

Effect of Structured Visual Educational Sessions on Knowledge and Practices Regarding Breast-Self Examination among Adolescents Girls with Hearing and Speech Challenges

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Abstract

Background: Hearing impairment has been a major disability challenge globally and is considered a threat to quality education. Adolescent school girls with hearing and speech challenges are a group of disabled girls who needs special care specifically during breast self-examination (BSE). **Aim of the study:** To determine the effect of structured visual educational sessions on knowledge and practices regarding breast self-examination among adolescent girls with hearing and speech challenges. **The research design:** Quasi-experimental design (pre and post-test) was utilized. **Setting:** It was conducted at a deaf and hearing impairment school, El-Hewatey, Sohag Governorate, Egypt. **Sample:** A purposive sampling technique of 39 adolescent girls with hearing and speech challenges. **Tools of data collection:** Five data collection tools were used: **I:** Structured interviewing questionnaire **II:** The structured interview questionnaire concerned with assessing knowledge of the studied subjects regarding BSE, **III:** Barriers to practice BSE, **IV:** BSE observational checklist (self-reported practices) & **V:** Rating scale on level of satisfaction. **The results:** There were a lack of knowledge and practices of the studied subjects regarding BSE before implementing the program, while, there was an improvement after implementation. Also, there was a highly significant positive correlation between studied subject knowledge and their practice ($P=0.000$). **Conclusion:** Adolescent girls with hearing and speech impairments saw improvements in their BSE knowledge and practices as a result of the visual educational program. **Recommendation:** Continued health education programs should be applied to raise the awareness of adolescent girls with hearing and speech challenges regarding BSE in a different setting.

Keywords: Breast self-examination, hearing and speech challenges adolescents' girls, knowledge & practice.

Introduction

It is crucial to inform the public about the need of completing breast self-examinations as screening tests, especially in underdeveloped nations where people lack appropriate awareness of screening techniques. Thus it's important to underline the essential function of public health education and awareness. Of the three screening procedures (BSE, mammography, and clinical breast examination), BSE was suggested by the

American Cancer Society and National Cancer Institute as the most successful one for the early detection of any breast abnormalities (Hala, et al. 2021).

Over 95% of breast abnormalities are self-discovered before random or predetermined program detection, which is the significance of BSE. Early breast problem detection is strongly correlated with BSE performance; BSE is mostly responsible for this early problem detection. It increases awareness of breast health and aids in spotting any issues with the

breasts. Thankfully, BSE is a quick, non-invasive, affordable, and accessible tool for teenagers and high-risk schoolgirls that may be used to quickly and cost-free identify early alterations in their breasts (**Hussein, et al. 2021**).

The adolescent stage is one of rapid change, and the imparting of sufficient knowledge may have an impact on health behaviors into adulthood. Several healthcare professionals urge teenage schoolgirls to conduct BSE frequently each month, seven to ten days following menses, because many of them may experience pain and lumpiness in their breasts before menstruation. BSE helps those young schoolgirls because they acquire accustomed to both the feel and sight of their breasts and can spot changes as soon as feasible. For those girls, BSE awareness and education serve as a springboard for health-promoting habits that later in life will help them adhere to clinical breast examination and mammography screening (**Tuna, Avdal & Dal. 2019**) & (**Safiya, et al. 2017**).

Together with the timing and sequencing, the accuracy of self-examination plays a significant role in how well BSE detects any abnormalities (**Azizeh & Khalili. 2019**).

Adolescent schoolgirls face several challenges that keep them from engaging in BSE, such as knowing the proper technique, having poor expressive writing abilities, having insufficient reading comprehension in general, and having communication issues with family, academic, social, and emotional relationships in particular. Because regular hearing is the main way that language, speaking, and cognitive skills are acquired, hearing loss is one of the most significant problems that adolescent girls face (**Abu-Salem & Hassan. 2018**).

Hearing and speech impairment is considered one of the most common congenital and acquired diseases among adolescent -girls, and about, 1 - 3 in 1000 girls are affected. Education of those girls is complex and often challenging for educators to effectively foster a student's optimal development. In addition, hearing and speech impairment can affect negatively social & emotional interaction,

cognitive milestones, and the academic achievement of the girls. Adolescent -girls with hearing and speech challenges are considered exceptional learners. There is much to be done in providing them with the facilities needed. Focuses on whether they should develop listening and speaking skills, Acquire Sign Language (ASL), implement a version of Arabic-based sign, or use a combination of those approaches, and perhaps additional methods as well, to best help each adolescent school girl with hearing and speech challenges to reach her potential (**Deafness Forum Egypt, 2022**) & (**National Association of State Directors of Special Education.2018**).

These girls need specialized services, such as special education programs (language) and programs for visual rehabilitation. To meet their specific needs, this must be provided by teachers who are certified and skilled. As a result, educating such girls is a complicated process that calls for a suitable placement, curriculum modifications, the use of visual technologies, and the identification of the needs and strengths of the targeted pupils through a visual-educational program. In cases when it is not possible to utilize captions, you should think of alternate ways for adolescent girls with hearing and speech impairments to receive the content (**Hussein, Salem, El-fishway & Farid. 2021**).

Therefore, the stated aim of this study is to emphasize the effectiveness of structured visual educational sessions on hearing and speech challenges among adolescents' -girls' knowledge and practices regarding BSE. It is hoped that the study's findings would shed light on BSE and aid in the creation of special education programs at schools for adolescent girls who have difficulty speaking and hearing. On the other hand, giving them the assistance required to help studied girls live their best lives, will be a source of boosting the education process for this group of girls.

Significance of the study

The American Cancer Society endorses BSE as a practice for early breast cancer identification and suggests using it as a form of early breast cancer screening, particularly in

low- and middle-income nations. According to research, adolescent schoolgirls with hearing and speech impairments who receive individualized BSE instruction from a healthcare provider through structured visual educational sessions exhibit greater knowledge and confidence and are more likely to practice routine BSE than those who learn about the technique from other sources (Alia & Hussein, 2018).

For years, BSE has been a main field of interest for many researchers. However, in both Egypt and other countries, studies using visual educational sessions on hearing and speech challenges concerning BSE education are extremely limited. Most studies concentrate on the normal well-being of adolescent school girls but only a few studies focus on girl students with hearing and speech challenges. According to **World Hearing Forum, (2020)**, approximately 466 million people live with disabling hearing loss, of these, 34 million are children. In addition, 1.1 billion young people are at risk of hearing loss. In Egypt according to Deafness Forum Egypt, 2022 there are approximately 1.2 million deaf and hard-of-hearing individuals aged five and older, as one in six Egyptians has a significant hearing loss (Deafness Forum Egypt, 2022).

Despite the significance of BSE and the educational initiatives that have been undertaken, adolescent girls who have speech and hearing difficulties still only complete a small percentage of screening exams. This study includes information about the effectiveness of structured visual educational sessions on hearing and speech difficulties in adolescents about BSE (Hala, et al. 2021).

Operational definitions:

-Hearing and speech challenges:-

Called communication or speech disorder which means that their hearing acuity is ranged from 6/60 to 6/24 either congenital or by any other acquired cause. It is a condition in which girls face problems in social interaction, and communication, and trouble forming sounds with the inability to look after themselves.

-Visual educational session:-

It is a learning style that is essential for deaf/hard of hearing learners to acquire knowledge which helps them to develop visual thinking whereby the learners come better to understand and retain information by associating ideas, words, and concepts with images to make sense of oral instructions or written text.

Aim of the study:-

The study aimed to determine the effect of structured visual educational sessions on knowledge and practices regarding breast self-examination among adolescent girls with hearing and speech challenges. The aim of this study will be achieved through the following objectives:

- 1- Assess the knowledge and practice of adolescent girls with hearing and speech challenges toward BSE.
- 2- Developing and implementing BSE as a clinical skill in classroom engagement
- 3- Evaluating the satisfaction of adolescent girls with hearing and speech challenges about the visual educational session.

Research hypothesis:-

H1. Adolescent girls with hearing and speech challenges who receive structured visual educational sessions would exhibit improvement in knowledge and practices regarding BSE post-implementation of the educational sessions than before implementation.

H2. Adolescents girls with hearing and speech challenges who receive structured visual educational sessions would have a better chance of early detection of breast abnormalities

H3. The satisfaction of adolescent girls with hearing and speech challenges would be improved after receiving the educational session than before.

Materials and methods

Research design:-

Quasi-experimental design (pre and post-test) was carried out to accomplish the

current study for establishing the cause-and-effect relationship between an independent and dependent variable to achieve the study aim.

Setting:-

This study was conducted at a deaf and hearing impairment school, El-Hewatey, Sohag Governorate. It is the only school that serves Sohag Governorate. It aimed to provide knowledge & experiences to help adolescent school girls with hearing and speech challenges to deal healthy and safely with the external environment and community in addition to, the providence of educational opportunities as their mates in governmental and private schools who are without disabilities. The school includes hearing and speech challenges for girls at the primary, preparatory, and secondary levels of learning. It has an internal residence for students from long distances and their schedules timings start at 8.00 am and end at 2.00 pm.

Subjects:-

A purposive sampling technique of 39 adolescent girls with hearing and speech challenges was included. Inclusion criteria; (Adolescent girls who are willing to participate in the study and follow the instruction, have no visual and cognitive problems, and would be available during the study period).

Sample size:

The following sample calculation formula is used to determine the sample size. Using the formula ($n = z^2 p(1-p)/d^2$) from Naing, Winn, and Rusli (2006), the sample size is determined (Naing, Winn, & Rusli Bin, 2006).

Tools of data collection:-

Using information from professional studies, books, articles, and questionnaires, the researcher created an observation checklist and a questionnaire to collect the study's data in accordance with the Ministry of Health and Population's regulations. The following five tools were used to gather data:

Tool (I):- Structured interview questionnaire sheet: - It sought to evaluate the sociodemographic traits and menstrual-related

information of adolescent girls with speech and hearing impairments. The researchers reviewed the relevant literature before developing and writing it in Arabic. It was divided into two parts;

- **Part one;** consisted of the socio-demographic characteristics of adolescent girls with hearing and speech challenges which included their names, age, religion, telephone numbers, family members, level of education, mother's education, income, and place of residence (**9 Items**).

- **Part two;** was concerned with menstrual-related data of adolescents girls with hearing and speech challenges which included age at menarche, regular menses, duration of the menstrual cycle, reading about BSE, family history regarding BC, personal history of the breast lump and cancer experience in the circle of friends (**7 Items**).

Tool (II):- The structured interview questionnaire was concerned with assessing the knowledge of adolescent school-girls with hearing and speech challenges regarding BSE. It was developed and written in the Arabic language by the researchers based on reviewing the related literature, it included; the importance of BSE and its role in the early detection of BC, educational methods that have different effects on BSE knowledge, source of knowledge regarding BSE, screening methods of BC, time of & frequency of performing BSE, etc...(**9 Items**).

Scoring system: Each item was scored either (0) for an incorrect answer or (1) for the correct answer. The scores of the items were summed-up and ranged from (0-9). Knowledge scores were considered either satisfactory (if 60% or more) or unsatisfactory (if less than 60%).

Tool (III):- Barriers to practicing breast self-examination. This gives participants ten ways to describe what prevents them from using BSE, including the following: lack of information, lack of necessity for the practice, anxiety, amnesia, absence of symptoms, work pressure, embarrassment, pain, time-consuming, and interference with

activities. Adopted from **Champion's Health Belief Model Scale. (1997)**. The participants were allowed to choose more than one barrier (**10 Items**).

Scoring system: Each item was scored either (0) for disagree or (1) for agree. The scores of the items were summed-up and ranged from (0-10). Barriers levels were considered either high (if more than 80%), moderate (if 60- \geq 80), or low (if less than 60%).

Tool (IV):- Breast self-examination observational checklist (self-reported practices)

to assess the adolescents girls' practice of BSE, according to the guidelines of the Ministry of Health and Population, 22 practical options were used to review the accurate performance of BSE such as the breast examination posture, any abnormalities discovered during the examination, and BSE technique (**22 Items**).

Scoring system: Each item was scored either (0) for not done or (1) for done. The scores of the items were summed-up and ranged from (0-22). The level of practice was considered either satisfactory (if 60% or more) or unsatisfactory (if less than 60%).

Tool (V):- Rating scale on level of satisfaction:

Girls' satisfaction with the BSE visual education sessions among adolescents: After analyzing local and international literature, the researchers adopted it (**Jeyanthi 2017**). Ten items make up the survey, five of which are concerned with how well the researchers performed during the instructional sessions and the remaining five with the visual-educational sessions. After the teaching sessions, this instrument was evaluated (10 Items).

Scoring system: Items were scored on 4 points Likert scale ranging as (1) for highly dissatisfied, (2) dissatisfied, (3) for satisfied, and (4) for highly satisfied. The scores of the items were summed-up and ranged from (10-40). Satisfaction levels were considered either high (if more than 80%), moderate (if 60- \geq 80), or low (if less than 60%).

Validity and Reliability:-

A jury of 5 professionals with expertise in pediatric nursing, obstetric nursing, newborn health nursing, and medical-surgical nursing evaluated the content validity. The tools were revised by the experts for precision, application, completeness, simplicity, and clarity; minor adjustments were made, and the final form was created. The back-translation technique was employed to confirm the accuracy of tool I translation. Cronbach's Alpha test was used to determine the internal consistency of the tools and estimate their testing dependability. The results of the Cronbach's Alpha test indicated that tools I, II, III, and IV were all dependable tools with values of 0.91, 0.86, 0.73, and 0.89 respectively.

Pilot Study:-

Ten percent of the total sample of adolescent girls with hearing and speech impairments participated in a pilot study to determine the viability of the research method, the objectivity and application of the research tools, and to make any required adjustments before performing the main study. The study sample did not include any study participants from the pilot trial. The pilot study demonstrated the viability, efficacy, and suitability of the study instruments.

Ethical Considerations:-

The research was carried out only after receiving ethical approval from the research ethics council of the faculty of nursing at Sohag University and a letter of consent from the deaf and hearing-impaired school in the Sohag Governorate of Egypt. All of the research participants provided written consent before the data collection after being made aware of the goals and advantages of the study. Girls were given the assurance that participation in the study was completely voluntary and that they could leave at any time without facing any repercussions. They received reassurances on the protection of their anonymity and information confidentiality. Respect was shown for morals, values, culture, and beliefs.

Field of work:-

The procedure of data collection in the current study was implemented through the following phases:-

1- The assessment phase: In this phase, Data collection was implemented by the researcher who was specialization in psychology special categories (Hearing Impairment) and presented with the other nursing researchers in these schools because of his experience in dealing with adolescents girls with hearing & speech challenges and using sign language to facilitate communication with them. The researcher, who was specializing in psychology special categories translated the program content prepared by the nursing researchers to signal language into video content to be understandable to the studied participants. The researcher, who was specializing in psychology special categories started by introducing the other researchers to the adolescent girls with hearing & speech challenges and gave them a concise idea, aims, and predictable outcomes of the study. Then, signed consent was obtained from the studied subjects. The researchers were interviewing them with the assistance of the researcher who was specialization in psychology special categories (Hearing Impairment) and began to explain the questionnaires components and the research plan. After the explanation, the researchers began to fill the pretest for each girl using tools (I, II, III, IV& V). Each adolescent girl with hearing and speech challenges was assessed by identifying her socio-demographic data, menstrual history, level of knowledge, and practice about BSE. The filling of the pretest took from 20 to 30 minutes. The researchers told the adolescent girls that there would be a posttest after explaining the educational session and follow-up assessment using tools (I, II, III, IV& V).

2- The implementation phase: This phase passes through three stages: **First stage:** The researchers provided training education for adolescent girls with hearing & speech challenges about knowledge and practice of BSE with the assistance of the researcher who was specialization in psychology special categories (Hearing Impairment). Then the

studied girls began to re-demonstrate conversation until they were perfect in practicing BSE. This training took three sessions / per week; each session took about 45 minutes. First session for knowledge about BSE. The second session is about practice and the third one is for revision to confirm the ability of girls to demonstrate the BSE procedure perfectly. The visual educational program is a more effective and efficient way to promote health and well-being to develop knowledge and practices of adolescents girls with hearing and speech challenges through their vision **Second stage (booklet content):-** The researcher (who was specialization in psychology special categories (Hearing Impairment) complete and refresh the previously mentioned information by asking them some related questions and gave each girl a booklet of the colored picture which included all the information about BSE including (introduction, definition, importance, time of performing BSE, steps, and barriers for practicing BSE). Missed or unclear points were re-emphasized by the researchers and discussed with girls to grasp their attention and motivate them for reviewing at home. Explanations of the designed BSE program using a PowerPoint presentation, video & discussion were also conducted during each session. **Third stage:** After the visual educational program ended, the researchers asked the girls if they need to repeat the conversation and discuss the answer to all questions to make them clear in all aspects of the program.

3- The evaluation phase

In this phase after intervention studied subjects were interviewed again to assess any change from the baseline data regarding the level of knowledge, and performance status using the same tools (I, II, III, IV&V), and a comparison between pre-posttest was done to determine the effect of structured visual educational sessions on adolescents -girls with hearing and speech challenges knowledge and practices regarding BSE, it took about 30 minutes, then the researchers followed the studied subjects for re-assessment, reporting the effect of a structured visual educational program or answering any concern to reassess

their level of knowledge and practice beside their level of satisfaction regarding the program.

Limitations of the Study:-

- Small sample size; so, the results may not be generalized beyond the study.
- Communication barrier & negative attitudes by the community surrounding the school.

Statistical design:-

The collected data were analyzed using the statistical package for social sciences (SPSS 22.0) for descriptive statistics in the form of frequencies and percentages for categorical variables. Means and standard deviations were used for continuous variables. Pearson correlation coefficient (r) was used for measuring the correlation between numerical variables. Student t -tests were used for measuring the differences in mean scores before and after program implementation. The statistical significance was set at ($P < 0.05$).

Results:-

Table 1. This table showed that the mean age of adolescent girls was \pm SD (13.55 ± 2.43) years old. Concerning family members, 71.8% had three to five family members. Regarding subjects' mother education, 61.5% were educated. For their monthly income, about 69.2% of studied subjects had inadequate monthly income. About 64.1% were urban residents.

Table 2 showed that about (66.7%, 69.3%, and 64.1%) of the studied subjects had menarche at the age of 12 and 13 years and their menstrual cycle was irregular and the duration of their menstrual flow was between 3 to 5 days respectively. Regarding BSE, (66.7% and 76.9%) of the studied subjects did not never read about BSE and did not have a family history of BC respectively. While 56.4% of studied subjects reported cancer experience in the circle of friends. Regarding the personal history of breast lumps, all studied subjects reported no history.

Table 3 displayed that the mean score of subjects' knowledge after program implementation (6.58 ± 1.56) was higher than before program implementation (3.66 ± 1.13). This improvement in knowledge score was highly statistically significant ($t = -12.843$, $P = 0.000^{**}$). Regarding subjects' practice with BSE, the mean score of practice after program implementation (16.25 ± 3.42) was higher than before the program (8.23 ± 2.34). This improvement in practice score was highly statistically significant ($t = -17.750$, $P = 0.000^{**}$).

Figure 1 illustrated that 84.5% of the studied subjects had an unsatisfactory level of knowledge about BSE before program implementation, while 74% of studied subjects had satisfactory knowledge after program implementation

Figure 2 illustrated that 89% of the studied subjects had an unsatisfactory level of practice with BSE before program implementation, while 79.5% of studied subjects had a satisfactory level of practice after program implementation.

Figure 3 illustrated that 73% of the studied subjects had a high level of satisfaction with the educational program; meanwhile, 12% of studied subjects had a low level of satisfaction with the educational program.

Table 4 revealed that (74.4, 66.7, 82.1, 56.4, 71.8, and 53.8%), of the studied subjects agreed that the absence of information sources (anxiety from the procedure (The challenges to practicing BSE were, in order, the absence of symptoms of a breast abnormality, the stress of studies or work, humiliation, and interference with activities.

Table 5 summarized that the overall mean score of studied subjects' satisfaction was (31.64 ± 6.43) which indicated a moderate level of satisfaction with the program.

Table 6 displayed that there was a highly significant positive correlation between subjects' knowledge and their practice after program implementation. As before program implementation ($r = 0.537$, $P = 0.000$) while after program implementation ($r = 0.468$, $P = 0.000$).

Table (1): Frequency distribution of studied subjects regarding socio-demographic characteristics (n=39).

Socio-demographic characteristics	N	%
Age		
Mean±SD	13.55±2.43	
Number of family members		
– 3–5	28	71.8
– 6–9	11	28.2
Mothers' education		
– Educated	24	61.5
– Non-educated	15	38.5
Monthly income		
– Adequate	12	30.8
– Inadequate	27	69.2
Place of residence		
– Rural	14	35.9
– Urban	25	64.1

Table (2): Frequency distribution of studied subjects regarding menstrual characteristics (n=39).

Menstrual Characteristics	N	%
Age at menarche		
– 12-13 years	26	66.7
– 16 -18 years	13	33.3
Regularity of menstruation		
– Regular	12	30.7
– Irregular	27	69.3
Duration of menstrual flow		
– <3 days	6	15.4
– 3-5 days	25	64.1
– 6-7 days	8	20.5
Ever you read about BSE		
– Yes	13	33.3
– No	26	66.7
Family history of breast cancer		
– Yes	9	23.1
– No	30	76.9
If yes, who had breast cancer		
– Mother	7	17.9
– Sister	2	5.1
– No	30	76.9
Personal history of breast lump		
– Yes	0	0.0
– No	39	100
Cancer experience in the circle of friends		
– Yes	17	43.6
– No	22	56.4

Table (3): Mean score of studied subjects regarding their BSE Knowledge and practices through program phases ($n=39$).

Variables	Before	After	<i>t</i> -value	<i>P</i> -value
	Mean \pm SD	Mean \pm SD		
Knowledge	3.66 \pm 1.13	6.58 \pm 1.56	-12.843	0.000**
Practice	8.23 \pm 2.34	16.25 \pm 3.42	-17.750	0.000**

t paired sample t-test.
** Highly statistical significance.

Figure (1) frequency distribution of subjects' levels of knowledge about BSE through program phases ($n=39$).

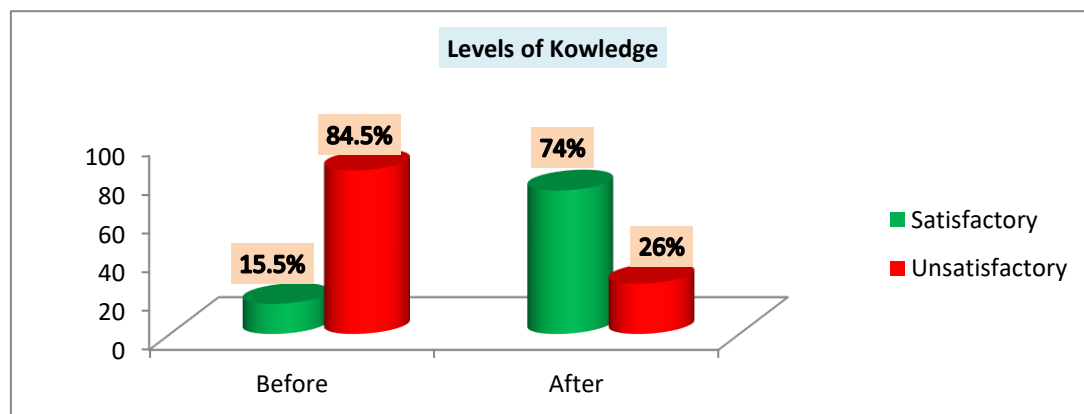


Figure (2) frequency distribution of subjects' levels of practice regarding BSE through program phases ($n=39$).

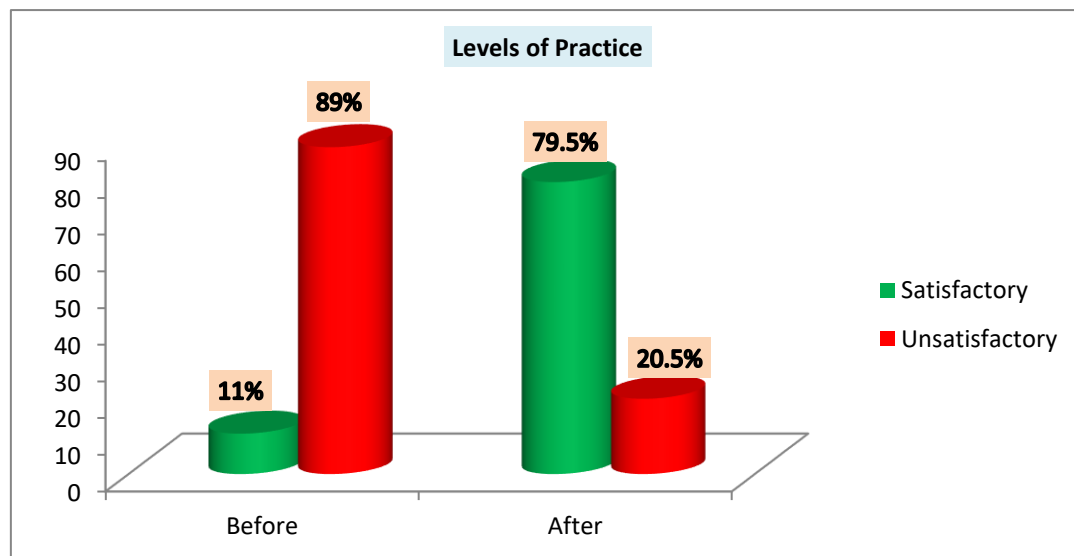


Figure (3) frequency distribution of subjects' levels of satisfaction with the program (n=39).

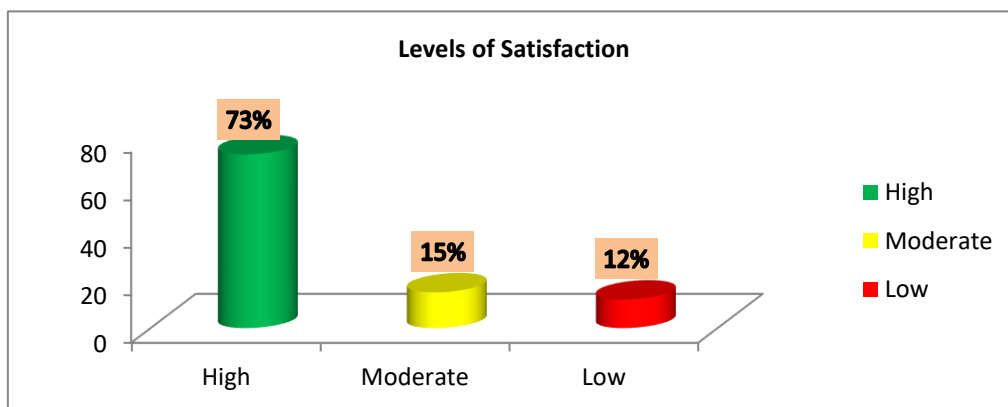


Table (4): Frequency distribution of studied subjects' perception regarding barriers to practicing breast self-examination (n=39).

Barriers	Agree		Disagree	
	N	%	N	%
No source of information	29	74.4	10	25.6
No need for the practice	4	10.3	35	89.7
Anxiety from the procedure	26	66.7	13	33.3
Forgetfulness	12	30.8	27	69.2
Absence of breast abnormal symptoms	32	82.1	7	17.9
The pressure of studies or work	22	56.4	17	43.6
Embarrassment	28	71.8	11	28.2
Painful	6	15.4	33	84.6
Time-consuming	9	23.1	30	76.9
Interferes with activities	21	53.8	18	46.2

Table (5): Frequency distribution of studied subjects regarding satisfaction with the intervention and the researchers (n=39).

Statement	Highly Satisfied		Satisfied		Dissatisfied		Highly Dissatisfied	
	N	%	N	%	N	%	N	%
The approach the researcher was comfortable	7	17.9	23	59	6	15.4	3	7.7
The researcher's explanation of the content of the visual education session was satisfactory	4	10.3	20	51.3	9	23.1	6	15.4
The time spent by the researcher was adequate	9	23.1	18	46.2	7	17.9	5	12.8
The communication with the researcher was adequate	8	20.5	21	53.9	8	20.5	2	5.1
The technique was easy to follow and understand	6	15.4	25	64.1	5	12.8	3	7.7
The clarity of visual education was good	2	5.1	29	74.3	4	10.3	4	10.3
The duration of teaching was adequate	4	10.3	27	69.2	6	15.4	2	5.1
The technique was easy to practice	8	20.5	19	48.7	8	20.5	4	10.3
Gained knowledge about breast self-examination practice	5	12.8	24	61.6	7	17.9	3	7.7
The session on the whole was effective	4	10.3	22	56.4	8	20.5	5	12.8
Mean ± SD					31.64 ± 6.43			

Table (6): Correlation between studied subjects' knowledge and their practice levels through program phases (n=39).

Items	BSE Knowledge Vs Practice	
	R	P-value
Before program	0.537	0.000**
After program	0.468	0.000**

Discussion:-

Breast self-examination is a set of sophisticated palpable abilities that enables girls and physicians to find minor imitative lesions in anatomically accurate breast models and to transfer that skill to breast tissue. Early detection of breast abnormalities is a crucial element that requires special attention. The American Cancer Society and National Cancer Institute have both endorsed BSE as a screening method for the early diagnosis of breast abnormalities, including BC (**El Fattah & Hussein. 2018**). Adolescent females' BSE knowledge and habits are crucial for the early detection and prevention of BC. As a result, the nurse must use visual training programs to increase awareness and proficiency in all aspects of BSE among adolescent schoolgirls with hearing and speech difficulties (**Hussein, et al. 2021**).

Concerning age; the findings of the present study illustrated that the mean ages of the studied girls were (13.55 ± 2.43). Also, the current study displayed that about two third of the studied subjects had mothers educated and were residing in urban areas. While more than two-thirds of them had inadequate monthly income. From the researchers' points of view, this may be due to educated mothers would pass on the gained education to their daughters, who would be more eager to learn and discover normal structures of their breast, allowing them to identify any collection or abnormalities, in comparison with other girls having mothers with low education. Besides to enhancement of health attentiveness among urban residents more than rural ones.

This study finding is supported by **Hussein, Salem, El-fishway & Farid. (2021)**, stated that the mean age of blind adolescent girls was (12.55 ± 1.43) years old, and about half of them were living in the urban area and

caregivers had secondary education. Also, this study finding is supported by **El Fttah & Hussein. (2018)**, in their study about the effect of peer education on adolescent students' knowledge and performance of BSE, stated that the participants' mean age was (13.55 ± 2.43) years old, had mothers educated, and were living in an urban area.

Regarding menstrual characteristics. The current study illustrated that about two-thirds of the studied subjects, had menarche at the age between 12 and 13 years old with an irregular menstrual cycle and its duration was between 3 to 5 days. From the researcher's point of view, this discrimination in menstrual characteristics may be due to personal differences or hormonal changes among adolescent school girls with hearing and speech challenges.

This study's results were congruent with **Deshpande, Patil, Gharai & Durgawale. (2018)**, reported that more than half of blind adolescent girls had 3-5 days as the number of menstrual days and that 75% of them began menstruating before the age of 14. The findings of a previous study by **Jeyanthi (2017)**, which found that girls with visual impairments menstruated between the ages of 11 and 14 and that their periods typically lasted between three and five days, but that two-thirds of them had irregular periods, supported the findings of the current study

Regarding studied subjects reading about BSE, the majority of them had not ever read about BSE with no family history of BC. While more than half of them reported cancer experiences in their circle of friends. Regarding the personal history of breast lumps, all studied subjects reported no history. **El-Iassy & Abd Elaziz (2015)**, who examined the effects of a BSE education program on female employees at Damanhour University, discovered that the majority of the analyzed sample had no history of BC and most had no prior breast issues. The

findings of the current study are consistent with their findings. This study finding was contradicted by **Ahmed & Shrief. (2019)**, who stated that about one-quarter of the study, participants have a family history of BC.

Regarding the studied subjects' knowledge and practice of BSE, the study finding showed that there was an increase in the mean score of knowledge after the providence of the structured visual-educational sessions before, as the mean score increased from (3.66 ± 1.13) to (6.58 ± 1.56) . Regarding the studied subjects' practice of BSE, the study finding showed that there was an increase in the mean score of practice after structured visual-educational sessions than before. As the mean score increased from (8.23 ± 2.34) to (16.25 ± 3.42) . So the present study showed that there were highly statistically significant differences between studied subjects regarding their total knowledge and practice score after the educational session than before ($P=0.000^{**}$).

This may be ascribed to pre-intervention; the majority of the current study's information came from their moms, who are not adequately equipped to impart accurate information to their impaired daughters with special needs, in addition, little teachers' attention regarding the need for BSE as it considered a sensitive topic. While after the intervention, the educational session had greater enhancement of girls' knowledge and practice regarding BSE. This may be connected to the relationship between knowledge and practice since information develops along with self-confidence, which allows for more precise practice.

This study's findings are consistent with those of **El-Kurdy, Fadel, and Elsayed (2020)**, who found that before audio-educational sessions, more visually impaired adolescent girls lacked accurate knowledge and practice regarding menstruation than after. Similar to **Neelkanth, Singh, and Bhatia (2017)** carried out an experimental study on 197 Indian teenage girls to evaluate their knowledge and practice regarding BSE following the implementation of educational intervention. Also, a supporting study by **Samantaray et al. (2017)** discovered substantial differences in the understanding of BSE among 40 visually

challenged adolescent girls between the pre-test and post-test.

The results of this study are similar to those of an Egyptian experimental study conducted by **Ali & Abd-El Aal. (2015)** on 71 blind adolescent schoolgirls at El-Nor and El-Aml institutions to examine the impact of health education programs regarding reproductive health among blind adolescents. They discovered that there were improvements in the students' practices regarding personal hygiene, exercise, and reproductive health after the program than before with highly statistically significant results. In contrast to our study's findings, a study conducted by **Al Junaibi & Khan. (2020)**, who indicated that only the majority of respondents did not know the correct procedure to perform BSE. They wrongly believed that it should be performed either annually or occasionally.

Regarding barriers to practicing BSE, the study results showed that the majority of studied subjects agreed that, the absence of information sources, anxiety from the procedure, the lack of signs of a breast abnormality, the stress of study or employment, shame, and interference with activities: all were barriers for practicing BSE. From the researchers' point of view, this may be due to adolescent school girls did not believe in the benefits of BSE, in addition to limited levels of knowledge about breast abnormalities and its screening practices that they had not had confidence in their examination. Because they had not been taught the proper technique and fear of detecting any breast abnormalities. While after the educational session, the majority of the studied subjects know the proper technique of BSE.

The present study's findings are in line with those of **Alwabr (2022)**, who found that in Yemen, ignorance was the greatest impediment to practicing BSE among participants in the control group, whereas amnesia was the main impediment among participants in the case group. Also, a study by **Moussa and Shalaby (2014)**, who examined how the BSE education program affected nursing students at Port Said University in Egypt, found that information gaps, forgetfulness, and a fear of discovering the breast were the most significant obstacles to

not practicing BSE. Additionally, **Moustafa, Abdallah, and Taha (2015)** conducted a study to examine the impact of a BSE educational intervention among female university students in Zagazig City. They discovered that there was a notable improvement in the participant's level of knowledge regarding the proper time and position for practicing BSE.

Regarding studied subjects' satisfaction with the researchers and the BSE program, the overall mean score of studied subjects' satisfaction was (31.64 ± 6.43) which indicated a moderate level of satisfaction with the program and the researchers' explanation. This could be a result of the discovery that the intervention is risk-free, professional, cost-effective, and simple to implement. Also, it provides a compelling illustration of how the employment of visual teaching techniques might benefit adolescent girls with hearing and speech impairments.

This study's findings are consistent with those of **El-Kurdy, Fadel, and Elsayed (2020)**, who found that the majority of the visually impaired adolescent girls were pleased with the sessions' overall design, their organization, and content coverage, and the researchers' explanations of the educational sessions. This study's findings are consistent with those of **Jeyanthi (2017)**, who reported that 80% of listeners were satisfied with audio dramas about menstrual hygiene and treating minor diseases. About 20% of vision-impaired girls were delighted with the researcher, and the audio drama on menstruation and treating minor illnesses. Furthermore consistent with **Jeyanthi's (2020)** claim that 75% of the subjects expressed high satisfaction with the use of audio drama intervention is this study's finding. Unlike **Boulos and Ghali (2019)**, who claimed that a substantial portion of both medical and non-medical groups have inadequate knowledge and bad practice.

Regarding the correlation between studied subjects' knowledge and their practice, the current study proved that there was a highly significant positive correlation between studied subjects' knowledge and their practice after program implementation ($P=0.000$). This finding may be explained by the strong

correlation between knowledge and practice levels, which shows that as information rises, so does practice.

This study's findings are in line with those made by Hussein, et al. (2021) in their investigation of an audio-drama nursing intervention utilizing peer education on menstrual hygiene and illness management among blind adolescents, who found that post-intervention and follow-up knowledge and practice tests showed better mean scores than pre-intervention. Also, this discovery is consistent with the earlier research of **Nag and Kodali, (2021)**, the knowledge of the examined sample showed a clear improvement between the pretest and posttest who reported that there were highly statistically significant changes between the blind adolescent girls' knowledge and practice.

Moreover, **Ahmed & Shrief, (2019)** support this study's findings and observed a significantly significant association between the mean total score of knowledge and practice of BSE among the study participants, with P less than 0.000, in their study on the impact of health promotion programs on female BSE knowledge and practice. In a similar line, the P -value was smaller than 0.048 demonstrating a statistically significant association between overall knowledge and practice according to **Abdelgaffar & Atia (2015)**. In contrast with the current study **Yucel, et al. (2020)**, found no association between knowledge and the level of education or residence practice satisfaction of BSE.

Where BSE practice appears to be correlated with the higher level of knowledge and health care services offered in those regions, which highlights the urgent necessity of promoting adolescent school girls' awareness of the significance of BSE for early detection of breast abnormalities. Moreover, improvement in adolescent school girls' attitudes related to knowledge acquired from the educational program is also reflected in the girls' practice. Thus, the study hypothesis that adolescent school girls with hearing and speech challenges who receive visual educational sessions exhibit improvement in knowledge and practice regarding BSE was accepted.

This proved that the visual educational program used in the present study had positive effects on the knowledge and practice of adolescent school girls with hearing and speech challenges regarding BSE. This study serves as a baseline for future studies about challenges facing disabled girls. So, it is very important to note that the educational curriculum played a significant role in sending messages about this topic to adolescent school girls with hearing and speech challenges. Thus, it is important to give the right information through different channels to cover this area of knowledge about BSE and to change wrong beliefs. Furthermore, we need to pay attention to increasing the girls' awareness and positive attitudes toward the benefits of BSE.

Conclusion:

Based on the results of the current study, it can be said that the visual educational program was a successful means of enhancing adolescent girls' knowledge and practices of breast self-examination have hearing and speech impairments. Also, after program implementation, there was a significant statistical improvement in the study subject's overall ratings for knowledge, practice, and degree of pleasure. The incidence of BSE performing adequately was also noticeably greater following the intervention.

Recommendations:

Based on the study results, the following recommendations are proposed:-

- Integrating BSE into special needs for adolescent -girls with hearing and speech challenges in their curriculum objectives.

- Further research is required regarding BSE using study samples and those with other disabilities from a variety of institutions to expand understanding of special needs.

- To increase community awareness and acquire generality about BC prevention, visual educational programs based on BSE should be conducted for different age groups.

- It is possible to do a comparison between adolescent girls who are typically developing and those who have speech and hearing issues.

- Adolescent girls with hearing and speech impairments should receive more information about BSE through educational programs and sign language media that is founded on scientific understanding.

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