Training Program for Rural Community Health Workers about Breast Self-Examination at Assiut Governorate, Egypt

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Abstract Breast Self-Examination (BSE) has a greatest role in the early discovery of breast cancer and it is still an important screening tool for early detection of Breast Cancer (BC) in developing countries. **The study aimed to:** Assess the impact of training program on improving knowledge and practices of rural community health workers regarding BC and BSE. **Subjects and Methods: Design:** Quasi-experimental research design. **Sample**: A total of 74 rural community health workers recruited in this study. **Tools of the study:** Two tools used; **Tool (I):** Self-administrated questionnaire; which divided into two parts, *Part (1):* Included participants' personal data, *Part (2):* Included questions to assess knowledge about BC and BSE. **Tool (II):** BSE performance checklist. **Results:** The participants were aged less than 20 years with university education (54.1% and 51.4% respectively); 73% of them were from rural area and 13.5% had family history of BC. There were highly statistical significant differences between total score of knowledge and practice during the three phases of the study pre, post and follow-up test p-values 0.000. **Conclusion:** A remarkable improvement was noticed in the participants' level of knowledge and practices during the posttest and after three months of follow-up. **Recommendation:** Establishment of ongoing training intervention to increase rural community health workers' confidence and skills for teaching preventive health behaviors including BSE to larger society.

Keywords: BC, BSE, rural community, health workers, training program

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1. Introduction

Breast Cancer (BC) is one of the most common malignancies in women worldwide usually develops after the age of 45 years especially in the developing countries. The age of onset is declining, and more young women are affected. The best three screening methods are presented for BC which provides the chance of early detection and can reduce mortality up to 25% includes Breast-Self-Examination (BSE), Clinical Breast Examination (CBE) and mammography. Since the prognosis in late phases of this illness is very bad, high attention must be provided because women as wife or mother have great role and loss of maternal life causes adverse effect on unity of the family [1-6].

In Egypt, the total number of women suffering from BC is shocking; it is accounts 35.1% of cancer and is the most prevalent among Egyptian women. The median age at diagnosis for BC in Egypt is ten years younger than in the United States and Europe. The principal factors that increase the risk of consist of certain inherited genetic mutations, a personal or family history and biopsy-confirmed hyperplasia. It is a progressive disease, small lumps are more likely to be at an early stage and their early finding is more likely to have more effective treatment and a better prognosis [6-10].

Although, the argument surrounding the importance of regular BSE in early detection of BC; it is the most inexpensive, broadly accessible and does not require complex technical training. The American Cancer Society recommends BSE for early finding of BC as it helps women in becoming familiar with both the appearance and the sense of their breasts and to detect any changes in their breasts as soon as possible, BSE makes women more "breast aware" [4,8,9].

Many of researches have revealed that women who practicing BSE at a routine base; existing with smaller tumors and neoplasms that had less frequently spread to the axillary lymph nodes than women who did not with more satisfactory survival rates. BSE as healthy behaviors can support women empowerment to take some control and responsibility over their health promotion. For younger women, BSE education and adherence are a gateway to set the stage for CBE and mammography screening later in life [4,7].

Community Health Workers (CHWs) have begun as one of the best active approaches to address human resource deficiencies in distant regions while improving access to the goodness of primary health care. Term of "community health worker" includes a variability of community health aides selected, trained and working in the communities from which they come. WHO define CHW as communities' members where they work which should be selected, answerable to the communities' needs and priorities and supported by the health system but it doesn't have to be part of the government, and have shorter training than professional health workforce". They have many names in different countries, such as raeda in Egypt, community health agents in Ethiopia, basic health workers in India, kader in Indonesia…etc. [11].

Training of CHWs increases access to and utilization of services by the target population as CHWs are aware with the culture, beliefs and language of the local community and warning the community to the early detection of any diseases due to the closest contacts with families. The community health nurse plays an important role and in an appropriate position to teaching BSE with no extra cost and females who advised about BSE by health care providers show better knowledge, self-confidence and was likely to practice it regularly [6,9,11,12]. So, the current study aims to examine the effect of training intervention on the level of knowledge and practice among rural communities' health workers regarding BSE and they can give instructions to other women on how to perform BSE competently.

2. Significance of the Study

The low survival rates in less developed countries can be explained mainly by the lack of early detection, resulting in a high proportion of women presenting with late-stage disease, as well as by the lack of adequate diagnosis and treatment facilities. The pattern of BC in Arab countries is very disturbing. For Egyptian females BC had the highest incidence among Egyptian population (12cases/100,000 populations), it increased by 3 folds (50cases/100,000 populations) over the last 33 years. It is important to develop a community awareness programs targeted toward women to improve their knowledge and prioritize their concerns [6,13,14].

The majority of studies are addressing knowledge of BC and practice of BSE in female university students and women in different age groups. On the other hand there were few studies about the knowledge of breast cancer and practice of BSE among rural community health workers. This proposed work is some sort of Training Of Trainers (TOT) programs, which have an impressive role in transmitting the learned knowledge and acquired practices to larger proportion of the community.

- **Aim of study:**

1- To evaluate the outcomes of the training program on knowledge and practices of rural community health workers regarding BSE.

- **Research hypothesis:**

Hypothesis 0: The training program doesn't improve the knowledge and practices of rural community health workers regarding BSE.

Hypothesis 1: The training program will improve the knowledge and practices of rural community health workers regarding BSE.

- **Subjects and Methods:**

Research design: Quasi-experimental research design. **Setting of the study:** Charity association for community development in Abnoub. Assiut Governorate is consisting of 11 Districts; Abnoub one of the Districts selected by simple random sampling through closed envelope method; 11 pieces of paper representing Assiut Districts which are placed in 11 envelopes; one piece in each envelope, which are placed in a box, then one envelope was chosen without any bias. **Sample:** Total coverage of 74 rural community health workers who enrolled in Abnoub Distract was selected via collaboration with Directorate of Health in Assiut.

- **Tools of the study:** Two tools were used; **Tool (I):** Self-administrated form prepared for data collection based upon reviewing of the related literature; divided into two parts, *Part (1)*: Participants' personal data such as: age, marital status, level of education, residence, family history of BC and the person who had BC. *Part (2):* Included five questions to assess knowledge about BC such as: Definition, high risk age groups, primary signs and symptoms…etc., beside eight questions about BSE such as: Timing of performing BSE, advantages and practices to be used…etc. **Scoring system**: Correct answer equal one degree and incorrect answer equal zero. The total knowledge score divided into: Satisfactory (≥60%) and unsatisfactory (< 60%). **Tool II**: BSE performance checklist; designed to cover BSE steps such as: Good lighting, hand washing, wearing gloves, inspection of breasts (in front of mirror, lining forward and putting hand on west); palpation of breast while (lying down and while standing); palpation of auxiliary lymph nodes and squeezing the nipple of each breast to look for any abnormal discharge. **Scoring system**: Complete and correct step scored one; while incomplete or incorrect step scored zero. The total practice score divided into: Proper practice (≥60%) and improper practice (<60%).

- *Validity of the tool (II):* Arabic translation of the form checked for its contents through evaluation by five experts from Community Health Nursing and Maternity and Newborn Health Nursing Department, Faculty of Nursing, Assiut University; according to their modifications corrections were done.

- *Reliability of the tool:* It estimated by α Cronbach's test to examine the internal consistency and its result was as the following:

-Knowledge= 0.791. - Practice= 0.826.

- **The training program**

It developed based on the relevant literature and intended to improve the rural community health workers' knowledge and practices regarding BC and BSE.

- **General objectives of the training program:**
- To improve the rural community health workers knowledge and practices related to BC and BSE.
- To increase the training abilities of the rural community health workers to transmit the learned knowledge and practices to larger number of women and girls in the rural areas.

I-Assessment phase: The training program based on pre-test assessment of rural community health workers'

knowledge and practices regarding BC and BSE which denoted knowledge deficit and improper practices. Each health community worker assessed at separated room and asked questions to assess the part of knowledge while for assessment of practices breast dolls were used, in order to observe the practice, whether proper or not.

II-Planning phase: This phase included the arrangement for conduction of the program such as: Announcement, teaching place, sessions, audiovisual aids, handouts…. etc.

- Teaching place: Charity association for community development in Abnoub District and Health Directorate in Assiut was the sponsoring organizations for gathering of the CHWs and providing the needed facilities for the program application.

- Teaching time: Time of the program was in the morning 9.00 A.m. until 12.00 P.m. according to coordination between the researchers and rural community health workers.

- Teaching methods and materials: The researchers used simple teaching methods such as: lecture, discussion, demonstration and re-demonstration and role play. The media as power point presentation, blackboard, dolls, video and handouts.

Sessions: The contents of the program divided into four sessions: *The first session included:* Introduction of the program, objectives and the intended learning outcomes. *The second session included*: Knowledge about BC. *The third session included:* BSE knowledge and practice. *The fourth and last session included*: One-to-one practice of BSE and posttest.

III- Implementation stage: The training program conducted during five months from the first of January, 2018 until the end of May, 2018; 74 rural community health workers divided into 6 groups; each group ranged from 12 to 13 participants, every group provided with four sessions for four days two days/ week to complete the program contents. In the first session, the researchers introduced themselves to participants. The purpose of the study and assurance of data confidentiality was briefly explained to get their agreement before beginning of data collection. The sheet took about 15-20 minutes. Each session started by a summary about what was given during the previous day and the objectives of the new topics.

IV- Evaluation stage: The evaluation was done through two methods:

- First, the evaluation was done one month after the completion of the program; post-test for each one separated from other as in the pre-test to evaluate the improving knowledge and practices.
- Secondly, another evaluation done through follow-up test on five groups of rural women selected randomly which gathered by the Charity association for community development in Abnoub District to assess the ability of the rural community health workers in transmitting the acquired knowledge and practices of BSE skills.

- Pilot study: It conducted before beginning of data collection on (10%) 13 rural community health workers which were included in the total study sample because there weren't any modifications in the form.

- Ethical considerations:

Research proposal approved from the Ethical Committee in Faculty of Nursing, Assiut University. There was no risk for study subjects from conducting the research. The study was following common ethical principles in clinical research. Informed consent obtained from the rural community health workers who were willing to participate in the study after explaining the nature and purpose of the study. Confidentiality and anonymity was assured. Study subjects had the right to refuse to participate or withdraw from the study without any rationale at any time.

- Statistical analysis: Data entry and data analysis were done using SPSS version 19 (Statistical Package for Social Science). Data presented as number, percentage, mean, standard deviation. Chi-square and Fisher Exact test were used to compare qualitative variables. Independent samples t-test was used to compare quantitative variables between groups. Paired samples t-test was used to compare quantitative variables between pre-, post and follow-up test. Pearson correlation was done to measure correlation between quantitative variables. P-value considered statistically significant when $P < 0.05$.

3. Results

Table 1: Declares that more than half of the participated CHWs were aged less than 20 years with university education (54.1% and 51.4% respectively). While 90.5%, 73%, 87.8% and 13.5% respectively of them were not working, from rural area, single and had family history of BC.

Table 1. Personal data of the rural community health workers

Items	No. (74)	%
Age: (Years)		
< 20	40	54.1
≥ 20	34	45.9
Mean ± SD (Range)	19.96 ± 1.96 (18.0 – 28.0)	
Educational level:		
Secondary education	36	48.6
University education	38	51.4
Occupation:		
Working	7	9.5
Not working	67	90.5
Residence:		
Urban	20	27.0
Rural	54	73.0
Marital status:		
Single	65	87.8
Married	8	10.8
Divorced	1	1.4
Religion:		
Muslim	55	74.3
Christian	19	25.7
Family history of breast cancer:		
Yes	10	13.5
No	64	86.5
Degree of relation:		
Mother	1	10.0
Sister	2	20.0
Aunt	7	70.0

Figure 1: Represents that 73% of the participated CHWs mentioned that radio and T.V. was their main source of information regarding BC and BSE, on the other hand 35.1%, 12.2%, 6.8% of them mentioned health care team, training program and newspaper and journals respectively.

Table 2: Shows that there were highly statistical significant differences between total score of knowledge and practice during the three phases of the study pre, post and follow-up test p-values = 0.000.

Figure 2: Demonstrates that there was negative correlation between total score of knowledge and practice regarding BC and BSE during the pre-test p-value= 0.843.

Figure 3: Illustrates that there was positive correlation between total score of knowledge and practice regarding BC and BSE during the post-test p-value= 0.001.

Figure 4: Identifies that there was a positive correlation between total score of knowledge and practice regarding BC and BSE during the follow-up phase p-value= 0.004.

Table 3: Clears that there was statistical significance difference between score of knowledge and level of education of the rural community health workers during three phases of the study p-values= 0.010, 0.000 and 0.000 respectively. Moreover there was statistical significance difference with family history during pre and posttest p-values= 0.009 and 0.034 respectively.

Table 4: Clarifies that there was statistical significance difference between score of practice and level of education of the rural community health workers during three phases of the study P-values= 0.015, 0.000 and 0.000 respectively. While there was statistical significance difference with family history during follow-up phase P-value=0.010.
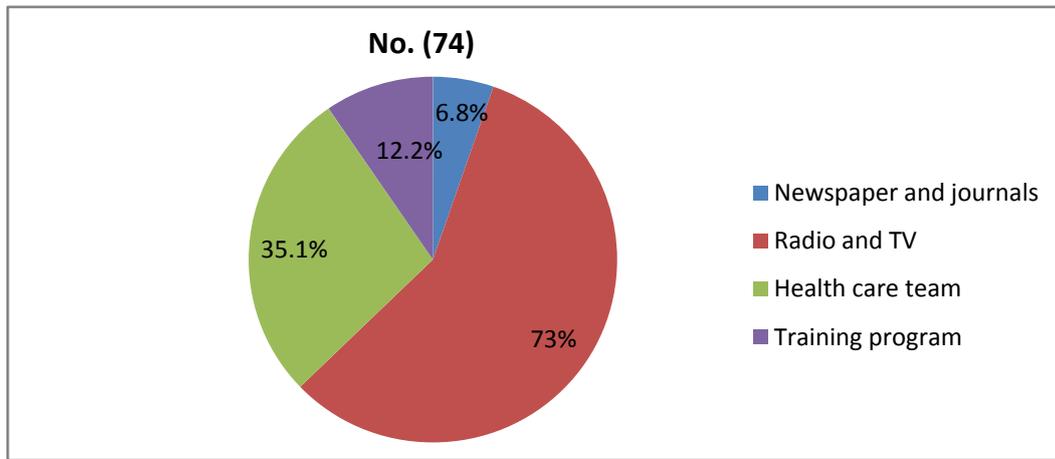

Figure 1. Rural community health workers' sources of knowledge regarding BC and BSE

Table 2. Relationship between total score of knowledge and performance level regarding BC and BSE among rural community health workers during (pre, post and follow-up)

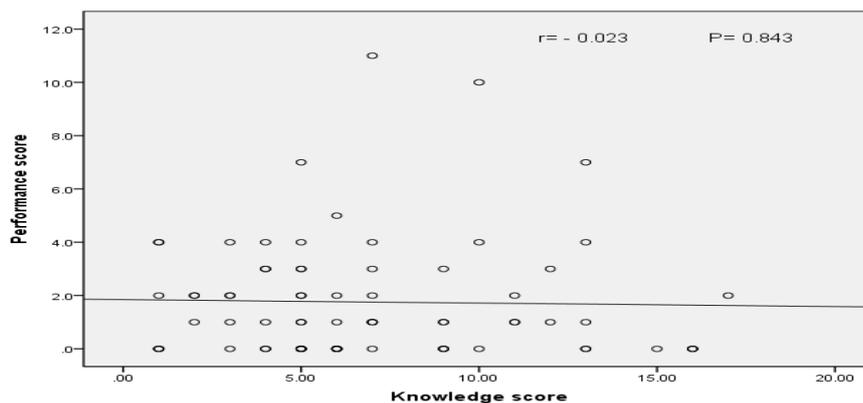| Items	Pre-test (n= 74)		Post-test (n= 74)		Follow-up (n= 74)		P-value[1]	P-value[2]
	No.	%	No.	%	No.	%		
Knowledge level:								
Unsatisfactory	73	98.6	2	2.7	12	16.2	0.000*	0.000*
Satisfactory	1	1.4	72	97.3	62	83.8		
Mean ± SD	6.91 ± 4.10		23.59 ± 2.94		21.23 ± 5.69		0.000*	0.000*
Performance level:								
Improper	70	94.6	11	14.9	9	12.2	0.000*	0.000*
Proper	4	5.4	63	85.1	65	87.8		
Mean ± SD	1.76 ± 2.24		8.64 ± 1.84		8.11 ± 1.58		0.000*	0.000*

Figure 2. Correlation between total score of knowledge and performance regarding BC and BSE among rural community health workers during pre-test
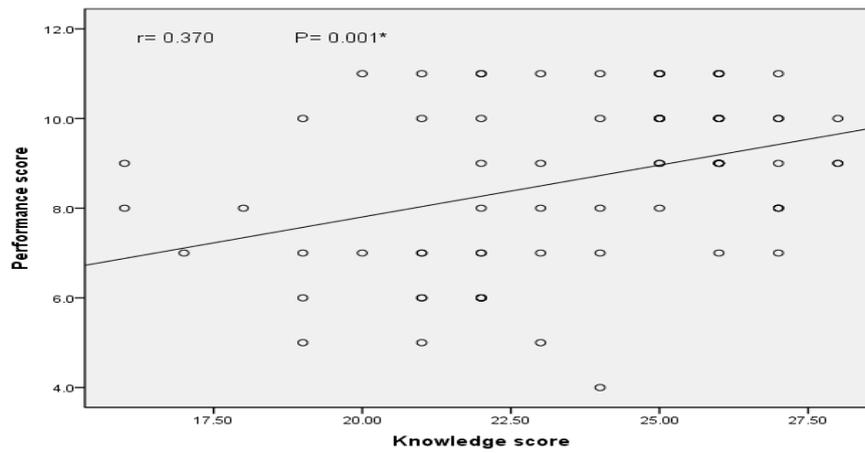
Figure 3. Correlation between total score of knowledge and performance regarding BC and BSE among rural community health workers during post-test
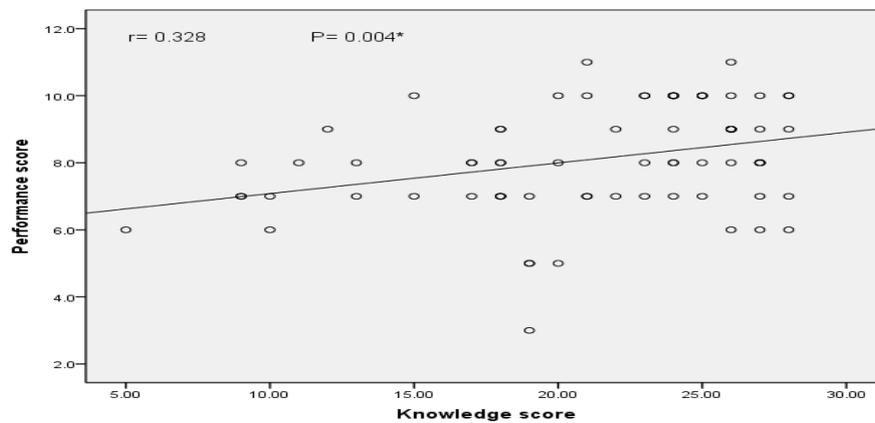

Figure 4. Correlation between total score of knowledge and performance regarding BC and BSE among rural community health workers during follow-up

Table 3. Relationship between personal data of rural community health workers and total score of knowledge regarding BC and BSE

	Pre-test (n= 74) Mean ± SD	P-value	Post-test (n= 74) Mean ± SD	P-value	Follow-up (n= 74) Mean ± SD	P-value
Age: (years):						
< 20	6.33 ± 4.13	0.188	23.65 ± 3.10	0.862	21.13 ± 5.91	0.865
≥ 20	7.59 ± 4.00		23.53 ± 2.79		21.35 ± 5.51	
Level of education:						
Secondary	5.67 ± 3.73	0.010*	21.58 ± 2.67	0.000*	16.81 ± 4.94	0.000*
University	8.08 ± 4.13		25.50 ± 1.64		25.42 ± 1.93	
Occupation:						
Working	5.43 ± 3.69	0.319	24.29 ± 2.69	0.517	20.14 ± 5.24	0.599
Not working	7.06 ± 4.13		23.52 ± 2.98		21.34 ± 5.76	
Residence:						
Urban	7.30 ± 4.39	0.617	23.65 ± 2.83	0.922	23.25 ± 4.18	0.063
Rural	6.76 ± 4.01		23.57 ± 3.01		20.48 ± 6.02	
Marital status:						
Single	6.91 ± 4.12	0.990	23.69 ± 3.07	0.446	21.37 ± 5.77	0.575
Married/ divorced	6.89 ± 4.17		22.89 ± 1.76		20.22 ± 5.33	
Religion:						
Muslim	6.20 ± 4.26	0.562	24.00 ± 3.23	0.643	21.80 ± 4.89	0.736
Christian	7.02 ± 4.09		23.53 ± 2.92		21.14 ± 5.84	
Family history of breast cancer:						
Yes	6.18 ± 3.71	0.009*	24.02 ± 2.75	0.034*	21.49 ± 5.64	0.506
No	9.00 ± 4.52		22.37 ± 3.20		20.47 ± 5.93	

Table 4. Relationship between personal data and total score of BSE performance among rural community health workers

	Pre-test (n=74) Mean ± SD	P-value	Post-test (n=74) Mean ± SD	P-value	Follow-up (n=74) Mean ± SD	P-value
Age (years):		0.940		0.351		0.355
< 20	1.78 ± 2.17		8.45 ± 1.85		7.95 ± 1.63	
≥ 20	1.74 ± 2.35		8.85 ± 1.83		8.29 ± 1.53	
Level of education:		0.015*		0.000*		0.000*
Secondary	1.11 ± 1.51		7.53 ± 1.86		7.39 ± 1.48	
University	2.37 ± 2.63		9.68 ± 1.04		8.79 ± 1.38	
Occupation:		0.635		0.757		0.350
Working	2.14 ± 1.86		8.43 ± 2.07		7.57 ± 2.37	
Not working	1.72 ± 2.28		8.66 ± 1.83		8.16 ± 1.49	
Residence:		0.477		0.545		0.723
Urban	1.45 ± 1.28		8.85 ± 1.90		8.00 ± 1.81	
Rural	1.87 ± 2.50		8.56 ± 1.83		8.15 ± 1.51	
Marital status:		0.217		0.092		0.829
Single	1.88 ± 2.33		8.77 ± 1.72		8.12 ± 1.62	
Married/ divorced	0.89 ± 1.17		7.67 ± 2.45		8.00 ± 1.41	
Religion:		0.067		0.246		0.875
Muslim	2.04 ± 2.34		8.78 ± 1.81		8.09 ± 1.71	
Christian	0.95 ± 1.72		8.21 ± 1.90		8.16 ± 1.17	
Family history of breast cancer:		0.504		0.763		0.010*
Yes	2.20 ± 2.04		8.80 ± 1.75		9.30 ± 1.42	
No	1.69 ± 2.27		8.61 ± 1.87		7.92 ± 1.54	

4. Discussion

BC is one of the most widespread and destructive women's cancer in both low and middle income countries and its occurrence are on increase due to adoption of Western lifestyles. In Egypt, The National Cancer Institute reported that BC represents 18.9% of all cancer cases and 37% of women's cancer. CHWs should evaluate woman's adherence of performing BSE that should involve not only if she merely carry out the examination, but also when and how she is doing it; this will let women to identify what is normal and what is abnormal in breast tissue to help in early detection of BC [15].

The present research aimed to assess training program regarding BC and BSE among CHWs in Assiut Governorate.

In referral to personal data of the participants; more than half were aged less than 20 years, this finding agreed with [6] who carried out a study on female Nursing Students to evaluate the effect of BSE training program in Alexandria University and reported that the highest percentage was among the age group less than 20 years. In contrast; [16] who conducted a study to evaluate the effect of training on women knowledge and beliefs about BC and early diagnosis methods and reported that the average age of women was 39.44 years old.

As regards level of education of the participants; the current study revealed that more than half had university education, this reading disagreed with [17] who performed a study in Yazd to assess the effect of BSE educational program on the knowledge and performance of women and recorded that nearly half of the studied sample were

had Diploma. Due to limited working chances for youth with university education in our society, so they directed to be employed in public health services.

Concerning residence of the participants; the results showed that more than two-thirds were from rural area; this observation was incongruent with [6] who reported that around two-thirds were from urban area. Also, [18] who conducted a study on the Kurdistan Women to evaluate education program on BSE and found that more than two-thirds were from urban area. In our community, the majority of CHWs must be from rural area to be familiar with the nature of rural communities.

The present study reported that only 13.5% of the rural community health workers had family history of BC, this finding agreed with [6,18] who recorded that 6.1% and 3.9% respectively had family history of BC. On the other hand [4], who evaluated awareness, knowledge and practice of BSE in Riyadh, Kingdom of Saudi Arabia and reported that one-fifth of the participants, had family history of BC. Also, [17] recorded the same result.

According to the main source of information regarding BC and BSE, more than two-thirds mentioned radio and T.V. this result agreed with [19] who assessed the impact of educational intervention on BSE among female students and reported that more than two-fifths mentioned television. Nowadays, there is national campaign to increase the general public attitude toward BC screening program advertised through radio and T.V. because it is the widest methods which reach rural and remote areas.

This finding wasn't in the same line with [10] who performed a study to evaluate the impact of female

students' BSE training and recorded that two-fifths reported doctors as the main source. On the other hand, [13] who conducted a study to improve knowledge, beliefs and behavior of undergraduate female Nursing Students in Al-Alzhar University toward BSE practice and reported that more than three-fifths mentioned health professional and teachers.

Regarding the total score of knowledge and performance, the present results showed that there were highly statistical significant differences between total score of knowledge and performance during the three phases of the study pre, post and follow-up P-value 0.000. This observation was in the same line with [6,13,16,17] who reported that there were statistical significant differences between total score of knowledge and practice of the participants during pre and post-test. The designed program helps to add new knowledge and correct false concepts regarding BC and BSE which had a positive impact on performance.

Also, [18] reported that there was a highly statistical significant difference between pre and post-test regarding knowledge and practice of BSE. Moreover, [20] who studied the effect of structured training program on the female teachers in Turkey and pointed out that there was improvement in knowledge and practice after the program.

Similar observation reported by [21] who studied the effect of BSE Educational Intervention among Female University Students. This result agreed with [22], who assessed the impact of BC educational workshop on knowledge and BSE practice among Korean-American women. In the hostel of Kafr elsheikh University [15] studied the effect of BSE training program on knowledge and practice of adolescent girls and found the same result.

In the current research; there was negative correlation between the total score of knowledge and performance regarding BC and BSE during pre-test p-value = 0.843. While there were positive correlation during the posttest and follow-up p-values = 0.001 and 0.004 respectively. This result was matching with [23] who studied the effectiveness of structured teaching program regarding BSE in India.

On the other hand this finding wasn't matching with [24] who assessed awareness and ability regarding BSE and found that there was no significant positive correlation between mean post-test awareness and ability score toward BSE (r=0.166 and p=0.307).

In accordance to relationship between personal data and total score of knowledge regarding BC and BSE; the present finding clears that there was statistical significance difference between score of knowledge and level of education of the rural community health workers during three phases of the study p-values = 0.010, 0.000 and 0.000 respectively. This result was in the same line with [16,17]. While there weren't relationship between age and residence with total score of knowledge, this was disagreed with [23] who reported presence of relationship with age and residence in conjunction with the total score of knowledge. Also, [9] who assessed the effect of BSE education program on knowledge, attitude and practice and found a relationship with age in post-test.

Moreover there was statistical significance difference between total score of knowledge and family history during pre and posttest p-values = 0.009 and 0.034 respectively. This disagreed with [9].

According to relationship between personal data and total score of performance of BSE, the results clarifies that there was statistical significance difference between score of performance and level of education of the rural community health workers during three phases of the study p-values= 0.015, 0.000 and 0.000 respectively. This observation disagreed with [25] who assessed the impact of health education on improving women's knowledge and awareness of breast cancer and BSE and found that there wasn't statistical significance difference with the level of education p-value=0.424.

The results of the current study showed no statistical significance difference with participants' age and performance of BSE during three phases of the study p-values= 0.940, 0.351 and 0.355 respectively, this incongruent with [25] who reported a relationship with age p-value= 0.000.

In referral to relationship between family history of BC and total score of performance of BSE; there was statistical significance difference with family history during follow-up phase p-value= 0.010. This finding was incongruent with [17] who reported that the performance mean scores of women with negative family history had no significant difference in the pre and posttest, the same finding recorded by [9]. Presence of family history among the studied participants leads to increase their attention to improve their practice during the follow-up.

5. Limitations of the Study

Due to limited number of rural community health workers, there was no control group to compare the effectiveness of the developed material.

6. Conclusion

CHWs are in need for continuous training program targeting the most prevalent community health problems and important issues including preventive effort of disease focusing on BC. The study pointed out to the insufficient knowledge of rural community health workers about BC and identified the negative influence of low knowledge on the performance of BSE in pretest. There was a statistical significant difference of knowledge and performance score with participants' level of education. Also, there was a relationship between participants' level of knowledge and family history of BC during pre and posttest. The developed training program of BSE showed improvement with significant impact in the form of a remarkable increase in the participants' level of knowledge and practices during the posttest and after three months of follow-up.

7. Recommendations

• Establishment of ongoing training intervention to increase rural community health workers' confidence and skills for teaching preventive health behaviors including BSE to larger society.
• Further research is recommended using larger sample size with total coverage of all CHWs in the Governorate.

• All channels of the national mass media could efficiently be utilized to cultivate a healthy positive attitude toward BSE.

• Reinforce ongoing outreach program in order to provide the needed information, education and communication about BC as well as screening services.

• The CHWs during home visits should emphasize on the importance of CBE by nurses and physicians during routine checkup visits and during premarital care.

Conflict of interest

No.

Funding

No.

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