educational guidelines (II-III, and IV).

### **Administrative design:**

Administrative permission was obtained through an issued letter from the Dean of Faculty of Nursing, Fayoum University to the Directors of the Inpatient and Outpatient Clinic affiliated with Fayoum Oncology Center to achieve this study.

### **Statistical analysis:**

Data entry and statistical analysis were performed using SPSS for Windows, version 20. Frequencies and percentages for quantitative variables and mean and SDs for qualitative variables were represented descriptive statistics. Differences between the two means tests (t-test) were used. Chi-square ( $\chi^2$ ) test was used to compare qualitative parameters. Pearson's

correlation coefficient ( $r$ ) test was used. Statistical significance was considered at  $P$ -value  $<0.05$ .

### Results:

**Table (1):** Revealed that 78% of the studied post-mastectomy women were between  $40 < 60$  years. More than half (54%) of post-mastectomy women had secondary education, 62% were not working, and (62%) were living in urban areas.

**Table (2):** Showed that (56%) of the studied post-mastectomy women have cancer from  $> 1$  year, (43%) of them were in the third stage of the disease, regarding types of treatment of cancer (36%) of them were received chemotherapy and surgery.

**Figure (1):** Illustrated that (78%) of post-mastectomy women had a non-spreading tumor.

**Figure (2):** Portrayed that (60%) of women were having a family history of cancer.

**Figure (3):** Showed that 63% of the studied post-mastectomy women stated that the main source of knowledge about external breast prosthesis was doctors.

**Table (3):** Showed that there was an improvement in the studied post-mastectomy women's knowledge post implementing instructional guidelines as compared to pre-implementing guidelines. A highly statistically significant difference was found between all items of knowledge pre/post one month of instructional guidelines implementation ( $P$ -value  $<0.001$ ).

**Table (4):** Highlighted that there were highly statistically significant differences and improvement between the studied post-mastectomy women's total knowledge levels pre and post-instructional guidelines implementation ( $p < 0.001$ ).

**Table (5)** showed the total practices level of the post-mastectomy women pre and post-one-month instructional guidelines implementation. It observed that (84%) of the post-mastectomy women had inadequate practices regarding external breast prosthesis pre- instructional guidelines implementation and decreased to become 7% after one-month post- instructional guidelines implementation. Reversely, 16% of the women had adequate practices pre- instructional

guidelines implementation in comparison to 93 % post-one-month post- instructional guidelines implementation.

**Table (6)** illustrates that more than two-fifth of the studied post-mastectomy women strongly agreed that they can do things as well as most other people and feel that they are a person of worth, at least equal to others which constitute (44%) and (43%) respectively. Meanwhile, more than two-thirds (68%) of them disagreed that they feel have several good qualities and disagree to take a positive attitude toward themselves. In addition to more than half (51%) of them were strongly disagree that on the whole, they satisfied with their life.

**Figure (4)** illustrated that (60%) of post-mastectomy women had low self-esteem, meanwhile, only (7%) of them were have high self-esteem.

**Figure (5):** Revealed that there were differences and improvements between the studied post-mastectomy women's self-esteem pre and post-instructional guidelines implementation regarding external breast prosthesis ( $p < 0.001$ ).

**Table (7):** Revealed that there was a positive correlation ( $P=0.004$ ) between women's knowledge scores and their practice post-one-month instructional guidelines implementation.

**Table (8):** Showed a significant association between the women's age, education, residence, and occupation with their total knowledge. Also, there were associations between women's practice and their residence.

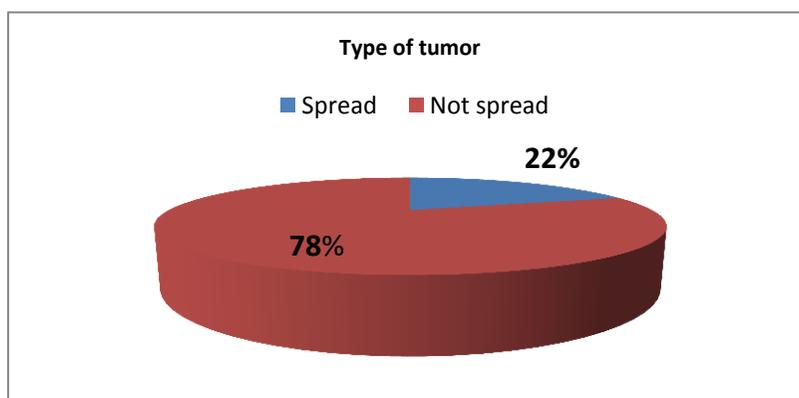
**Table (9):** Illustrated the majority of post-mastectomy women reported that (95%) of them were satisfied with the content of the instructional guidelines which answered all questions related to external breast prosthesis and the content was easy to understand, written in simple language.

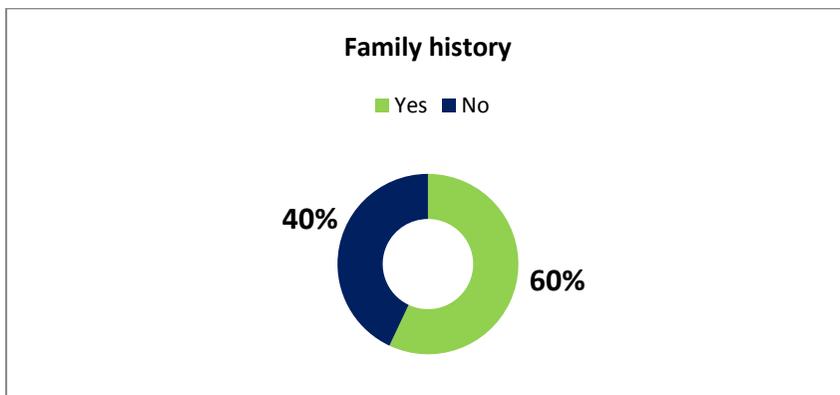
**Table (1):** Distribution of the studied post-mastectomy women regarding their demographic characteristics (n=100)

Demographic characteristics	No.	%
<b>Age</b>		
21 ≤ 40 years	22	22
40 ≤ 60 years	78	78
<b>Education</b>		
Illiterate	0	0.0
Read and write	7	7.0
Secondary education	54	54.0
Higher education	39	39.0
<b>Occupation</b>		
Working	38	38.0
Not working	62	62.0
<b>Residence</b>		
- Rural	38	38
- Urban	62	62

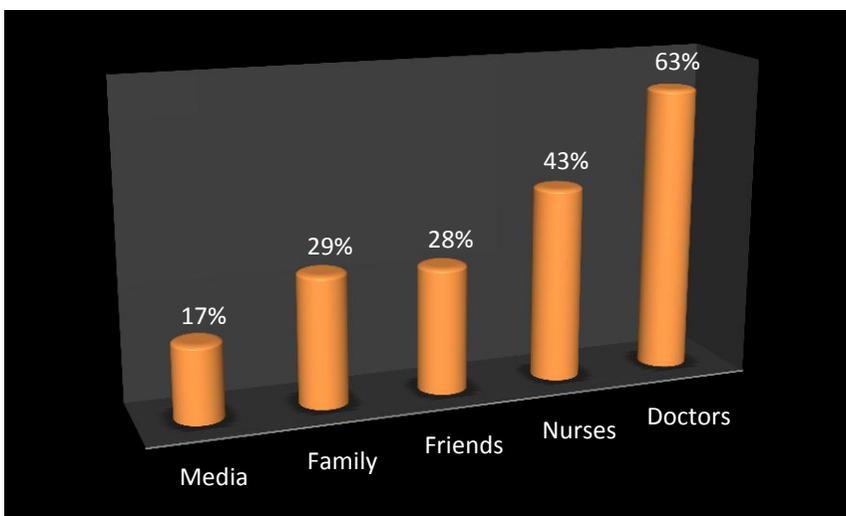
**Table (2):** Distribution of the studied post-mastectomy women regarding their medical data (n=100)

Medical data	No.	%
<b>Duration of disease:</b>		
< one year	44	44
> one year	56	56
<b>Stages of disease</b>		
Stage 1	14	14
Stage 2	25	25
Stage 3	43	43
Stage 4	18	18
<b>Treatment received</b>		
Radiotherapy	6	6
Chemotherapy	26	26
Chemotherapy and surgery	36	36
Surgery	32	32

**Figure (1):** Frequency distribution of the studied post-mastectomy women regarding their type of tumor (n=100)



**Figure (2):** Distribution of the studied post-mastectomy women regarding their family history (n=100)



**Figure (3):** Distribution of the studied post-mastectomy women regarding their source of knowledge about external breast prosthesis

**Table (3):** Differences between pre and post-one-month of instructional guidelines implementation among studied post-mastectomy women regarding knowledge about external breast prosthesis

Items of knowledge about external breast prosthesis	Pre instructional guidelines implementation		Post instructional guidelines implementation		X 2 P-value
	No.	%	No.	%	
<b>Definition of external breast prosthesis:</b>					
• Don't know	67	67	3	3	15.0 0.001*
• Know	33	33	97	97	
<b>Purposes of external breast prosthesis:</b>					
• Don't know	69	69	8	8	30.28 0.001*
• Know	31	31	92	92	
<b>Reasons for choosing to wear the external breast prosthesis:</b>					
• Don't know	75	75	20	20	16.46 0.001*
• Know	25	25	80	80	

Items of knowledge about external breast prosthesis	Pre instructional guidelines implementation		Post instructional guidelines implementation		X 2 P-value
	No.	%	No.	%	
<b>Indications of external breast prosthesis:</b> • Don't know • Know	65 35	65 35	19 81	19 81	17.68 0.001*
<b>Contraindications of external breast prosthesis</b> • Don't know • Know	63 37	63 37	8 92	8 92	22.16 0.001*
<b>Types of external breast prosthesis</b> • Don't know • Know	60 40	60 40	10 90	10 90	32.26 0.001*
<b>External breast prosthesis available materials in the market</b> • Don't know • Know	84 16	84 16	12 88	12 88	26.36 0.001*
<b>Weights of external breast prosthesis</b> • Don't know • Know	78 22	78 22	10 90	10 90	22.42 0.001*
<b>Shapes of external breast prosthesis</b> • Don't know • Know	88 12	88 12	15 85	15 85	25.50 0.001*

\*Statistically significant level at  $P < .05$

**Table (4):** Total knowledge levels of the studied post-mastectomy women pre and post-instructional guidelines implementation

Total knowledge	Pre instructional guidelines implementation		Post instructional guidelines implementation		T	P-value
	No	%	No	%		
Unsatisfactory	70	70	13	13	6.023	<0.001*
Satisfactory	30	30	87	87		

\*Statistically significant level at  $P < .05$

**Table (5):** Comparison of pre and post-one-month instructional guidelines implementation of post-mastectomy women total practices regarding external breast prosthesis (n=100)

Practice level	Pre instructional guidelines implementation		Post instructional guidelines implementation		x <sup>2</sup>	P-Value
	No	%	No.	%		
Inadequate	84	84	7	7	39.594	<0.001
Adequate	16	16	93	93		

\*Statistically significant level at  $P < .05$

**Table (6):** Distribution of self-esteem among the studied post-mastectomy women.

Items	Strongly agree	agree	Strongly disagree	disagree
	%	%	%	%
1. On the whole, I am satisfied with my life	7	38	51	4
2. At times, I think I am no good at all	15	23	23	39
3. I feel that I have several good qualities	8	13	11	68
4. I can do things as well as most other people	44	38	6	12
5. I feel I don't have much to be proud of	12	19	24	45
6. I certainly feel useless at times	17	11	33	39
7. I feel that I am a person of worth, at least equal to others	43	28	14	15
8. I wish I could have more respect for myself	19	17	25	39
9. All in all, I am inclined to feel that I am a failure	22	6	44	28
10. I take a positive attitude toward myself	7	18	7	68

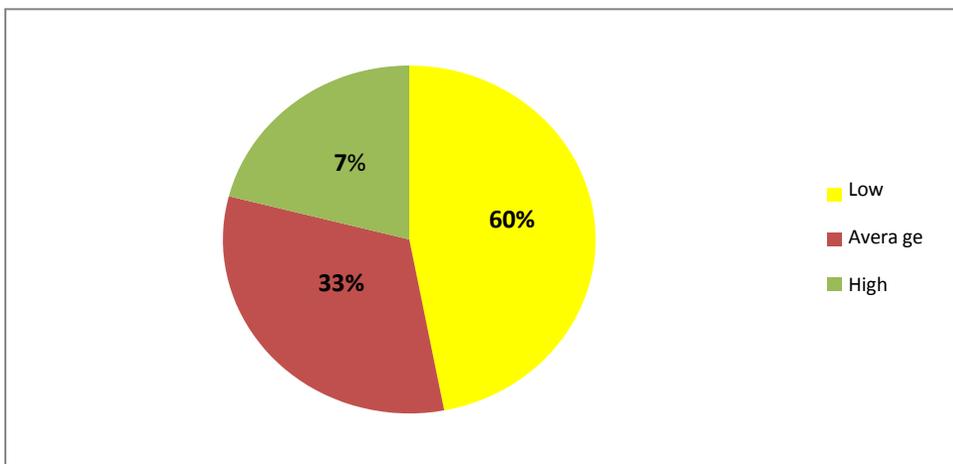


Figure (4): Level of Self –esteem among the studied post-mastectomy women

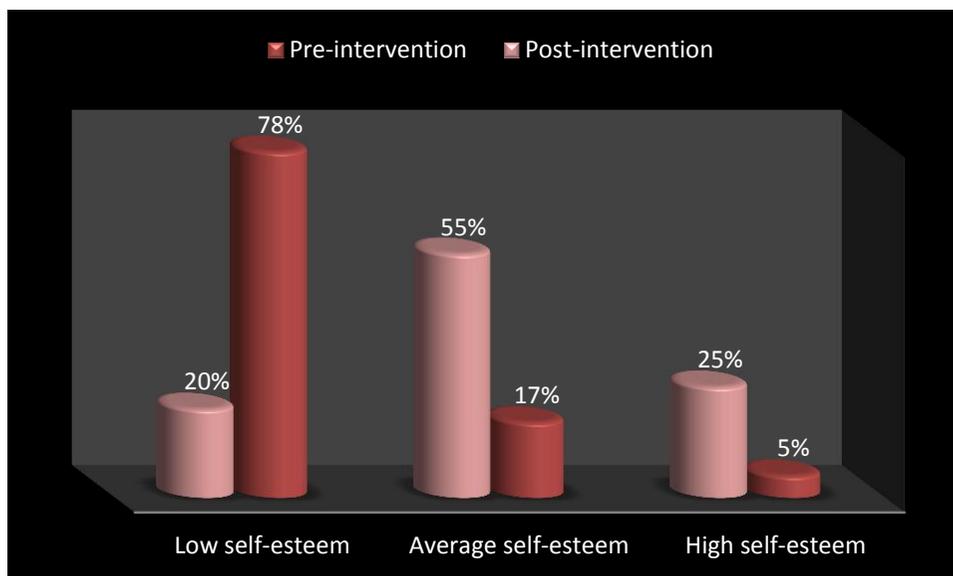


Figure (5): Comparison of pre and post-one-month instructional guidelines implementation of post-mastectomy women's total self-esteem regarding external breast prosthesis (n=100).

Table (7): Correlation coefficient between total studied post-mastectomy women' knowledge and practice scores pre and post-one-month of instructional guidelines implementation

Knowledge	Practice			
	Pre instructional guidelines implementation		After one-month instructional guidelines implementation	
	r	P	R	P
- Total knowledge pre-test	0.038	0.819 (N.S)	---	---
- Total knowledge post-test	---	---	0.411	0.004

**Table (8):** Correlation between demographic data of post-mastectomy women, total knowledge, and their practice

Variables		Total knowledge	Total practice
Age	R	0.14	0.16
	P	0.35*	0.23
Education	R	.177 *	-
	P	.036	-
Residence	r	0.33*	0.42**
	P	0.003	0.001
Occupation	R	.179 *	-
	P	.038	-

**Table (9):** Post mastectomy women's opinion about the instructional guidelines implementation content regarding external breast prosthesis (n=100)

Instructional guidelines implementation content	No	%
<b>Satisfaction about Instructional guidelines content and its effects</b>		
• Yes	95	95
• No	5	5
<b>Instructional guidelines content answered all questions related to external breast prosthesis.</b>		
• Yes	87	87
• No	13	13
<b>Instructional guidelines content was easy written in a simple language</b>		
• Yes	90	90
• No	10	10

### Discussion:

An external breast prosthesis is an artificial breast form that is used to replace the natural breast after a complete or partial mastectomy. External breast prosthesis provides symmetry and a natural shape to the body, and it improves the body posture. External breast prosthesis helps to reduce stress and improve women's self-esteem after mastectomy. Hence, the researchers aimed to evaluate the effect of instructional guidelines on knowledge, practices, and self-esteem regarding external breast prosthesis among post-mastectomy women.

The result of the present study revealed that more than three-quarters of the studied post-mastectomy women were between  $40 < 60$  years and more than three-fifths were living in urban areas.

This result is similar to that of **Saleh et al., (2018)**, who studied "Upper limb lymphedema related to breast cancer therapy." and found that the mean age of the study studied women, was  $48.65 \pm 8.17$  years. According to the findings of this study, concerning residence, more than three-fifths were living in urban areas. This result is consistent with **Sayed et al., (2017)**, who conducted a study about

"Newly Diagnosed Breast Cancer Women's Informational Needs" and found similar results.

This finding is also, matched with **Hawash's (2014)** study, "Assessment of health-related knowledge and behaviors among female cancer following mastectomy" and noticed that the majority of participants with breast cancer are living in urban areas. This finding is not similar to **Abo-Elazm et al., (2018)**, who did a cross-sectional study titled "Trends in demography and reproductive variables in breast cancer in Egypt" which found that slightly more than half of the patients in the study came from rural areas.

The current study result found that more than two-fifths of the studied post-mastectomy women had stage III disease. This finding confirmed that the participants in the current study were not aware of breast self-examination in the early time of cancer and can help in early detection, and resulting in breast cancer being diagnosed at stage III.

This finding agrees with a study by **Saleh et al., (2018)**, who found that breast cancer women were in stage III of mastectomy. This finding is not similar to a study by **Hawash et al., (2018)** published in Alexandria University and titled "Effect of nursing rehabilitation

program on the prevention of lymphedema among post-mastectomy women," and found that more than half of the women studied had stage II breast cancer.

The result of the present study revealed that less than of post-mastectomy women were having a family history of cancer. This finding is consistent with the **American Cancer Society (2016)**, which reported that the risk of breast cancer increases with family history.

The result of the present study revealed that less than three-quarters of the studied post-mastectomy women's main source of knowledge about external breast prosthesis was doctors. This reflected the sufficient information provided by health personnel about the topic.

The results of the current study revealed that there were significant differences and improvements among the studied post-mastectomy women's knowledge post implementing instructional guidelines. These results reflect the positive effect of instructional guidelines implementations, which meet the post-mastectomy women's needs. This result also confirmed the need of the studied post-mastectomy women to improve their knowledge and acquire adequate practice to improve their information and this clarifies the importance of instructional guidelines implementation.

This result matched with **Healey, (2017)** who conducted a study entitled "Misinformation and false beliefs" and reported that the provision of accurate information by health-care providers can help to correct misinformation and false beliefs about EBP.

Several studies by **Mahon & Casey, (2019)** who studied "Patient education for women being fitted for breast prostheses" confirmed the role of providing support and information to the patients for making decisions about external breast prosthesis.

The results of the current study indicated that less than one-fifth of the post-mastectomy women had adequate practices pre-instructional guidelines implementation in comparison to the majority post-one-month post- instructional guidelines implementation.

These results are very logical after receiving the guidelines and cause an increase in their knowledge, which reflects the need of the participants for effective guidelines.

The results of the current study highlighted that there were differences and improvements between the studied post-mastectomy women's self-esteem pre and post-instructional guidelines implementation regarding external breast prosthesis. From the researchers' point of view, the results indicated the effectiveness of the instructional guidelines attributed to the availability and simplicity of instructional guidelines content. This result reflects the positive effect of instructional guidelines, which met the needs of the post-mastectomy women and provided them with sufficient knowledge to maintain health and improve their self-esteem.

This result is similar to the study of **Munstedt et al., (2021)** who studied the "external breast prosthesis breast forms" and reported a new system promises to improve body image after mastectomy who found that majority of the post-mastectomy women was using external breast prosthesis to improve their self-esteem and body image.

Also, this result is consistent with **Gallagher et al. (2019)** who conducted a study about "Experiences in the provision, fitting, and supply of external breast prostheses " which found that lack of information about EBP caused dissatisfaction and low self-esteem and improved after the program.

This result is supported by **Borghesan et al., (2014)** who studied "Variables that affect the satisfaction of Brazilian women with external breast prostheses after mastectomy "which found that more than half of post-mastectomy women were satisfied with EBP and help in improving their self-esteem.

Similarly, **Roberts, et al., (2018)** who studied "External breast prosthesis use: Experiences and views of women with breast cancer" and reported that women after mastectomy initially viewed the external breast prostheses negatively, but, over time after education about external breast prostheses, women felt that it maintained their femininity, normality, and body image and that it improved

the quality of their life. Also, in America, **Glaus and Carlson, (2019)** who performed a study about "Long-term role of external breast prostheses after total mastectomy" reported that satisfaction level remained high in those women who used external breast prostheses for more than 5 years after surgery, as compared to those who used it for fewer years.

The results of the current study revealed that there was a positive correlation between women's knowledge scores and their practice post-one-month instructional guidelines implementation. These findings highlighted the significance of strengthening women's knowledge and practice to assist them in learning and applying good information. This link can be explained by the fact that when the women in the study acquired sufficient knowledge, they were able to practice effectively.

The results of the current study illustrated the majority of post-mastectomy women were satisfied with instructional guidelines content which answered all questions related to external breast prosthesis and the content was easy to understand, written in simple language which reflected the success of these instructional guidelines.

### Conclusion:

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

The results of the study concluded that the instructional guidelines were effective in improving knowledge and practice regarding external breast prosthesis among post-mastectomy women. There were differences and improvements between the studied post-mastectomy women's self-esteem pre and post-instructional guidelines implementation regarding external breast prosthesis ( $p < 0.001$ ). There was a positive correlation ( $P = 0.004$ ) between women's knowledge scores and their practice post-one-month instructional guidelines implementation.

### Recommendations

**In light of the current study results, the following recommendations are proposed:**

- Raising awareness of the post-mastectomy women about external breast prosthesis during follow-up by incorporating this information in their care and follow-up.
- Replication of the current study on a larger probability sample is recommended for generalized results.
- A simplified illustrated booklet regarding external breast prosthesis should be available to post-mastectomy women as a reference.

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