

Training Program for Girls with Hearing Disability about Breast Self-Examination in Assiut City

Shaimaa M. Goda*, Shaimaa Elwardany Aly**, Aya M. Abd El Hafez***, Shaimaa A. Khalaf**

*Lecturer of Community Health Nursing, Faculty of Nursing, Assiut University, Egypt

**Assistant Professor of Community Health Nursing, Faculty of Nursing, Assiut University, Egypt

***Lecturer of Obstetrics and Gynecological Nursing, Faculty of Nursing, Assiut University, Egypt

** Corresponding author: Shaimaa Elwardany Aly, dr.shaimaa@aun.edu.eg

Abstract:

Background: Girls with hearing disability continue to undervalue the practice of breast self-examination, despite Egypt's ever-expanding programs to raise breast cancer awareness. **Aim:** To evaluate the effectiveness of the training program for girls with hearing disability about breast self-examination in Assiut City. **Research Design:** Quantitative research pre/post one group intervention design was applied. **Setting:** Al-aml school for dumb and deaf girls in Assiut City. **Subjects:** A convenient sample was used to include 153 adolescent girls with hearing disability. **Data collection tools:** Two tools were utilized: **Tool one:** Designed interview questionnaire comprised from three parts: **Part (1):** Personal data, **part (2):** Girls' family history of breast cancer and data about breast self-examination and **part (3):** Questions to assess knowledge of girls regarding breast cancer and breast self-examination. **Tool II:** Breast self-examination observational checklist. **Results:** It noticed from the current results that 46% of girls aged less than 18 years, 90.8% from rural area, 71.9% weren't know about breast self-examination. The girls' mean of knowledge and practices regarding breast self-examination was in pre-program 12.28 and 2.26 while it enhanced to be 36.03 and 9.67 with significant improvement after the program application. **Conclusion:** The training program improved knowledge and practices of breast self-examination among girls with hearing disability. **Recommendations:** Continuous training program about breast self-examination for girls with special need to increase their awareness regarding early detection of breast cancer.

Keywords: Breast Self -Examination, Girls with hearing disability, Training Program.

Introduction:

Breast cancer (BC) is a serious condition that affects both industrialized and developing nations. It is the most common type of cancer in women and as people age; their risk increases (Francies et al., 2020 and International Agency for Research on Cancer, 2021). Lung, colorectal and female breast cancers are the top three cancer types in terms of incidence; in terms of mortality, they rank in the top five (first, second and fifth, respectively) (ALabdouli & Abd El-Kader, 2021). Combined, these three cancer forms account for one-third of cancer-related deaths and incidence globally (Ahmad et al., 2022).

Control and prevention of breast cancer are critical health issues in women's health which may present with no symptoms at all and its primary cause is still unclear (Alomair et al.,

2020). Early maturation, age of first pregnancy, obesity and positive family history are significant risk factors (and Elagib et al., 2021).

World Health Organization (WHO) states that early detection of breast cancer is the greatest strategy for controlling the disease (Kissal & Kartal, 2019). The most crucial step in detecting breast cancer in its early stages is for the female to examine herself; as a result, women who routinely engage in BSE programs find more than 85% of all breast masses (Nazari et al., 2022).

Breast Self-Examination (BSE) is widely considered as the gold standard for early diagnosis and screening for BC (O'Donovan et al., 2020 and Ahmad et al., 2022). Although it can be a valuable addition to clinical breast exams and mammograms, which are equally

essential components of a woman's usual healthcare schedule, it does not replace them (Sadoh et al., 2021).

Health education is one of the most crucial pillars in the control and prevention of BC and the adolescent stage is the best time to undertake educational programs to acquire beneficial health behaviors. Teenage girls are at a developmental stage where they may be beginning to grow breast tissue and are starting to become more self-aware (Mohamed et al., 2023).

Researches on BSE can help adolescent girls understanding the value of breast health and form healthy habits around self-examination by offering age-appropriate materials and instruction (Alotaibi et al., 2022). By implementing an educational program, BC stigma and fear are lessened and female awareness is raised (Maitanmi et al., 2023). The urgent need to extent knowledge about BC and BSE in schools and colleges has been brought to light by recent studies, particularly in nations with low resources (Almeshari et al., 2023 and Mohamed et al., 2023).

Promoting, maintaining and restoring the health of girls with special needs are one of the most important responsibilities of nurses (Ibrahim, et al., 2019). To this end, nursing interventions increase knowledge, early detection of BC and disease progression prevention (ApatiĆ & LovriĆ, 2023). Additionally, nurses are valuable information source within their social networks by using community outreach program that are appropriate for the local culture (Abd-Elhaleim et al., 2021). A girl with a hearing disabilities who learns about BSE is more likely to use it frequently because she feels more confident and understanding (Elsawy et al., 2023).

Significance of study:

According to WHO report on disability, more than one billion people worldwide 15% have a handicap of some type and between 2 and 4% of them struggle significantly to function (Khalaf et al., 2023). Inadequate BSE practices among female students in secondary schools and colleges have been documented by earlier researches conducted in number of

Arabic nations, including Jordan and Iraq (Salim et al., 2021).

For a variety of reasons, including Egypt's cultural and religious beliefs, girls in developing nations avoid practicing BSE. They may even be reluctant or uncomfortable touching or feeling their own breasts for medical reasons, as a result, educational program may be more acceptable to receive information and practicing BSE and girl can be psychologically and physically healthier (Nazari et al., 2022).

Clinical breast examination and mammography need a trip to the hospital and access to high-priced equipment and trained professionals, while BSE only requires a few common household items and may be performed by the girl herself (Abd Elgaffar & Atia, 2015). In addition, it's one of the simple, low-cost screening techniques for BC early detection and increases the likelihood of effective therapy (Gupta et al., 2023).

Girls with hearing disability not receiving proper guidance to complete BSE in school and is a neglected public health, social and educational issue that has to be prioritized, coordinated and funded (Abd-Elhaleim et al., 2021). Many Presidential Initiatives have been implemented in recent years to promote early BC detection; as a result of the marginalization and neglect of girls with special needs, the current study was conducted.

Aim of the study:

To evaluate the effectiveness of a training program for girls with hearing disability about breast self-examination in Assiut City.

Research hypothesis:

Alternative hypothesis:

The training program will improve knowledge and practices of girls with hearing disability about breast self-examination in Assiut City.

Subjects and Method:

-Research design:

Quantitative research methods was chosen for this work by applying pre/post one

group intervention design for establishing the cause-and-effect relation between an independent and dependent variable to fulfill the study's aim.

-Setting:

The special school for girls with hearing disabilities (Al-aml school) in Assiut City was the selected setting for the current study, this school didn't accepted any other types of disability rather than dumbness and deafness, it is the only secondary school that serves adolescent girls with hearing disability in Assiut Governorate. The school offers educational opportunities to adolescent girls with hearing disability, as well as mates in government and private schools. It also provides knowledge and experiences to assist these girls to deal with the outside world in a healthy and safe manner. In addition to that the school is organized to fulfill the needs of the girls with hearing disability by providing different services for them as educational, physical, psychological, psychosocial, dormitory and recreational.

-Sample and sample size calculation:

-Sample:

A convenient sample was used to include 153 adolescent girls with hearing disability in the present study.

-Subjects:

The study population was comprised of adolescent girls suffering from hearing disabilities in Assiut City. According to Department of special education, Assiut Governorate Directorate of Education, 2023 the total number of adolescent girls with deafness and dumbness in (Al-aml school) at Assiut City was 168 girls. In order to determining the sample size for the current study; total coverage of all girls was done due to their small number. However, fifteen girls (15) refused to share in the study. So, the research was completed with 153 girls their ages ranged between 14 to 18 years old.

-Data collection tools:

-Two tools were used in this study:

Tool one: Structured interview three parts made up questionnaire as following:

Part (1): Personal data: Age, residence, parent's education and occupation.

Part (2): Questions regarding girls' family history of BC and data about BSE: Family history of BC, knowing & practicing of BSE and sources of information.

Part (3): Questions to assess knowledge of girls regarding BC and BSE: It included (24) questions; (7) about BC involved: Definition of BC, differentiation between benign and malignant cancer, risk factors, signs and symptoms, diagnosis, prevention and treatment. As well as (17) questions about BSE such as: Definition of BSE, aim, timing, methods, technique, positions, changes to be observed during examination.....etc. (Almeldien et al., 2019).

Scoring of knowledge:

The obtained knowledge was measured by calculating mean in which higher mean indicated that girls with hearing disability had good knowledge, while low mean referred to the presence of poor knowledge regarding breast cancer and BSE (Kissal & Kartal, 2019 and Mohamed et al., 2023).

Tools II: BSE observational checklist:

BSE performance checklist; intended to cover BSE procedures like: Proper lighting, hand washing, donning gloves, examining breasts (facing a mirror, lining up and placing hand on the west); palpating the breasts both while standing and while lying down; feeling auxiliary lymph nodes; and pressing each breast's nipple to check for any unusual discharge (Sakr et al., 2019 and Almeldien et al., 2019).

Scoring of practice:

To calculate the difference in practices pre and post the program application; mean was measured as higher mean indicated that girls with hearing disability had satisfactory practice, while low mean indicated unsatisfactory practice of BSE (Sakr et al., 2019 and Mohamed et al., 2023).

Methods:

The current research proceeded as following:

-Approval:

An official approval letter obtained from Dean of Faculty of Nursing, Assiut University to special education directorate in Assiut City. Permission to conduct the study and a description of its purpose and nature were given in this letter. Then the agreement for participation in the study was taken from director of El-aml school for dumb and deaf girls.

Ethical considerations:

Ethical approval obtained from the faculty of nursing Assiut University scientific research ethical committee. Before data collection, the girls informed about the aim and the nature of the study. Also, they are assured that the information will remain confidential and will be used for purpose of research only. The participants informed that participating in the study is voluntary; they have the right to withdraw from the study at any time.

-Tool's development:**• Tool validity:**

The converted Arabic tools were verified and appraised by three Community Health Nursing professors, Faculty of Nursing, Assiut University who look over for implication, completeness and applicability. Changes of the questionnaire were completed according to the modifications required.

• Reliability:

The value of Cronbach's alpha reliability test for knowledge was 0.746 and for practice was 0.806.

-Pilot study:

A pilot study was carried out to evaluate the tools' clarity and applicability on seventeen females, or 10% of the sample. Since the research tools were not modified, pilot study was included in the study sample.

-The training program

The researchers developed this program after examining the recent national and international literature, program phases:

A) Assessment phase: Before starting of the program, the researchers used the study tools (I and II) to assess girls' knowledge and practices regarding BC and BSE. They also asked for their consent to participate, explaining the nature and goal of the study through the sign translator.

B) Planning phase: This included setting up the program, including the location, time, sessions, methods and materials for instruction as well as communicating with the designated sign translator.

• Sign translation: The researchers asked the school director to endorse a sign translator to be available with them through all phases of data collection then the researchers met with her to arrange for the study work.

• Teaching place: The program was held in the school restaurant at Al-aml School for Dumb and Deaf Girls, or in any location that was available as the school library.

• Teaching time: The time of the program was coordinated between sign translator, director of school and the researchers.

• Sessions: The program's contents were provided through three sessions.

• Teaching methods and materials: Lecture, discussion, demonstration and re-demonstration were used by the researchers. At the conclusion of the program, each girl took a handout developed by the researchers that featured pictures illustrated BSE steps.

C) Implementation phase: Based on the findings of the assessment phase which indicated knowledge deficit and improper practices regarding BSE; the training program was applied for studied girls (no=153).

-The first session: In order to improve knowledge and practices of girl with hearing disability regarding BC and BSE; the researchers stressed on the importance of practicing BSE regularly at the start of the sessions. Then the researchers performed pretest using all the study tools. After that the girls received basic knowledge about BC which involved: Definition, differentiation between benign and malignant cancer, risk factors, signs and symptoms, diagnosis, prevention and treatment.

-The second session: This session began with revision of the previously given information then knowledge about BSE was given such as: Definition, aim, timing, methods, technique, positions, changes to be observed during examination and after that the researchers summarized the provided knowledge.

-The third session: This session opened with revision of the previously provided knowledge; meanwhile the researchers started the application of BSE technique and fill the post-test questionnaire at the end of the program.

D) Evaluation phase: The effectiveness of the program with regard to knowledge and practices of BC and BSE by using doll and the girls performed the technique of BSE on themselves which evaluated by post-program questionnaire that was conducted immediately following the implementation of the program. The pretest questionnaire (Tool (I) part 3, Tool (II)) was utilized for this purpose.

-Field work:

At the beginning, the researchers introduced their-selves to the girls with explanation of the study purpose through the sign translator; the researchers identified the girls who accepted to participate in the study and gain their informed consent. Meanwhile, explained the phases of the training program.

The sign translator aid the researchers to collect data from the girls by using pre-test tools to assess their knowledge about BC and BSE and their practices using observational checklist. Based on the assessment phase; the researchers started the planning stage for organization of the program conduction. Subsequently the researchers implemented the program through three sessions and during girls' examination the researchers refereed the detected cases with abnormalities to Oncology Clinic at Assiut Main University Hospital for further diagnosis. At the end of the program the acquired knowledge and practices were evaluated through posttest using the pretest tools.

Data collection started from the mid of September 2023 to the end of January 2024. The researchers collected data in the school's restaurant or at the available place. The researchers collected the data two days/week from 9 Am to12 Pm during this time 4-5 girls/day were interviewed. Each group took about 30-45 minutes

for filling in the questionnaire and 90-120 minutes for completion of the training program sessions.

-Statistical analysis:

Data entry and analysis were done using SPSS (Statistical Package for Social Science) version 22. Data were presented as frequency, percentage, mean and standard deviation. An independent sample t-test was used to compare quantitative variables between two groups and ANOVA test was used for more than two groups. Paired samples t-test was done to compare quantitative data between pre-test and post-test. Pearson correlation was done to measure correlation between quantitative variables. P-value considered statistically significant when $P < 0.05$.

Results:

Table (1): Clarifies that 53.6% of girls with hearing disabilities aged less than 18 years, 90.8% from rural area and 30.7% of their mothers were illiterate while 37.9% of their fathers had secondary level of education. Also the table shows that 70.6% of girls' mothers were housewives and 57.5% of their fathers worked free business.

Tables (2): Reports that all of the girls hadn't family history of BC, 71.9% of them weren't know about BSE, as well as 30.2% mentioned internet as the most common source of information regarding BSE and 27.9% from mass media source.

Figure (1): Presents that there was improvement of girls' mean knowledge regarding BSE in pre and post the program application with P value= 0.000.

Figure (2): Denotes that there was improvement of the girls' mean practices of BSE in pre and post the program application with P value= 0.000.

Figure (3): Proves the presence of positive correlation $r=0.185$ between mean score of knowledge and practices about BSE among girls with hearing disabilities pre the program application with statistically significant difference P value= 0.000

Figure (4): Shows that there was positive correlation $r=0.185$ between mean score of knowledge and practices about BSE among girls with hearing disabilities post the program application with statistically significant difference P value= 0.022.

Tables (3): Signifies that there were statistical significant differences between girls' mean score of knowledge and their personal characteristics related to parents' education and occupation p-value 0.000. On the other hand there weren't relation with their age and history of knowing about BSE.

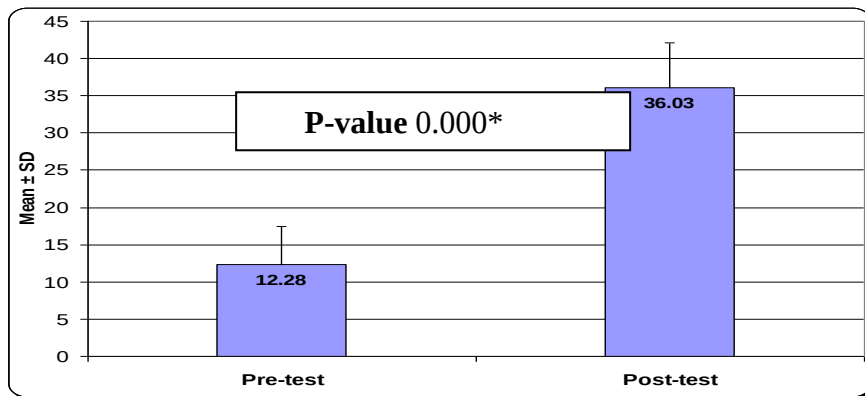
Tables (4): Illustrates that there were statistical significant differences between girls' practices with their age, parents' education before the program application p-values 0.001, 0.000 & 0.016 respectively. While after the program application the mother education had relation with girls' mean practices BSE p-value 0.011.

Table (1): Personal data of girls with hearing disability in Assiut City

Personal data	No. (153)
Age: (years)	
< 18	82 (53.6%)
≥ 18	71 (46.4%)
Residence:	
Rural	139 (90.8%)
Urban	14 (9.2%)
Mother education:	
Illiterate	47 (30.7%)
Read & write	26 (17.0%)
Basic education	33 (21.6%)
Secondary	42 (27.5%)
University	5 (3.3%)
Father education:	
Illiterate	28 (18.3%)
Read & write	25 (16.3%)
Basic education	28 (18.3%)
Secondary	58 (37.9%)
University	14 (9.2%)
Father occupation:	
Employee	38 (24.8%)
Free business	88 (57.5%)
Skilled worker	23 (15.0%)
Retired	4 (2.6%)
Mother occupation:	
Working	45 (29.4%)
Housewife	108 (70.6%)

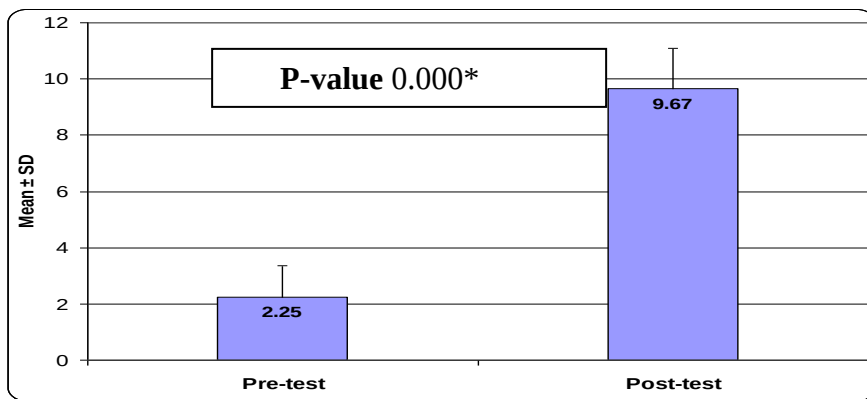
Table (2): Distribution of girls' family history of BC and data about BSE in Assiut city

Items	No. (153)
Family history of breast cancer	
No	153 (100.0%)
Known about breast self-examination:	
Yes	43 (28.1%)
No	110 (71.9%)
Previous practicing breast self-examination:	
No	153 (100.0%)
Breast self -examination sources of information:	
Health team	2 (4.7%)
School	9 (20.9%)
Mother	3 (7.0%)
Mass media	12 (27.9%)
Internet	13 (30.2%)
Neighbors/ friends	4 (9.3%)



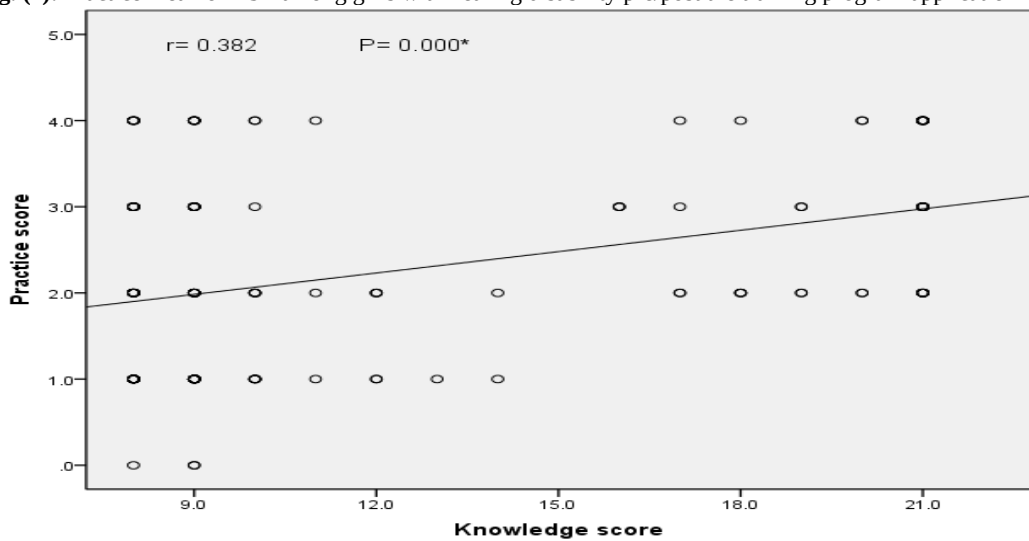
Paired samples t-test

Fig. (1): Knowledge mean of BC and BSE among girls with hearing disability pre/post the training program application



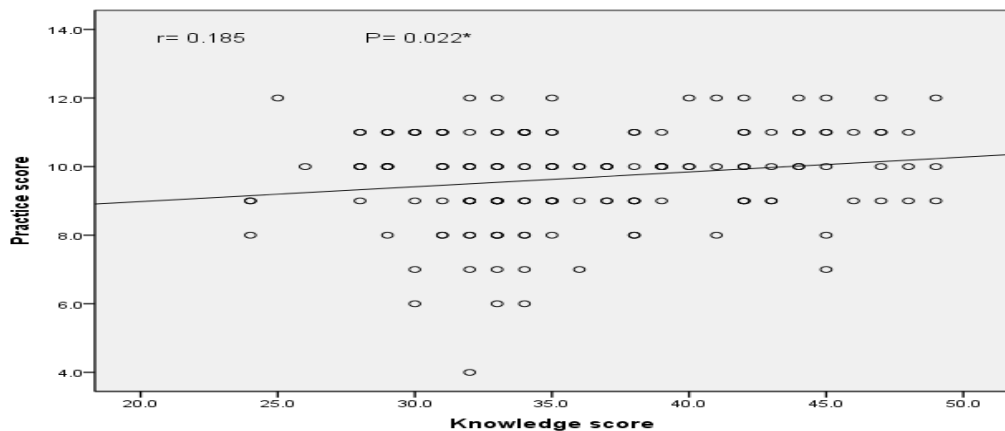
Paired samples t-test

Fig. (2): Practice mean of BSE among girls with hearing disability pre/post the training program application



Pearson correlation

Fig. (3): Correlation between knowledge and practices' score before the training program application



Pearson correlation

Fig. (4): Correlation between knowledge and practices' score after the training program application

Table (3): Relation between knowledge mean regarding BC and BSE with girls' personal data before/ after the training program

Personal data	Mean of knowledge	
	Before the program	After the program
	Mean $\pm$ SD	Mean $\pm$ SD
Age (years):		
< 18	12.07 $\pm$ 5.08	35.89 $\pm$ 5.37
≥ 18	12.52 $\pm$ 5.26	36.18 $\pm$ 6.76
P-value	0.593	0.766
Mother education:		
Illiterate	8.96 $\pm$ 0.93	32.30 $\pm$ 3.68
Read & write	9.08 $\pm$ 1.65	33.27 $\pm$ 3.28
Basic education	9.00 $\pm$ 1.17	32.73 $\pm$ 2.90
Secondary	19.62 $\pm$ 1.94	43.64 $\pm$ 3.32
University	20.20 $\pm$ 1.30	43.20 $\pm$ 2.49
P-value	0.000*	0.000*
Father education:		
Illiterate	9.00 $\pm$ 1.05	32.25 $\pm$ 3.70
Read & write	9.60 $\pm$ 2.71	33.60 $\pm$ 4.08
Basic education	10.43 $\pm$ 3.97	34.64 $\pm$ 4.82
Secondary	14.19 $\pm$ 5.56	37.62 $\pm$ 6.41
University	19.43 $\pm$ 3.23	44.07 $\pm$ 3.36
P-value	0.000*	0.000*
Father occupation:		
Employee	14.97 $\pm$ 5.57	39.39 $\pm$ 6.09
Free business	11.61 $\pm$ 4.79	35.15 $\pm$ 5.71
Skilled worker	10.57 $\pm$ 4.24	34.30 $\pm$ 5.04
Retired	11.25 $\pm$ 5.85	33.25 $\pm$ 7.68
P-value	0.002*	0.001*
Mother occupation:		
Working	16.24 $\pm$ 5.22	40.44 $\pm$ 5.93
Not working	10.63 $\pm$ 4.13	34.19 $\pm$ 5.07
P-value	0.000*	0.000*
Knowing about breast self-examination:		
Yes	11.84 $\pm$ 5.13	34.98 $\pm$ 5.50
No	12.45 $\pm$ 5.17	36.44 $\pm$ 6.21
P-value	0.507	0.180

Independent samples t-test

ANOVA test

Table (4): Relation between practices' mean regarding BC and BSE with girls' personal data before/ after the training program

Personal data	Mean of practices	
	Before the program	After the program
	Mean $\pm$ SD	Mean $\pm$ SD
Age (years):		
< 18	2.54 $\pm$ 1.17	9.84 $\pm$ 1.22
$\geq$ 18	1.93 $\pm$ 0.96	9.48 $\pm$ 1.58
P-value	0.001*	0.113
Mother education:		
Illiterate	2.09 $\pm$ 1.14	9.55 $\pm$ 1.35
Read & write	2.00 $\pm$ 1.17	9.38 $\pm$ 1.68
Basic education	1.79 $\pm$ 1.02	9.27 $\pm$ 1.35
Secondary	2.95 $\pm$ 0.85	10.31 $\pm$ 1.20
University	2.40 $\pm$ 0.55	9.60 $\pm$ 1.14
P-value	0.000*	0.011*
Father education:		
Illiterate	2.11 $\pm$ 1.10	9.54 $\pm$ 1.45
Read & write	2.12 $\pm$ 1.20	9.36 $\pm$ 0.81
Basic education	1.75 $\pm$ 0.97	9.68 $\pm$ 1.49
Secondary	2.53 $\pm$ 1.06	9.81 $\pm$ 1.50
University	2.64 $\pm$ 1.15	9.93 $\pm$ 1.64
P-value	0.016*	0.648
Knowing about breast self-examination:		
Yes	2.44 $\pm$ 1.33	9.49 $\pm$ 1.50
No	2.18 $\pm$ 1.02	9.75 $\pm$ 1.37
P-value	0.196	0.312

Independent samples t-test

ANOVA test

Discussion:

Breast cancer is the most prevalent cancer globally; the most often diagnosed cancer in women and the primary cause of cancer-related mortality. BSE is the most effective early detection procedures along with radiographic mammography and clinical breast examination.

The current research aimed to evaluate the effectiveness of the training program for girls with hearing disability about BSE in Assiut City.

The study was carried out on a sample of adolescent girls having hearing disability. It was found that more than two-fifths of them aged more than 18 years old. This age group considered as high risk for developing BC beside there hasn't enough information about BSE.

In referral to residence; it was observed that the majority of girls from rural area. This was related to that this school is the only special school serving this age group. This result was

opposed with **Mohamed et al., (2023)** who evaluated the effect of structured visual educational sessions on knowledge and practices regarding BSE among adolescents' girls with hearing and speech challenges and found that nearly two-thirds were from urban areas.

According to mother education; the current study revealed that less than one-third of them were illiterate. It is well known that parents' education is an important factor in transferring related sound health information to their siblings and this have a great impact on health promotion and disease prevention.

From the current findings; It was recorded that more than two-thirds of the studied girls weren't know about BSE and all of them didn't perform the practice previously. This can be explained by that people with disability had many obstacles and barriers to reach health information such as education and rural residence beside that many of the health camping's almost are targeting normal people. This result was in agreement with **Akgun and Calm, (2022)** who carried out an interventional

study about BSE for deaf women and reported that more than two-fifths of them didn't know about BSE.

The proposed results found that more than one-quarter of girls knew about BSE from internet and whereas few of them had received BSE information from friends and health team. This may be because that the majority of them were reside in rural area with little access to health information sources unless internet access. These results not aligned with **Elsawy et al., (2023)** who studied the effect of utilizing health belief model on knowledge, beliefs and behavior of visually impaired women toward BSE and recorded that more than two-fifths of the studied group their source of information regarding BSE was from the health team.

According to the effect of the training program; the present findings observed that knowledge mean was low before the program and improved after the implementation with the presence of statistical significance relation $p\text{-value} = 0.000$, this result supported the achievement of the study hypothesis.

This finding was in agreement with researches was carried out to assess the effect of intervention programs on knowledge and practices of females with different types of disabilities regarding BSE as **Mohamed et al., (2013)** who conducted a study in Qena Governorate about the evaluation of BC knowledge and BSE practices among adolescent blind girls, also **Sakr et al., (2019)** who assessed BSE compliance among visually impaired adolescent girls. As well as, the same result was reported by **Elsawy et al., (2023)** and **Mohamed et al., (2023)**.

Likewise, these findings were in accordance with **Padmaja et al., (2020)** done a study in Chittoor Dist Andhra Pradesh to evaluate the effectiveness of awareness program with health education on BC and skill training on BSE among rural women, also agreed with **Ram, (2020)** who carried out a study in India regarding the impact of an educational program on knowledge on BC and practice of BSE among women, the same results was founded by **Abd-Elaziz et al., (2021)** who assessed the effect of BSE program on women's awareness for early detection and **Gupta et al., (2023)**

who performed a quasi-experimental study to assess the effectiveness of structural teaching program on knowledge and practice regarding BSE among female students. These studies confirmed on the importance of educational programs applications for improvement of knowledge and practices.

On the opposite side; the present result was incongruent with **Abo Al-Shiekh et al., (2021)** who conducted study in Gaza about BC knowledge and practice of BSE among female university students, **Elshami et al., (2022)**, who performed a national cross-sectional study in Palestine regarding women's awareness of BC symptoms and recorded that information concerning breast cancer and BSE was adequate.

The present study revealed that there was improvement of practice BSE among the studied girls after the program application with the presence of statistical significance effect $p\text{-value} = 0.000$; this related to the influence of knowledge on practice, as increasing of knowledge is associated with better self-confidence, which in turn leads to practice with greater accuracy.

This result supported by **Koçak et al., (2019)** who evaluated the effectiveness of BSE training for women with impaired hearing and **Albeshan et al., (2020)**; who carried out a study entitled "Can BSE and clinical breast examination along with increasing breast awareness facilitate earlier detection of breast cancer in populations with advanced stages at diagnosis" and found that all women could apply their BSE skills after the training they provided to deaf women using sign language.

The same observation reported by **Alcan et al., (2021)** who evaluated the effects of BSE training on health beliefs and practices among relatives of nursing students, reported that improved that post practice test regarding BSE.

The current study revealed that there was positive correlation between mean of knowledge and practice after the program application. This was agreed with **Venkatesan et al., (2020)** who conducted a study about "effectiveness of audio drama and touch and feel technique on BSE upon knowledge and practice among visually challenged girls" and

Mohamed et al., (2023) who reported that there were statistical significant changes between the blind adolescent girls' knowledge and practices.

Also the result consisted with **Almeldien et al., (2019)** who conducted study in Assiut to assessed the impact of a training program on improving knowledge and practices of rural community health workers regarding BC and BSE and found that there were statistical significant relation between total score of knowledge and practices before and post program application. On the same line with **Abd-Elaziz et al., (2021)** who concluded that there was positive correlation between knowledge and practices scores.

The current study highlighted that there was statistical significant effect before and after the program application regarding studied girls' knowledge in relation to parents' education and occupation p-values= 0.000, 0.000, 0.002,0.001 respectively. These result agreed with **Palmer et al., (2017)** who done a randomized study about "Bilingual approach to online cancer genetics education for Deaf American Sign Language users produces greater knowledge and confidence than English text only".

The current study found that there wasn't relation between girls' knowledge and their history of knowing about BSE; this observation agreed with **Sakr et al., (2019)** who observed that there wasn't statistical significant difference between knowledge of the deaf adolescent and hearing about BSE before.

The proposed results confirmed that there was significance effect of age and parents' education before the program application; this finding was in accordance with **Mahmoud et al., (2020)** who performed study in Benha University Hospital to evaluate the effect of the health belief model-based education on BC preventive behaviors and showed that there was statistical significant association between women's total practice scores and their age and educational level, pre the program implementation.

While, this result wasn't in the same line with **Almeldien et al., (2019)** who observed that there wasn't statistical significance relation with participants' age and performance of BSE in pre-test p-value= 0.940.

The current study showed that there wasn't relation between girls' age and their practices after the program application. This result was matching with **Nisha and Murali, (2020)** who evaluated the effect of health education on raising women's awareness of BSE and BC and recorded no statistically significant relation with age p-value= 0.243 after the program implementation.

Conclusion:

The current findings support the study hypothesis that the training program improved knowledge and practices of girls with hearing disability about breast self-examination in Assiut City.

Recommendations:

1. Continuous training program about BSE for girls with special need to increase their awareness regarding early detection of BC.
2. Sign language educational materials illustrating steps of BSE should be available in schools for girls with hearing disability.
3. Integrating BSE into special needs for adolescent -girls with hearing and speech challenges in their curriculum objectives.
4. More extensive studies including a varied range of participants in various special needs schools are necessary to validate the effectiveness of the training program in enhancing the understanding and application of BSE.

The study obstacles:

The data collection from the deaf and dumb girls was requiring intermitting sign translator resulting in taken a lot of time to conduct the program. During the practice session it was struggle to make the girls to feel comfortable while performing the technique of BSE to overcome this problem; the researcher performed the technique first on doll and on their own bodies to encourage the girls to do the BSE.

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