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EFFECT OF BREAST SELF EXAMINATION TRAINING PROGRAM ON KNOWLEDGE AND PRACTICE OF ADOLESCENT GIRLS

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ABSTRACT

Breast cancer is the most prevalent cancer among females all over the world. Breast self examination (BSE), mammography, and clinical breast examination are screening methods used to detect breast cancer early. The current research was carried out to assess the effect of breast self examination training program on knowledge and practice of adolescent girls. A quasi-experimental one group time series design was adopted in this research to achieve the stated aim. A Simple random sample of 135 adolescent girls was recruited. The research was conducted at the university student's hostel of Kafr elsheikh University. Two tools were constructed and filled in by the researchers: Structured interviewing tool; and Breast self examination checklist. Regarding total knowledge, pre-program 71.90% of adolescent girls have poor level of knowledge as compared to 97%, 100 % and 97.8% of them have high level of knowledge one month, three months and five months post program respectively. Concerning level of total practice, 100 % of adolescent girls showed unsatisfactory level of practice pre-program compared to 41.50%, 43.70%, and 54.10% of them have satisfactory level of practice one month, three months, and five months post program respectively. Moreover, after receiving the program 68.90% of adolescent girls practice BSE and 31.20% of them practice BSE regularly. In conclusion, knowledge and practice of adolescent girls were improved after receiving the training program suggesting its effectiveness. The study recommended that, adolescent girls should be equipped with health information related to BSE. As well, an emphasis should be done regarding to adolescent girls' healthy behavior pattern concerning BSE.

KEYWORDS: Breast Self Examination, Training Program**,** Adolescent Girls

INTRODUCTION

Breast cancer (BC) is one of the most prevalent and aggressive women's cancer in both low and middle income countries and its incidence in these countries is on increase due to adoption of Western lifestyles (Pengpid & Peltzer, 2014). According to the National Cancer Institute- Egypt (NCI), breast cancer represents 18.9% of all cancer cases and 37% of women's cancer. Hussein et al (2013) pointed out that incidence of breast cancer in Egypt represented 49.6 per 100,000 and mortality rate related to breast cancer is 9.3% of all cancers.

Early detection plays a crucial role for BC. Breast self examination (BSE), mammography, and clinical breast examination are screening methods, which are used to detect BC early. In addition, special attention should be paid to BSE to enhance the possibility of early detection of any changes in breast tissue. Although BSE alone is not sufficient for early detection of BC, it allows women to be responsible for their own health, to recognize breast tissue, as well as to adopt the preventive health behavior (Fotedar, et al., 2013; Akhtari-Zavare, Juni, Said & Ismail, 2013).

Breast self-examination involves the woman herself looking at and feeling the breast for lumps or other abnormalities. There is evidence that, women who correctly practice BSE monthly are more likely to detect a lump in the early stage, with early diagnosis and treatment yielding better survival (verma, et al., 2013). However, despite these benefits, few women regularly perform BSE and many do not even know how to perform it. Meanwhile, there is evidence that women are more likely to perform BSE effectively when taught by physicians or a nurse. Unfortunately, in one study, only 19% of the nurses reported teaching BSE, and the major reason for not teaching was the belief that it was not relevant to their work (Sulik & Zierkiewicz, 2014).

Primary nurse should assess woman's compliance of performing self-breast examinations that should entail not only if she merely performs the examination, but also when and how she is doing it. As well, it is the responsibility of nurse to provide a resource to the patient that can properly demonstrate this. Women should be educated on the proper way to do a self-breast examination including the ideal time of month to perform the examination. This will allow women to know what is normal and what is abnormal in breast tissue to aide in early detection of breast cancer (Nichols, 2012).

SIGNIFICANCE

The majority of breast cancer mortality which constitutes 269000 occurs in low- and middle-income countries, where most women with breast cancer are diagnosed in late stages mainly due to lack of awareness on early detection and barriers to health services (WHO, 2016). Breast cancers found during screening exams are more likely to be smaller and still confined to the breast. The size of a breast cancer and how far it has spread are some of the most important factors in predicting the prognosis of a woman with this disease (American Cancer Society, 2015). Therefore, WHO recommend awareness of early signs and symptoms and screening by breast examination as early detection strategies for low-and middle-income countries (WHO, 2016).

Tsangari, Sharaa, Fouad and Petro (2014) conducted a study to compare the beliefs and practices of BSE between Cypriot and Egyptian women. They found that, about 65% of Cypriot women had practiced BSE at least once in the past year as opposed to 35% for Egyptian women. Therefore, they emphasized the need for introducing proper and correct information about breast cancer and BSE for Egyptian women who have lack of confidence in the correct performance of BSE.

Adolescent girls are an important target group for promotion of proper health habits, in particular with regards to breast health. So the researchers were interested to conduct this training program in order to develop proper health practices as early as possible, and therefore lead to lifetime maintenance of good health.

AIM OF THE RESEARCH

Was to assess the effect of breast self examination training program on knowledge and practice of adolescent girls

RESEARCH HYPOTHESES

- H.1. Adolescent girls who receive breast self examination training program will have high mean knowledge score in post-test than pre-test;
- H.2. Adolescent girls who receive breast self examination training program will demonstrate a satisfactory level of breast self exam practice post training program than pre training program.

SUBJECTS AND METHODS

- **Research Design:** A quasi-experimental one group time series design was adopted in this research.
- **Setting**: The research was conducted at the university student's hostel of Kafr elsheikh University. It is a university affiliated hostel which accommodates about 2250 students.
- **Sample:** Simple random sample of 135 adolescent girls were recruited according to the following inclusion criteria: age ranged between 19-21 years old, from non medical faculties. Exclusion criteria: any girl with personal or family history for breast cancer was excluded from the sample. Sample size was calculated using a power analysis. A Power of.95 (β = 1-.95 =.05) at alpha.05 (one-sided) with low effect size (0.3) was used as the significance level.
- **Tools:** two tools were constructed by the researcher after reviewing related literature. They were structured interviewing tool and breast self examination checklist

Structured Interviewing Tool

It included two main sections,

- **Personal Background Data**: it included data related to the adolescent girl's age, faculty, faculty level, place of residence and number of family members. As well as, it included questions about adolescent girl's practice of BSE before and after receiving the training program and if yes, how many times, regularity, reason for performing BSE, and if no, reasons for not performing BSE.
- **Pre-Post Test**: it consisted of 32 multiple choice questions: 1) four questions about anatomy of the breast; 2) twenty one questions about breast cancer; and 3) seven questions about BSE. **Scoring system:** A score of 2 was given to the correct and complete answer; a score of 1 for correct but incomplete answer; and a score of 0 for the wrong or when the girl answered “she does not know”. The total knowledge scores were classified into three levels: Poor knowledge (< 50%); acceptable (50% to <75%); and high (≥75%).

Breast Self Examination Checklist

It designed to cover the steps of BSE such as: inspection of breasts in front of mirror; squeezing the nipple of each breast to look for any abnormal discharge; palpation of breast while lying down; palpation of breasts while standing; and finally palpation of auxiliary lymph nodes. **Scoring system:** Complete and correct step was scored 2, correct but incomplete step was scored 1, while wrong or not done step was scored 0. The total practice score was classified into three levels: unsatisfactory (< 50%); acceptable (50% to <75%); and satisfactory (≥75%).

TOOLS VALIDITY AND RELIABILITY

Tools were submitted to five experts in the field of Medical Surgical Nursing and Maternity Nursing to test the content validity. Modifications were carried out according to the recommendations of experts on clarity of tools and appropriateness and completeness of the content. Test reliability of the proposed tools was done by **(cronbach's alpha=0.82)**, showed a strong significant positive correlation between the items of tools.

ETHICAL CONSIDERATION

A primary approval was taken from the Ethics Research Committee at the Faculty of Nursing- Cairo University before conducting the program. As well as, an official permission was taken from Kafr El Sheikh University as well as hostel administrators. After that, each adolescent girl was informed about the purpose of the research and its importance. The researchers emphasized that, participation in the research is entirely voluntary; anonymity and confidentiality were assured through coding the data. Informed written consent was taken from adolescent girl who accept to be included in the research. Each adolescent girl was informed that, she can withdraw at any time. The final approval was taken from the Ethics Research Committee at the Faculty of Nursing- Cairo University after completion of the program.

PILOT STUDY

A pilot study was conducted on 10% of the sample (15 adolescent girls) who met the criteria of selection in order to assess the feasibility and clarity of the tools and determine the needed time to complete the tools. The needed modifications were performed and those subjects were excluded from the study.

PROCEDURE

Data was collected through a period of 6 months from beginning of November 2015 to the end of April 2016. The research was conducted through five phases: preparation, recruitment, assessment, implementation and follow up and evaluation phase.

Preparation Phase

During this up-dated review of related literature has been done for construction of data collection tools and developing the training program. It also, included preparation of teaching materials i.e booklet and power point presentation.

Recruitment Phase

Each building was given a code number from one to five through tossing process, and then each building with odd number was selected. From the selected buildings, the odd floors were selected. Then from the selected floors, the odd rooms were selected. Finally, the filling system of the hostile had been utilized to select the first, third, and fifth adolescent girl to be included in the study until the needed sample was completed.

Assessment Phase

After enrollment the researchers met the adolescent girls in the studying room of the selected building and explained the purpose and nature of the study where informed written consent was obtained. Then, each adolescent girl

was interviewed individually where personal background data, pre-post test and breast self examination checklist were completed. The questions were asked in Arabic and the girls' responses were recorded by the researcher. The time taken to complete the tools was about 30 minutes, and the needed time to complete this phase was 5 days.

Implementation Phase

In this phase each adolescent girl received two sessions. The first session for the theoretical content while the second session for the practical content of the program. Related to the theoretical session, the adolescent girls were divided into four groups, each group containing about 35 adolescent girls. Each group was attending one session of the total four sessions until covered the entire sample. During this session the researchers covered knowledge related to external and internal anatomy of the breast; breast cancer definition, risk factors, signs and symptoms and methods of early detection; and BSE's purpose, timing, and frequency.

Power point presentation using data show was used as a visual aid to help in clarifying the knowledge presented in this session. During and after the presentation the researchers encouraged the active participation of the students through asking questions and receiving feedback. This session was carried out in the studying room at the B building that contained the administration office. The researchers carried out two sessions per day for a period of two days and each session took about 90 minutes.

Concerning the practical session, the adolescent girls were divided into ten groups (14 adolescent girls each). Each group attended one session of the total ten sessions until covered the entire sample. This session included demonstration of BSE by the researchers and re-demonstration was done by each girl individually. The researchers carried out only one session per day for one group for a period of ten days. Demonstration on BSE took about 30 minutes, while re-demonstration took about 10 minutes for each girl. After the completion of each session the booklet was distributed to each girl. This booklet contained all the information given during the two sessions as well as it contained photos that clarify the information.

Follow Up and Evaluation Phase

The follow up and evaluation phase took place one month, three months and then five months after the implementation phase, to examine the adolescent girls' knowledge and practice using pre-post test and breast self-examination checklist. Each adolescent girl was followed up individually in her room to keep her privacy and prevent contamination of the result. The pre-post test and breast self examination checklist were filled by the researcher and the scores of each adolescent girl were documented.

STATISTICAL ANALYSIS

Statistical Package for Social Science (SPSS), version 20 was used for the statistical analysis of the data. Collected data were coded and entered into computer. Data {utilized to analyze data pertinent to the study. Arithmetic mean was used to describe the central tendency of observations for some variables, standard deviation as a measure of dispersion of results around the mean, and frequency distribution was used for each variable. Within group comparison of numerical variables was done using paired *t* test. Comparison for categorical variables was don using chi-square test. *p* values less than 0.05 was considered statistically significant.

RESULTS

The findings of the current research will be presented in three main sections: Section I: description of the sample; Section II: knowledge of adolescent girls pre and post the training program; Section III: practice of adolescent girls regarding breast self examination pre and post training program.

Section I: Description of Sample

The adolescent girls' age was ranged between 19-21 years, with a mean of 19.89± 0.9 year. In relation to their academic level, 23.70% were in the first level and 31.90% of them in the forth level **(Table, 1)**.

Regarding practicing BSE pre-program, only 8.10% reported that they practice BSE and none of them did the practice on a regular basis. As regards practicing BSE post-program, 68.90% of adolescent girls practiced BSE. Only 31.20% of them performed BSE regularly **(Table, 2).**

Section II: Knowledge of Adolescent Girls' Pre and Post the Training Program

Regarding knowledge related to structure of breast, 17.80% of adolescent girls have poor level of knowledge pre-program, as compared to 94.8%, 100% and 97.8% one, three and five months post-program respectively of them have high level of knowledge. There was a statistical significant difference between mean knowledge score pre-program and post-program ($p< 0.0001$). Pre-program the mean knowledge score was 5.12 ±2.09 compared to 7.51± 0. 81, 7.82± 0.38 and 7.62± 0.60 one, three and five months post-program respectively.

In relation to level of knowledge regarding breast cancer, 66.70% of adolescent girls have poor level of knowledge pre-program, while 92.60%, 100.00% and 97.80% of them have high level of knowledge one month, three months and five months post-program respectively. There was a statistical significant difference between mean knowledge score related to breast cancer pre-program and all follow up times post-program ($p< 0.0001$). Pre-program the mean knowledge score was 16.86±11.33 this compared to 38.28±3.55, 39.18±2.51 and 38.96±3.01 one, three and five months post-program respectively.

Concerning knowledge regarding breast self examination, pre-program 80.70% of adolescent girls have poor level of knowledge regarding breast self examination, compared to 70.40%, 97.00% and 77.80% of them have high level of knowledge one month, three months and five months post-program respectively. There was a statistical significant difference between mean knowledge score related to breast self examination pre-program and post-program ($p< 0.0001$). Pre-program the mean knowledge score was 3.82±3.23 compared to 11.34± 1.60, 12.60± 1.25 and 11.67± 1.62one, three and five months post-program respectively.

Regarding total knowledge score, 71.90% of adolescent girls have poor level of knowledge pre-program, while 97.00%, 100.00% and 97.80% of them have high level of knowledge one month, three months and five months post-program respectively (Table, 3). It is obvious from (table, 4) that, there was a statistical significant difference between total knowledge score mean pre-program and one month, three months and five moths post program ($p<0.0001$).

Section III: Practice of Adolescent Girls Regarding Breast Self Examination Pre and Post Training Program

In relation to levels of practice regarding inspection of breast, table (5) shows that, 100.00% of adolescent girls

have unsatisfactory level of practice pre-program, this percentage was improved to become 68.90%, 74.10% and 65.90% of them have satisfactory level of practice one month, three months, and five months post program respectively. As well, there was a highly statistically significant difference between the level of practice pre-program and post program ($p< 0.0001$).

As regard levels of practice related to palpation of breast during lying down position, table (6) shows that, 100.00% of adolescent girls have unsatisfactory level of practice pre-program, compared to 77.80%, 86.70% and 88.90% of them have satisfactory level of practice one month, three months and five months post program respectively. It is clear from this table that there was a highly statistically significant difference between levels of practice pre-program and post program ($p< 0.0001$).

In relation to levels of practice regarding palpation of breast in standing up position, table (7) shows that, 100.00% of adolescent girls have unsatisfactory level of practice pre-program, while 45.90%, 68.10% and 63.70% of them have satisfactory level of practice one month, three months and five months post program respectively. As well, there was a highly statistically significant difference between levels of practice pre-program and post program ($p< 0.0001$).

Concerning levels of practice regarding palpation of axillary lymph nodes, table (8) shows that, 100.00% of adolescent girls have unsatisfactory level of practice pre-program, compared to 38.50%, 43.70%, and 52.50% of them have satisfactory level of practice one month, three months, and five months post program post program respectively. As well, there was a highly statistically significant difference between levels of practice pre-program and post program ($p< 0.0001$).

As regards levels of total practice, table (9) shows that, 100.00% of adolescent girls have unsatisfactory level of practice pre-program, compared to 41.50%, 43.70%, and 54.10% of them have satisfactory level of practice one month, three months, and five months post program post program respectively. There was a highly statistically significant difference between levels of total practice score pre-program and one month, three months and five moths post program ($p< 0.0001$).

Table 1: Distribution of Adolescent Girls According to their Personal Data

Items	N	%
Age in Years		
19	62	45.90
20	25	18.50
21	48	35.60
Mean + SD 19.89+ 0.9		
Faculty		
Agriculture	28	20.70
Arts	27	20.00
Education	27	20.00
Science	26	19.30
Specific education	12	8.90
Commerce	7	5.20
Fishiness and aquatic science	4	3.00
Computing and information	3	2.20
Engineering	1	0.7
Academic Level		
First	32	23.70
Second	35	25.90

Table 1: Contd		
Third	25	18.50
Forth	43	31.90
Place of Residence		
Rural	103	76.30
Urban	32	23.70
Family Members		
4-5	36	26.60
6-7	63	46.70
8-9	29	21.50
10-11	7	5.20

Table 2: Distribution of Adolescent Girls According to Background Data Regarding Breast Self Examination

Items	N	%
Previous knowledge about breast self examination (n=135)		
Yes	38	28.10
No	97	71.90
***Source of knowledge (n= 38)**		
Television	16	42.10
Internet	10	26.31
Friends	8	21.05
Mother	7	18.42
Practicing BSE pre program (n=135)		
Yes	11	8.10
No	124	91.90
If yes, how many times in the previous year (n=11)		
One time	2	18.18
Two times	7	63.63
Three times	1	9.09
Twelve times	1	9.09
Regularity in practicing BSE (n=11)		
Yes	00	00
No	11	100
***Reasons for not practicing BSE (n=124)**		
Lack of knowledge about BSE practicing	96	77.41
Not giving importance to health	13	10.48
I have no idea about it (never hear about it)	9	7.25
Fear and anxiety of detecting breast cancer	9	7.25
Forgetting	7	5.64
Lack of time to perform it	6	4.83
Practicing BSE post program (n=135)		
Yes	93	68.90%
No	42	31.10%
If yes, how many times in the previous year (n=93)		
One time		32.20%
Two times		17.20%
Three times		16.10%
Four times		27.90%
Five times		6.40%

*** Numbers are not mutually exclusive**

Table 3: Distribution of Adolescent Girls According to Level of total Knowledge

Levels of Knowledge	Pre-Program (n=135)		One Month Post-Program (n=135)		Three Months Post-Program (n=135)		Five Months Post-Program (n=135)	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%
Poor	97	71.90	0	0	0	0	0	0
Acceptable	22	16.30	4	3.00	0	0	3	2.20
High	16	11.90	131	97.00	135	100.00	132	97.80
Mean ±SD	**25.49 ± 15.05**		**57.19 ± 4.12**		**59.41 ±3.43**		**58.48 ± 3.06**	

Table 4: Paired T-Test Comparing Total Knowledge Scores Pre-Program and Post-Program

Comparison	Difference		Paired t-test	
	Mean	SD	t	P-value
Pre-program & one month post-program	-31.69	14.79	-24.890	0.000
Pre-program & three months post-program	-33.91	15.20	-25.914	0.000
Pre-program & five months post-program	-32.98	14.73	-26.008	0.000

Table 5: Distribution of Adolescent Girls According to Levels of Practice Regarding to Inspection

Levels Of Practice	Pre-Program (n=135)		One Month Post-Program (n=135)		Three Months Post-Program (n=135)		Five Months Post-Program (n=135)		Chi-Square	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%	X^2	P-Value
Unsatisfactory	135	100.00	27	20.00	6	4.40	3	2.20	414.47	0.000
Acceptable	0	0	15	11.10	33	24.40	43	31.90		
Satisfactory	0	0	93	68.90	96	74.10	89	65.90		
Mean ± SD	**0.19 ± 0.76**		**7.60 ±2.42**		**8.51 ±1.89**		**8.10 ±1.81**			

Table 6: Distribution of Adolescent Girls According to Levels of Practice Regarding to Palpation of Breast in Lying Down

Levels of Practice	Pre-Program (n=135)		One Month Post-Program (n=135)		Three Months Post-Program (n=135)		Five Months Post-Program (n=135)		Chi-Square	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%	X^2	P-Value
Unsatisfactory	135	100.00	12	8.90	00	00	00	00	485.78	0.000
Acceptable	0	0	18	13.30	18	13.30	15	11.10		
Satisfactory	0	0	105	77.80	117	86.70	120	88.90		
Mean ± SD	**0.26 ± 1.31**		**18.15 ±5.07**		**20.02 ±2.78**		**20.13 ±2.55**			

Table 7: Distribution of Adolescent Girls According to Levels of Practice Regarding to Palpation of Breast in Standing Position

Levels of Practice	Pre-Program (n=135)		One Month Post-Program (n=135)		Three Months Post-Program (n=135)		Five Months Post-Program (n=135)		Chi-Square	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%	X^2	P-Value
Unsatisfactory	135	100.00	61	45.20	34	25.20	35	25.90	202.24	0.000
Acceptable	0	0	12	8.90	9	6.70	14	10.40		
Satisfactory	0	0	62	45.90	92	68.10	86	63.70		
Mean ± SD	**0.09 ± 0.70**		**10.08 ±8.36**		**13.27±7.66**		**13.46±8.04**			

Table 8: Distribution of Adolescent Girls According to Levels of Practice Regarding Palpation of Axillary Lymph Node

Levels of Practice	Pre-Program (n=135)		One Month Post-Program (n=135)		Three Months Post-Program (n=135)		Five Months Post-Program (n=135)		Chi-Square	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%	X^2	P-Value
Unsatisfactory	135	100.00	77	57.00	73	54.10	61	45.20	108.58	0.000
Acceptable	0	0	6	4.40	3	2.20	3	2.20		
Satisfactory	0	0	52	38.50	59	43.70	71	52.60		
Mean ± SD	**00 ± 00**		**3.87 ±4.62**		**4.39±4.66**		**5.43±4.96**			

Table 9: Distribution of Adolescent Girls According to Levels of Total Practice Regarding Breast Self Examination

Levels of Practice	Pre-Program (n=135)		One Month Post-Program (n=135)		Three Months Post-Program (n=135)		Five Months Post-Program (n=135)		Chi-Square	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%	X^2	P-Value
Unsatisfactory	135	100.00	49	36.30	27	20.00	17	12.60	265.69	0.000
Acceptable	0	0	30	22.20	49	36.30	45	33.30		
Satisfactory	0	0	56	41.50	59	43.70	73	54.10		
Mean ± SD	**0.60 ± 2.49**		**39.36 ±15.21**		**43.98 ±13.46**		**46.45 ±13.27**			

DISCUSSIONS

The research hypotheses of this study were accepted as the mean knowledge scores were increased post training program, as well as adolescent girls demonstrated a satisfactory level of breast self exam practice post training program than pre training program. Findings of the current research are discussed within the following frame of references: Section I: knowledge of adolescent girls pre and post the training program; Section II: practice of adolescent girls regarding breast self examination pre and post the training program.

Section I: Knowledge of Adolescent Girls Pre and Post Training Program

The results of the present research revealed that less than one-third of adolescent girls reported that they have previous knowledge about BSE. This finding is alarming as it represent inadequate health literacy regarding this important health issue and postulate the need for health teaching programs that increase community health literacy. In agreement with the result of our study, Varghese and Nayak, (2011) reported that one third of participants (35%) had previous knowledge about BSE. In contrast to the result of the present study Suh, Atashili, Fuh, and Eta, (2012) in their study about breast self-examination and breast cancer awareness in women in developing countries: a survey of women in Buea, Cameroon reported that about three quarters (74.17%) of the study participants had previous knowledge about BSE.

Regarding to the source of knowledge, more than two-fifth of adolescent girls received their knowledge from television, more than one quarter from internet, one-fifth from their friends while low percentage mentioned that the mother were the main source of knowledge. On the other hand, Anakwenze, Coronado-Interis, Aung, and Jolly, (2015) carried out a study to assess the effect of theory-based intervention to improve breast cancer awareness and screening in Jamaica and they reported that most participants (93 %) reported that doctors and nurses were the source of their breast cancer screening knowledge, with media being the second most predominant source (59.8 %). Moreover, Motilewa, Ekanem and Ihesie, (2015), carried out a study aimed at determining the level of knowledge and attitude of breast cancer

and practice of BSE among female undergraduate students in Uyo, Akwa Ibom State, Nigeria. They reported that health workers were the most important source of information on BSE (28.1%) followed by media (Radio/TV) 22% while only 5.8% of them got their information from the family members.

The statistical findings of the current research revealed that, pre-program a small percentage of adolescent girls had high level of knowledge scores especially related to breast cancer and breast self examination. As well, there was a highly statistically significant difference between total mean knowledge score pre-program and post-program ($p< 0.0001$). This may be attributed to the content of the program and the attached booklet which covered all identified needs and knowledge gaps among the adolescent girls.

In the present research the low level of knowledge among adolescent girls before receiving the training program highlight the absence of the healthcare provider role as educator and the deficiency in health teaching programs that raise community awareness. In fact, the students reported that the television and internet were the main source of information, followed by friends and mothers, and none of them mentioned physician or nurses as their sources of information about these issues. The finding is alarming and necessitates urgent corrective actions.

In consistent with the current research, Lee, (2014), conducted a study to assess the impact of breast cancer educational workshop on knowledge and breast self-examination practice among Korean-American women who reported that, the comparison between the pre-test and the post-test knowledge of breast-cancer risk and recommendations for screenings (mammogram and BSE) showed a significant increase (p value<0.001).

In the same line, Moussa and Shalaby (2014) reported that, the participants knowledge of breast cancer and breast self examination throughout the educational program indicates improvement of the students' knowledge in all items and in total score. These improvements were statistically significant ($p<0.001$). The percentage of satisfactory knowledge continued to improve at the 3-month follow up test, although, the total score of knowledge has slightly declined at 3- month follow-up. Nonetheless, it was a statistically significant higher compared to the pre- educational program level, ($p<0.001$)

These findings are supported by the study of Moustafa, Abd-Allah, and Taha (2015) who concluded that, a very low percentage of satisfactory knowledge was observed in areas related to breast cancer and breast self examination. After implementation of the study intervention, statistically significant improvements were revealed in all areas of knowledge. Overall, only one student (0.6%) had satisfactory total knowledge at the pretest compared to 93.9% at the posttest ($p<0.001$).

Section II: Practice of Adolescent Girls Regarding Breast Self Examination Pre and Post the Training Program

In relation to performance of BSE before conducting the training program, less than one tenth of adolescent girls reported that they perform BSE and the rest of them never perform it before. This lower percentage may be explained by lack of knowledge about BSE, and also may be related to negative personal and family history of breast cancer, which was an exclusion criterion in this study. This is a logic explanation because positive history to any disease encourages the person to seek information about the disease and therefore using available early detection methods. In the same line, Lee, (2014) conducted a study to assess the impact of breast cancer educational workshop on knowledge and breast self-examination practice among Korean-American women reported a very close percentage in that only 6% of the

participants practicing the recommended monthly BSE.

Contradicting our results, Motilewa, Ekanem and Ihesie, (2015), in their study found that about two thirds (64%) said they practiced BSE but only 9% carried it out monthly. As well Ndikubwimana, Nyandwi, Mukanyangezi, and Kadima, (2016) reported a higher percentage in which more than one quarter (26%) of interviewed girls performed BSE for breast cancer purpose, and of those who agreed doing BSE, only 4% knew the real timeframe of doing it.

The current research revealed that there was a statistical significant difference between levels of total practice score pre-program and one month, three months and five moths post program. Pre-program all adolescent girls had unsatisfactory level of practice this percentage was changed to become 41.50%, 43.70%, and 54.10% of them have satisfactory level of practice one month, three months, and five months post-program respectively.

The post-program results showed progress in overall performance that indicates the effectiveness of the current training program as it provides opportunity of face-to-face education and create interactive teaching situation that significantly increases BSE awareness and improve the practice. As a consequence, access to information provided by healthcare professionals such as the hostel nurse, who are in close personal contact with female students, is essential for breast health.

In congruence with the current study Moussa and Shalaby (2014) carried out a study aimed to investigate the effect of an educational program about BSE on nursing students' knowledge, attitude and practice and they reported that, after the program a significant improvement was observed in the students' practice in relation to methods and techniques and total practice score. The differences between pre/post programs were statistically highly significant ($p<0.001$). These findings agreed with those of Moustafa, Abd-Allah, and Taha, (2015) in their study reported that, there was a statistically significant improvement in student's practice of BSE after the intervention ($p<0.001$). As only one student (0.6%) had adequate total practice at the pretest compared to 93.9% at the posttest.

CONCLUSIONS

In conclusion, before receiving the training program the majority of adolescent girls have poor level of knowledge and unsatisfactory level of practice. After receiving the training program the level of knowledge and practice were improved suggesting the positive effect of the program and the need of such program to establish healthy life style.

BASED ON THE FINDINGS OF THIS STUDY, THE FOLLOWING ARE RECOMMENDED

- Adolescent girls should be equipped with health information related to BSE
- An emphasis should be done regarding to adolescent girls' healthy behavior pattern concerning BSE
- Encourage the Hostile nurse who is knowledge equipped to take an active role in conducting health education program suitable for such vulnerable age group about BSE
- Further studies are necessary to explore factors affecting compliance to breast self examination practice
- Replication of the study on large sample and other sitting is necessary

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