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## Effect of Structured Audio Educational Sessions on Knowledge and Hygienic Practices Regarding Menstruation for Visually Impaired Adolescent Girls

Manar Fathy Heiba<sup>1</sup>, Fathia Mahmoud Abd El-menim<sup>2</sup>, Hend Salah-Eldin Mohammed<sup>3</sup>, Gehan Ahmed Elbahlwan<sup>4</sup>, Safa Gaber Salem<sup>5</sup>

<sup>1</sup> Assistant Professor of Maternity, Gynecology and Obstetrics Nursing- Faculty of Nursing- Port Said University, <sup>2</sup> Assistant Lecturer of Maternity, Gynecology and Obstetrics Nursing- Faculty of Nursing- Port Said University, <sup>3</sup> Professor of Obstetrics and Gynecology Nursing-Faculty of Nursing - Zagazig University, <sup>4</sup> Assistant Professor of Maternity, Gynecology and Obstetrics Nursing- Faculty of Nursing- Port Said University, <sup>5</sup> Lecturer of Maternity, Gynecology and Obstetrics Nursing -Faculty of Nursing Menoufia University

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### ABSTRACT

**Background:** Adolescent girls who struggle to see (whether it can be due to absolute blindness or other types of impaired eyesight) are a group of disadvantaged girls that need extra care and attention, especially when menstruation time starts because they don't belong to properly notified. The study **aimed** to evaluate the effect of structured audio educational sessions on knowledge and hygienic practices regarding menstruation for visually impaired adolescent girls. **Subjects and method: Design:** the current study used a quasi-experimental design. **Setting:** The study was carried out in Al- Nor and Al-Aml schools in Port-Said city & Damietta city., which included two schools one school at each city. **Subjects:** Purposive sampling included 50 visually impaired menstruated adolescent girls (27) visually impaired girl at Port-Said City and (23) visually impaired girl at Damietta city. **Tools:** the first tool, Structured Interviewing Questionnaire, the second tool, Health practices during menstruation, and the third tool, Girls behaviors and restrictions during menstruation. **The Results:** The current study revealed that there were low of visually impaired adolescent girls' knowledge and practices level regarding menstruation before implementing the audio educational session. While, there were an improvement in the total knowledge and practices scores of the studied girls regarding menstruation after applying the audio educational sessions with highly statistically significant differences. **Conclusion:** The current study found that the audio educational sessions were effective in improvement of the visually impaired adolescent girls'

knowledge and practices regarding menstruation. **Recommendations:** Continuous educational program should be provided to raise awareness of visually impaired adolescent girls regarding menstruation.

**Key Words:** Adolescent girls- Audio educational sessions- Hygienic practices  
Knowledge- Menstruation- Visually impaired.

## **INTRODUCTION**

A problematic physical condition with significant psychological repercussions is visual impairment. It results in the biggest changes in daily routine and habits, which might harm visually impaired girls' bodies, minds, and social interactions. Adolescent females, families, and the community all suffer serious consequences as a result. One of the most important ways an adolescent can become familiar with their surroundings and organize their experiences is through their vision. This makes it the most traumatizing sensory deficiency. (Mohamed, Ragheb & Ibrahim, 2022).

Girls who are visually impaired as adolescents require access to early intervention and rehabilitation services to help them with daily tasks, interacting with others, social and psychological roles and connections, learning and understanding acquisition, interaction, care for oneself, relationships with others, as well as other facets of their daily lives (Elsman, van Rens & van Nispen, 2019).

Adolescence is a crucial growth period that is defined as a transition from total dependence to relative independence with regard to physical, hormonal, behavioral, and cognitive growth. The commencement of menarche is one of the major physiological and psychological changes that occur in a teenage girl's life. The adolescent stage in a girl is recognized as a delicate and sensitive era, which signifies a shift from young girlhood to adulthood. (Amr, 2021).

The menstrual cycle is regarded as a significant component of a woman's daily routine. It is a crucial sign of teenage girls' reproductive well-being. (Jha, 2018). Menstruation is defined as a blood loss each month, A normal biological process known to needs more concern and appropriate management unsimilar to the other normal process. It happens throughout shedding of functional layer of uterus. It is one of the signs of puberty at teenage years. Each adolescent girl who become full-grown has menstrual duration for 3-5 days which the normal days ranged from two to seven days every month until reaching to menopause. At each society, menstruation is linked with spiritual and cultural habits that have an influence on the comprehension of adolescent girls regarding ways of responding to their health needs at their societies (Hennegan, Winkler, Bobel, Keiser, Hampton & Larsson et al., 2021).

Culturally, discussion of menstruation is often shrouded in a sensitive manner. The adolescent girls may have limited level of knowledge regarding menstruation characteristics, menstrual symptoms. Different countries have several prohibited topics related to menstruation. This analyses how teenage females can handle their menstruation problems in light of their behaviors, understandings, and concepts. (Prabhu, Nagrale, Shyam & Sancheti, 2019). Incorrect perceptions or misunderstanding about menstruation will causing wrong menstrual behaviors and practices. That's may leading to reproductive health problems such as dysmenorrhea, gastrointestinal manifestations and psychological symptoms (Rathore, 2023).

Due to disability of visually impaired adolescent girls making them more risk for reproductive problems; hygienic practices of menstruation is an important aspect for maintaining normal reproductive health and preventing the genital infection. Good and correct teenage females who are visually impaired practice good menstruation hygiene can affect positively on their health. In addition to maintaining menstrual hygienic practices with a high- quality can decrease the risk of exposure to gynecological problems (Jeyanthi, 2020).

Hygienic practices during menstruation are defined as preserving of hygiene during menstruation such as hand hygiene, showering when on period, care of genital system(cleaning techniques, sanitary pads using and, disposal, drying methods), massage of abdomen, cloths changing, cloths washing with soap and water, methods of relieving abdominal pain and psychological symptoms (e.g. warm compress using and doing appropriate types of exercise) throughout menstruation days to assist in maintenance of reproductive health and prevention of gynecological problems (Munro, Hunter, Hossain & Keep, 2021).

Menstrual hygiene education is an important matter for adolescent girls' health throughout their adult life. Good menstrual hygiene is a vital wellness issue. So, its important to increase level of knowledge about menstruation and its hygienic practices that help to enhance practices in a safe manner and might assist to alleviate the suffering of millions of women (Dündar& Özsoy, 2020).

Audio education is a type of teaching methods for visually impaired adolescent girls that help those girls to acquire information easily that can help them in health

promotion. It is defined as an efficient strategy for educating and instructing the adolescent students with visual impairment by providing them the needed knowledge that improves social learning (Diao, Pu, Yang, Li, Jin & Wang, 2020).

Audio educational sessions help adolescent girls with visual impairment in self-review, peer interactions, decision-making, and self-care capabilities. It should focused on facts about menstruation and menstrual hygienic practices which enables visually impaired girls to raise questions about myths, inaccurate information and misperception, thus improving their level of knowledge regarding menstruation & puberty and help them released from incorrect behaviors and restrictions practiced during menstruation (Miyauchi, 2020).

Nurses play an effective role in providing visually impaired adolescent girls with sufficient information regarding hygienic practices that was needed during menstruation to maintain themselves healthy (Amr, 2021). That's through providing health care services to school-students, teachers & other staff and performs different screenings & facilitate referrals coordination whether to the home care or private healthcare places (McGregor& Unsworth, 2022).

### **Significance of the study**

According to World Health Organization (WHO) (2019) and Health Population Ministry (2019) reported that people with visual disabilities approached in Egypt to three million number. In accordance with the axis of number five of the 2030 Egyptian National Strategy's social component, visually impaired adolescent girls are marginalized important segments in society. So, providing care and support for them is important for reaching to equal rights for everyone in the neighborhood.

Visually impaired adolescent girls unable to carry out their own activities Resulting from a decline in vision, as well limited capability to acquire learning from viewing and making their personal care routines. Assessment of the visually impaired adolescent girls' knowledge and practices level regarding menstruation is highly essential. Egyptian studies which investigated effect of audio-educational sessions on visually impaired adolescent girls' knowledge and practices regarding menstruation are so limited thus, this study was conducted.

## **AIM OF THE STUDY**

The present research was aimed to evaluate the effect of structured audio educational sessions on knowledge and hygienic practices regarding menstruation for visually impaired adolescent girls.through:

1. Assessing the knowledge of visually impaired adolescent girls about menstruation.
2. Assessing the hygienic practices of visually impaired adolescent girls about menstruation.
3. Evaluating the effectiveness of audio educational sessions on knowledge and hygienic practices for visually impaired adolescent girls regarding menstruation.

## **Research hypothesis**

1. The audio educational sessions will improve knowledge of visually impaired adolescent girls regarding menstruation.
2. The audio educational sessions will improve hygienic practices of visually impaired adolescent girls regarding menstruation.

## **SUBJECT AND METHOD**

To conduct this study, a quasi-experimental design was used for one group (pretest, posttest and follow up).

### **Research setting**

The study was carried out in El- Nor and El- Aml schools in Port-Said city & Damietta city., which included two schools one school at each city.

### **Subjects**

A purposive sample of 50 teenage girls with visual impairment and menstruated (27) visually impaired girl at Port-Said City and (23) visually impaired girl at Damietta city were included irrespective to the reason of their disability affiliated to port said and Damietta cites and participating in the study and meeting the inclusion criteria while attending the aforementioned institutions.

### **Inclusion Criteria**

The visually impaired adolescent girls in the previous mentioned schools were incorporated into the study under the following conditions:

- Range of ages from 12-19 year.
- Who had the first menstruation.
- Who unmarried.
- Capable to interact.

### **Exclusion criteria**

- With speech or verbal disability.
- With mental impairment.

### **Data collection tools**

In this study, three instruments were utilized:

#### **Tool I: Structured Interviewing Questionnaire**

The multiple-choice questions were created by the researcher after examining pertinent material by Mohamed (2018) and the advice of industry professionals. It was divided into four primary sections to evaluate the following:

- **Part I: Socio demographic characteristics of the studied visually impaired girls.** It was made up of (Twelve) multiple-choice questions to gauge the socioeconomic traits of the females who were being investigated, and these questions comprised 7 domains assessing (girls age, education, parental education & working condition, number of family, family ownership and family income).
- **Part II: Characteristics of menstrual cycle and health complains among the studied girls.** This part included five multiple-choice questions in this section about the cycle of menstruation features in girls as menarche age, reaction to menarche, regularity of the period, length of flow, and intermenstrual interval. Additionally, this portion included (two) questions with multiple choices for evaluating the period-related complaints of participants (premenstrual and monthly symptoms). Additionally, (two) multiple-choice questions were added to

examine current health complaints, such as vaginal discharge characteristics according to its odor and consistency, as well as any accompanying infection-related symptoms like irritation.

- **Part III: Girls' knowledge regarding menstruation.** It used to evaluate level of knowledge about menstruation among visually impaired adolescent girls. It contained (fifteen) questions with several options and (four) questions that are open-ended regarding; anatomy of the female genital system, physical changes during puberty, age of menarche, definition of menstruation, source of menstrual blood, normal menstrual interval and duration, signs and symptoms associated with menstruation, complication of neglecting menstrual hygiene, herbs and foods to be eaten and to be avoided during menstruation.

#### **Scoring system for assessing the girls' knowledge regarding menstruation:**

According to the items of interviewing questionnaire, scoring system was graded; the answers of the girls were evaluated by the researcher according to model responses that the investigator generated in light of the scientific literature. Every question ranged from 0 up to 8 marks according to answers of each question, Each point was scored as One score for a right response and zero for a mistaken response and response of didn't know. For open ended questions, the girls have the chance to give their answers and mention all they want. The answer was evaluated by the researcher and was scored according to correctness of the answer.

Depending on the percentage of correct responses by each girl, 57 marks, or 100%, were added together to determine the total score for all knowledge-related questions. This score was then divided into three tiers as follows:

- Poor =less than 50% of the total score (<28.5marks).
  - Fair= (50 % to less than 75% of the total score (28.5 to <42.75 marks).
  - Good= (equal to or greater than 75% of the total score (42.75:57marks).
- **Part IV:** It included (four) questions regarding source of information of girls about menstruation, time of receiving this information and challenges that prevent them from seeking health care services and advice regarding menstrual problems.



**Tool II: Health practices during menstruation:** Mohammed (2018) created and the researcher modified this tool. This tool is a diagnostic tool for evaluating the visually impaired adolescent girls' health practice during menstruation. The tool was into Arabic language.

It included two sections:

**(A): Health practices among the studied girls regarding menstrual hygiene care** which containing (fifteen) questions in the form of numerous selection on the hygiene precautions for the area of perineum cleaning and cleaning procedures, cleaning direction, dryness of perineum, showering when on menstruation, kinds of sanitary towels utilized for periods and number of replacing it, the usage of powdered talcum and perfume placed on genital area, pubic hair removal, washing of hands, kind of pants, methods of cleaning it and methods of disposal for menstrual towels.

**(B) Healthy nutrition during the menstruation** which encompassing (eleven) questions in a form of multiple choice regarding the nutrition during menstruation related to; types of food eaten and avoided during menstruation and drinks that should be drunk and avoided during menstruation.

### **Scoring system for the students' health practices regarding menstrual hygiene**

Answers were graded and coded as each good practice (healthy) evaluated as (one) mark and each poor practice (unhealthy) evaluated as (zero). The final rating to girls' of menstrual practices of hygiene and healthy nutrition during menstruation equal 26 grades, which equals 100 percent.

Following are the divisions for the overall practice rating:

- Healthy (Well) practice  $\geq 75\%$  (more than or equal to 19.5 marks).
- Unhealthy (poor) Practice  $< 75\%$  (less than 19.5 marks).

### **Tool III: Girls behaviors and restrictions during menstruation**

Mohamed (2018) used this instrument, which the researcher customized. It is a diagnostic tool for evaluating behaviors and restrictions during menstruation among the visually impaired adolescents' girls. The tool was into Arabic language. This section

included (ten) questions for assessing menstrual behaviors and restrictions among the girls such as going to school, assisting in household work, visiting the (religious places, friends and relatives during menses), doing exercises, taking drugs and herbs for pain relief and seeking advice for menstrual problems as amenorrhea.

### **Scoring system for the girls' health practices regarding menstrual hygiene**

Answers were coded, scored as "Yes" answer given (one) mark as a good behavior and (zero) mark to "No" answer as a poor behavior. The total score for girls' behaviors during menstruation equal 8 grades, that approximates a hundred percent.

Following are the classifications for the last behavior grade:

- Good behavior  $\geq 75\%$  (more than or equal to 6 marks).
- Poor behavior  $< 75\%$  (less than 6 marks).

### **Operational design**

The recent study's operational design involved a stage of planning, content validity and reliability, a pilot study, and fieldwork.

#### **1-Preparatory phase**

In order to construct the instruments for gathering information, a thorough evaluation of the relevant existing nationwide and globally studies, as well as conceptual comprehension of numerous subject components, was conducted..

#### **2-Content validity of the tool**

The researcher created the data gathering instruments, and a total of five professors with expertise in maternity, obstetrics, and gynecology nursing from the faculties of nursing and medicine at Port-Said University and Suez Canal University evaluated the information provided for validity. It was done to evaluate the instruments' suitability, comprehension, applicability, and clarity. Their suggestions on the uniformity and format of tool layout were solicited. To delete the element of (color of vaginal discharge and redness of two libia), the necessary alterations were made.

### **3-Reliability of tool**

Cronbach's alpha coefficients calculations were used to ensure the dependability. It's value scored (0.76), which indicated that reliability is high.

### **4-Pilot study**

The ten percent of the research sample that made up the pilot study contained five randomized girls from a pair of distinct schools. It was carried out to determine the designed instrument's significance, conciseness, and usability and to determine how long it would take to complete the survey. Due to changes made to the survey form, which included certain items being modified and others being eliminated, particularly in the sections pertaining to girls' knowledge as well as practices, those girls who participated in the pilot study were not included in the research sample.

### **5-Field work**

The phases of assessment, planning, implementation, and evaluation were used to complete this fieldwork.

### **Preparatory phase**

Following viewing the pertinent literature for the study, the researcher designed the tools, created the audio instructional sessions, and created the supporting documentation (an Arabic booklet printed using the braille method). Lastly, a pilot test was conducted to evaluate the study tools' practicality after a group of professors who are specialists in the area of nursing confirmed the accuracy of the contents of the developed instrument, the created audio educational sessions, and the educational braille booklet.

### **Assessment phase (Pre-test phase)**

Between the start of October 2021 and the end of the month, the researcher conducted this phase. After the tools were ready, the study sample was chosen in accordance with the predetermined standards. Data collection for the baseline was then done. The study sample was given an approved survey to determine their degree of menstrual knowledge, practices, and behaviors. All during the school day, during playtime, the girls' data were collected. There were three visits every week to schools.

After introducing herself and getting their consent to participate in the study, she began interviewing the teenage girls who were blind and filled out the questionnaire sheet and then explained the purpose of the study. The study sample was assured that all collected information was be confidential.

### **Planning phase**

The researcher began to develop structured audio educational session based on the information collected at the first assessment, in addition to literature; it was developed under the guidance supervisors.

The researcher prepared three structured audio-educational sessions after reviewing of literature (El-Kurdy R, Fadel E, Elsayed A, 2020) that administered to the girls for three following days. It was created in an accessible form of Arabic to help the young woman who is visually impaired knowledge and practices regarding anatomy of female genital system and physiology of menstruation, hygienic practices during menstruation and intervening its little trouble. In addition, The supplemental learning materials were created in an Arabic booklet and printed using the braille technology, its content was written in an simple, clear and easily understood method and then a permission was taken from the director of El-Nor and Al-Aml association for the blind to print the educational booklet in a braille method.

Because Al-Nor and Al-Aml association for the blind have a printer set up to print the provided educational booklet into braille paper, which was gathered and made into a booklet form created using the braille method for those girls, the researcher prepared a soft copy of the educational booklet for them.

### **Implementation Phase**

- In order to perform the research, a legalization letter from the Al-Nor and AL-Aml schools for the blind was got, along with consent from the visually impaired adolescent girls in school to participate in the survey.
- Structured audio educational sessions for this study has been performed in schools classes and computer labs in each of the pre-mentioned schools in Port-Said and Damietta cities.

- The study sample were divided into small groups (8 groups) four group at each school, each group ranged from 5-6 students girls according to the total number of girls selected from each
- The researcher coordinated with school manager in obtaining information about students' schedules and free-times of classes. In addition, the researcher coordinated with the teachers to be able to interview student girls.
- The researcher introduced herself to the investigated girls on the initial day of the basic evaluation and questioned them to answer all of the organized survey elements to gauge their degree of awareness and usage of menstrual hygiene practices.
- Every subject's basic evaluation items were completed by the investigators in around fifteen minutes, and then each girl received a 30-minute break.
- The first audio educational session then began with a researcher-introduced audio lecture in an Arabic manner that was basic and evident to those who participated.
- The first audio educational session's objective was to provide basic scientific knowledge regarding the structure of the female reproductive system and the menstrual cycle. On the following day of login, a brief recap of the previous session was given, and then a second audio educational session was given. The subsequent session's goal was to inform on various menstrual hygiene practices.
- On the third working day of the documentation, a brief recap of the prior second session was given before the third educational session was conducted. The third session's goal was to describe straightforward methods for managing menstruation-related premenstrual disorders and slight discomfort. At the conclusion of the third educational session, each participant received a supportive educational booklet made in basic Arabic using the braille method, along with another simple Arabic booklet every girl was instructed to deliver to her mother.
- The researchers answered every participant question at the conclusion of each session. With a break between each lesson, each audio instructive session was recorded in roughly 45 minutes.
- Duration of audio educational session's implementation took two months (from November month until the ending of December month 2021).

**Evaluation Phase**

The feedback evaluation was completed right away after the third and final educational session; the study participants' understanding of menstruation was once again evaluated. (Immediate post I for their knowledge). Then, the participants was re-assessed after one month of providing sessions for their practices regarding menstrual hygiene (post I for practice). Consequently, three months later of the educational sessions, reassessment of the participants' knowledge and practices regarding menstrual hygienic practices was done (follow up). The researchers needed 30 minutes to conduct the study for each girl who was visually troubled.

**Administrative Design**

Official approval from the appropriate authorities was sought in order to perform the study. Prior to starting the research process, the researcher obtained an official letter from the faculty of nursing, Port Said University offered to the special education directorate in Port-Said and Damietta cities to have an consent to be able to conduct the study. The researcher received official authorization from the special education directorate was emitted and addressed to obtain the agreement from the security directorate, then it directed to the managers of the two Al-Nor and Al-Aml schools to facilitate the data collection. Oral permission was received by the researcher from the manager of each school to include students in the study. The researcher took a verbal agreement from every participant girl when data were being collected in the study after explanation of the study purpose was identified to each participant.

**Ethical Consideration**

Prior starting the study, the scientific research ethical commission in the nursing faculty at Port-Said University gave its clearance. The study's purpose was clarified to the directors of Al-Nor and Al-Aml Schools to obtaining their permission to do this research. Oral agreement was gotten from the visually impaired adolescent girls. The study's purpose was clarified to every participant For being aware about the significance of her involvement. The visually impaired adolescent girls were provided with a brief explanation about the study to ensure for security of acquired information and it was only used to conduct the study. The data collection process didn't hinder the consistency of the

research work. The ability to refuse participation in a study anytime were telled to the visually impaired adolescent girls.

### **Statistical analysis**

With the use of the IBM SPSS software package version 20.0, information were input into the computing device and analyzed. IBM Corp., Armonk, New York Quantity and percentage were used to identify the qualitative findings. The level of normality of the distribution was examined using the Shapiro-Wilk test. The range (minimum and maximum), mean, standard deviation, and median were used to characterize data that is quantitative. At the threshold of five percent, the statistical value of the findings was determined.

## **RESULTS**

**Table (1)** Illustrates that over half of those who participated in the study (60.0%) were in the age group 12-14 year with Mean  $\pm$  SD is  $1.53 \pm 0.662$  and most of them (82.0%) of them at preparatory stage. Regarding education and culture of parents, the dads of more than half (58.0%) of the girls in the study received secondary school education, while in excess of a third of the studied girls' mothers (42.0%) had secondary education. As regard to occupation of the studied girls fathers and mothers, the majority of their fathers (92.0%) were working and most of their mothers (84.0%) were housewives.

**Table (2)** Reveals that near to half (48.0%) of the studied girls had their menarche at the 13-15 years. Regarding reaction to menarche, most of them (80.0 %) of them felt fear from first menstruation. Near to half of the studied girls (74.0%) had regular menstruation. Concerning duration of menstruation, over two thirds of the female subjects of the study (68.0%) had their menstruation from 3 to 7 days.

**Table (3)** Shows that most of the studied visually impaired adolescents girls (80.0%) reported that their mothers were the source of information regarding menstruation.

**Table (4)** Illustrates that more than three quarters of the visually impaired adolescent girls in the study (76.0%) had poor overall knowledge concerning every element pertaining to menstruation prior to audio educational sessions, which was an extremely significant difference

(P 0.01). All of the girls (100.0% & 100.0%) had good level of total knowledge regarding all aspects related to menstruation post and follow up audio educational sessions, respectively.

**Table (5)** Portrays that there was a highly statistically significant difference (P 0.01) between the majority of the visually impaired adolescent girls (92.0%) who had poor level of healthy practice during menstruation pre-audio educational sessions compared to all of the visually impaired adolescent girls (100.0%&100.0%) who had good level of total healthy practices during menstruation post and follow up audio educational sessions, respectively.

**Table (6)** Reveals that majority of visually impaired adolescent girls (90.0%) had unhealthy behavior during menstruation pre-audio educational sessions compared to more than half of them (60.0%&60.0%) had healthy behaviors during menstruation post and follow up audio educational sessions with highly statistically significant difference (P< 0.01).

**Table (7)** Shows that there was a positive correlation with statistical and highly statistical significant differences between the studied girls' total knowledge score levels, total health practice score levels and total behaviors and restrictions score levels pre and post- test, whereas (P ≤ 0.001).



**Table (1):** Distribution of the studied visually impaired adolescents girls according to their general characteristics (n = 50)

<b>General characteristics</b>	<b>No.</b>	<b>%</b>
<b>Age</b>		
12-14 year	30	60.0
15-17 year	16	32.0
18-20 year	4	8.0
<b>Mean <math>\pm</math> SD</b>	<b>14.36 <math>\pm</math> 2.14</b>	
<b>Current educational stage</b>		
Preparatory stage	41	82.0
Secondary stage	9	18.0
<b>Education and culture of parents</b>		
<b>Father</b>		
Not read and write	7	14.0
Read and write	6	12.0
Primary	0	0.0
Preparatory	0	0.0
Secondary	29	58.0
University	8	16.0
High education	0	0.0
<b>Mother</b>		
Not read and write	15	30.0
Read and write	6	12.0
Primary	0	0.0
Preparatory	0	0.0
Secondary	21	42.0
University	8	16.0
High education	0	0.0
<b>Occupation</b>		
<b>Father</b>		
Not work	4	8.0
Work	46	92.0
<b>Mother</b>		
House wife	42	84.0
Work	8	16.0

**Table (2):** Distribution of the studied visually impaired adolescent girls according to their menstruation characteristics (n = 50)

Menstruation characteristics	No.	%
<b>Menarchal age (in years)</b>		
Less than 10 years	0	0.0
10-11 year	13	26.0
12 year	13	26.0
13-15 year	24	48.0
More than 15 year	0	0.0
Other	0	0.0
Mean $\pm$ SD.	12.50 $\pm$ 1.46	
<b>Reaction at menarche</b>		
Feeling fear	40	80.0
Feeling happiness	2	4.0
Feeling ashamed	8	16.0
<b>Regularity of the menstruation</b>		
Regular	13	26.0
Irregular	37	74.0
<b>Frequency of menstruation</b>		
Less than 21 day	0	0.0
From 21:35 day	37	74.0
More than 35 day	0	0.0
Irregular interval	13	26.0
Mean $\pm$ SD.	27.54 $\pm$ 4.38	
<b>Duration of menstruation</b>		
Less than 3 days	6	12.0
From 3-7 days	34	68.0
More than 7 days	10	20.0
Mean $\pm$ SD.	5.18 $\pm$ 1.32	

**Table (3):** Distribution of the studied visually impaired adolescent girls according to source of information about menstruation among the studied adolescents girls (n = 50).

Source of information about the menstruation	No.	%
Mother	40	80.0
Grand mother	0	0.0
Sisters	8	16.0
School	0	0.0
Friends	0	0.0
No one	2	4.0

**Table (4):** Descriptive analysis of the studied visually impaired adolescent girls according to their total level of knowledge regarding all aspects related to menstruation pre, post and follow up audio educational sessions (n = 50)

Knowledge regarding menstruation	Pre		Post immediate		Post after 3 month		Test of Sig.	P
	No.	%	No.	%	No.	%		
<b>Biological health aspects of menstruation</b>								
Poor (<50%)	38	76.0	0	0.0	0	0.0	Fr= 96.160*	<0.001**
Fair (50 – <75%)	12	24.0	0	0.0	2	4.0		
Good ≥75%)	0	0.0	50	100.0	48	96.0		
<b>Menstruation</b>								
Poor (<50%)	24	48.0	0	0.0	0	0.0	Fr= 86.746*	<0.001**
Fair (50 – <75%)	26	52.0	11	22.0	9	18.0		
Good ≥75%)	0	0.0	39	78.0	41	82.0		
<b>Complaints and complications of neglecting menstrual hygiene</b>								
Poor (<50%)	35	70.0	0	0.0	0	0.0	Fr= 98.737*	<0.001**
Fair (50 – <75%)	15	30.0	0	0.0	2	4.0		
Good ≥75%)	0	0.0	50	100.0	48	96.0		
<b>Proper nutrition during menstruation</b>								
Poor (<50%)	24	48.0	0	0.0	0	0.0	Q= 48.000*	<0.001**
Fair (50 – <75%)	0	0.0	0	0.0	0	0.0		
Good ≥75%)	26	52.0	50	100.0	50	100.0		
<b>Overall Knowledge regarding menstruation</b>								
Poor (<50%)	38	76.0	0	0.0	0	0.0	Fr= 100.000*	<0.001**
Fair (50 – <75%)	12	24.0	0	0.0	0	0.0		
Good ≥75%)	0	0.0	50	100.0	50	100.0		

Fr: Friedman test

Q: Cochran's test

p: p value for comparing between the studied periods

\*: Statistically significant at  $p \leq 0.05$ \*\* Highly statistically significant  $P \leq 0.001$

**Table (5):**Distribution analysis of the studied girls' according to total level of health practices during menstruation pre-post and follow up audio educational sessions (n = 50).

Health practices during menstruation	Pre		Post after 1 month		Follow up after 3 months		Test of sign. (Q)	p-value
	No.	%	No.	%	No.	%		
<b>Hygienic practices</b>								
Unhealthy (Poor) (<75%)	39	78.0	9	18.0	2	4.0	61.000*	<0.001**
Healthy (Good) (≥75%)	11	22.0	41	82.0	48	96.0		
<b>Nutritional practices</b>								
Unhealthy (Poor) (<75%)	50	100.0	3	6.0	9	18.0	78.520*	<0.001**
Healthy (Good) (≥75%)	0	0.0	47	94.0	41	82.0		
<b>Overall Health practices during menstruation</b>								
Unhealthy (Poor) (<75%)	46	92.0	3	6.0	0	0.0	86.391*	<0.001**
Healthy (Good) (≥75%)	4	8.0	47	94.0	50	100.0		

**Q: Cochran's test**

p: p value for comparing between the studied periods

\*: Statistically significant at  $p \leq 0.05$

\*\* Highly statistically significant  $P \leq 0.001$

**Table (6):** Distribution of the studied adolescent girls according to total score level of behaviors during menstruation pre-post and follow up audio educational sessions (n = 50)

Behaviors	Pre		Post after 1 month		Follow up after 3 months		Test of Sig.	P
	No.	%	No.	%	No.	%		
Unhealthy (Poor) (<75%)	45	90.0	20	40.0	20	40.0	Q= 15.000*	0.001*
Healthy (Good) (≥75%)	5	10.0	30	60.0	30	60.0		
<b>Total Score (0 – 8)</b>								
Min. – Max.	1.0 – 6.0		3.0 – 7.0		3.0 – 7.0		F= 58.766*	<0.001*
Mean ± SD.	2.80 ± 1.43		5.26 ± 1.27		5.22 ± 1.30			
Median	2.0		5.0		5.0			
<b>% Score</b>								
Min. – Max.	12.50 – 75.0		37.50 – 87.50		37.50 – 87.50			
Mean ± SD.	35.0 ± 17.86		65.75 ± 15.93		65.25 ± 16.23			
Median	25.0		62.50		62.50			

SD: Standard deviation

F: F test (ANOVA) with repeated measures

**Q: Cochran's test**

p: p value for comparing between the studied periods

\*: Statistically significant at  $p \leq 0.05$

**Table (7):** Correlation among knowledge total score level regarding menstruation, health practices total score level and behaviors and restrictions total score level during menstruation (n = 50)

Variables		Knowledge regarding menstruation	
		Pre	Post after 3 month
<b>A: Health practices during menstruation</b>	<b>R</b>	0.376*	0.587*
	<b>P</b>	0.007*	<0.001*
<b>B: Behaviors and restrictions during menstruation</b>	<b>R</b>	0.413*	0.691*
	<b>P</b>	0.003*	<0.001*

**r: Pearson coefficient**

\*: Statistically significant at  $p \leq 0.05$

\*\* Highly statistically significant  $P \leq 0.001$

## DISCUSSION

Visually impaired individuals are those who have eyes vision abnormalities. These disorders, which impact the visual system and vision functions, may be hereditary or accidental (WHO a, 2019). Compared to visually impaired teenage boys, adolescent girls are found to have a higher prevalence. Due to the physiological changes that occur in adolescent females, visually impaired adolescent girls are exposed to numerous problems because of their limitations, and they may require assistance with their everyday needs. And self-care practices. Any type of disability is considered smirch for the the person with disability and may expose to different difficulties especially when they become menstruating (Wilbur, Torondel, Hameed, Mahon & Kuper, 2019).

Menstruation is an important phenomenon that in female life that transmit the girl from childhood period to adulthood period. It is quite delicate historical incident in lifetime of girls; ordinarily lack of perception about appropriate management needed during menstruation among normally adolescent girls (Flagg & Pillitteri, 2018). So, this study was conducted to evaluate the effect of structured audio educational sessions on knowledge and hygienic practices regarding menstruation for visually impaired adolescent girls.

Nearly half of the females in this survey had menarche at the age of thirteen to fifteen years, according to the findings of this investigation. Regarding reaction to menarche, most of them of them felt fear from first menstruation. Almost half of the visually impaired adolescent girls in the study experienced regular menstruation. Concerning duration of menstrual cycle, over two thirds of the female study participants had their menstruation from three to seven days.

These findings align with those of a study carried out by Ahmed, Salem, El feshawy and Amr (2021) who stated that More than half of the girls in the study had periods lasting three to five days before they were fourteen, making up three-quarters of the sample. Regarding menstrual interval, Twenty-eight to thirty-five days separated menstrual periods for half of the cohort under study. The majority of the girls in the study had moderate amounts of menstrual blood, on average..

Additionally, these findings are corroborated by a prior study conducted by Faheim, Ahmed, Abdelhafez, Mohamed and Ahmed (2022) which showed that At the age of twelve to fourteen, half of the blind adolescent females in the class began to menstruate; more than half of them had cycles longer than thirty days, and the average flow time was five days.

The current study's findings regarding the source of menstrual knowledge among the visually impaired adolescent girls who were the subject of the study revealed that the majority of the adolescent girls who were visually impaired who were the subject of the study indicated that their mothers were the source of information.

This result may be due to visually impaired adolescent girls had limited social relationship just with peers in the class, their members of family, and schoolteacher due to their disabilities and their mothers are considered the main secure source to everything at their life.

This outcome is consistent with research conducted by Abd Elmegaly, Attia and Soliman (2019) which demonstrated that mothers of the students are represented the basic source of information regarding all aspects of productivity at one quarter of the students' sample. In a similar vein, Ahmed et al., (2021) shown that the majority of visually impaired girls consulted their moms for information on menstruation, whereas a smaller proportion turned to teachers and the media.

Concerning total level of knowledge regarding all aspects related to menstruation audio sessions for before, after, and follow-up education among studied visually impaired adolescent girls, the results of the current research clarified that all of visually impaired adolescents' girls had good level of total knowledge concerning all aspects related to menstruation post and follow up audio educational sessions compared to over three quarters of them had a low degree of general knowledge of all aspects related to menstruation pre-audio educational sessions with a highly statistically significant difference.

The results of this study could be related to that pre audio educational sessions, the studied subjects majority reported that source of information was their mother and there was low focus from the school staff to concern with needs of the adolescent school-girls' regarding menstruation. Additionally, Menstruation may be viewed as a sensitive subject, and not all mothers are prepared to provide their daughters the necessary information, especially if they have low levels of education and poor social conditions. While after applying of the structured audio-educational sessions in an obvious, simple manner leading to enhancing the girls' understanding of menstruation and practices in terms of health.

This result is supported with El-Kurdy et al., (2020) who indicated that before applying the audio educational session, there were lack at overall knowledge regarding menstruation among the visually challenges adolescent school-girls. But, there were an enhancement at the student girls overall knowledge scores following the completion of the audio instructional sessions, there were very significant statistically variations ( $P < 0.001$ ).

In addition to another study done by Vanusha and Parvathavarthini, (2018) revealed with a highly statistically significant difference, knowledge ratings in a variety of reproductive health-related areas improved after periodic health education intervention programs.

Concerning total level of health practices of visually impaired teenage girls during menstruation before-after and follow up audio educational sessions, the present analysis revealed that the majority of the visually impaired adolescent girls in the study experienced poor level of health practices at menstruation prior to audio educational

sessions, whereas each one of them had a satisfactory level of total health practices during menstruation post and follow up audio educational sessions. This difference was highly statistically significant.

This finding may be related to the fact that, in comparison to the pretest, the audio educational sessions were very beneficial for adolescent girls with visual impairment in terms of knowledge and the right techniques to establish a high degree of menstrual healthy living practices after program application.

In the same line, Ghazy, Abuzahra, Abdelwahed and Fathy (2022) showed that the Following the audio drama program, over three quarters of visually impaired students had adopted good health habits, with a statistically significant difference between the two study phases..

As regard to total score level of behaviors during menstruation before-after and follow up audio educational sessions, the present study found that the majority of the studied visually impaired adolescents' girls had unhealthy behavior during menstruation pre-audio educational sessions compared to more than half of them had healthy behaviors during menstruation post audio educational sessions and follow up having a very substantial difference in terms of statistics.

These results may be due to the old misconception prevailing among Egyptian women, which they transmit to their daughters. It restrict girls from bathing and doing exercise during their bleeding time as they believe that the body during menstruation is open and cold bath and exercise might cause blood retention, while hot bathing may increase bleeding amount. This study result reflects the success of audio educational sessions attributed to effectiveness of educational booklet that contained many information that made girls aware of all the details about menstrual hygiene. When the information has improved, their behaviors become healthier.

These findings are in harmony with Deshpande, Patil, Gharai, Patil, and Durgawale (2018) at their study affirmed that an obvious improvement in behaviors among the students that are blind young women was found between prior-test compared to after-test I and between prior-test compared after -test II due to the effectiveness of teaching methods provided to them.



Regarding correlation between knowledge total score level regarding menstruation, health practices total score level and behaviors and restrictions total score level during menstruation, the present study revealed that With statistically and highly statistically significant differences, a positive association was discovered between the examined girls' total score levels of knowledge, total score levels of health practice, and total score levels of behaviors and restrictions before, during, and during the follow-up test..

This result could be due to with improving the studied visually impaired adolescent girls' knowledge leading to a positive impact on their behaviors and bring them out of misunderstanding, cultural taboos and restriction during the time of menstruation which subsequently enhance hygienic practices regarding menstruation.

Similarly, El-Kurdy et al., (2020) who showed that according to statistics, there was correlation among the knowledge and practice of visually impaired children regarding menstruation pre and posttest. Additionally, this result is in congruent with Nandhini and Dabhi, (2021) at their which illustrated that there was a positive significant correlation between knowledge and behaviors regarding between teenage girls with visual impairments' menstruation hygiene before and after the audio play.

## **CONCLUSION**

### ***According to the study's findings, the following can be concluded:***

Most of the study's visually impaired teenage girls had low levels of knowledge about menstruation, unhealthy menstrual practices, incorrect behaviors and various misconceptions regarding menstruation before implementation of audio educational sessions. The study also clearly revealed that most of them failed to do household work, doing exercise, going to school and religious places during the time of menstruation.

After providing audio instructional sessions, the knowledge, hygienic practices, and behaviors of studied girls regarding menstruation were improved with highly statistically significant differences. So, the audio educational sessions were effective in achieving the aim of enhancing knowledge, hygienic practices and behaviors regarding menstruation among the studied girls.

## RECOMMENDATIONS

*According on the study's findings, the following suggestions are made:*

1. Using ongoing health education programs to increase the awareness of menstruation and its discomfort in visually impaired adolescent females in a different context.
2. Adding course content regarding menstruation, its hygienic practices, and management of menstrual discomfort into the visually impaired schools' curriculum.
3. Another study is recommended to raise awareness of the unique menstrual needs of teenage females who are blind.
4. School libraries should be supplied with booklets, adequate books in a braille method which include materials related to menstruation and menstrual hygiene.
5. For the benefit of improving visually impaired adolescent girls' knowledge, attitudes, and practices around menstruation, Al-Nor and Al-Aml schools should be involved in developing and executing pertinent educational classes and programs about menstrual health among preparatory and secondary students. This can be achieved with the help of school health nurse, sociologist, and school teachers.

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## تأثير جلسات تعليمية سمعية منظمة على المعرفة والممارسات الصحية المتعلقة بالدورة الشهرية للمراهقات معتلي البصر

منار فتحي هيبه<sup>١</sup>، فتحية محمود عبد المنعم<sup>٢</sup>، هند صلاح الدين محمد<sup>٣</sup>، جيهان أحمد البهلوان<sup>٤</sup>، صفاء جابر سالم<sup>٥</sup>

<sup>١</sup>أستاذ مساعد تمريض الأمومة والنساء والتوليد-كلية التمريض -جامعة بورسعيد، <sup>٢</sup>مدرس مساعد تمريض الأمومة والنساء والتوليد-كلية التمريض -جامعة بورسعيد، <sup>٣</sup>أستاذ تمريض النساء والتوليد-كلية التمريض -جامعة الزقازيق، <sup>٤</sup>أستاذ مساعد تمريض الأمومة والنساء والتوليد-كلية التمريض -جامعة بورسعيد، <sup>٥</sup>مدرس تمريض الأمومة والنساء والتوليد-كلية التمريض -جامعة المنوفية.

### الخلاصة

المراهقات معتلي البصر (فاقدي البصر بشكل كامل أو بشكل جزئي) هي مجموعة من الفتيات ذوات الإعاقة اللائي يحتجن إلى عناية خاصة خلال بداية فترة البلوغ لديهن وخاصة أثناء الدورة الشهرية حيث لا يتم التعامل معهن بشكل صحيح. **هدف الدراسة:** هو تقييم تأثير جلسات تعليمية سمعية منظمة على المعرفة والممارسات الصحية المتعلقة بالدورة الشهرية للمراهقات معتلي البصر. **التصميم:** تم استخدام بحث شبه تجريبي لمجموعة واحد (قبل -بعد -متابعة) **مكان الدراسة:** تم تنفيذ الدراسة في مدرستي النور والأمل للفتيات المراهقات معتلي البصر في محافظة بورسعيد ودمياط. **عينة البحث:** تضمنت الدراسة عينة من 50 فتاة مراهقة معاقة بصرياً (27) فتاة معاقة بصرياً بمدينة بورسعيد و (23) فتاة معاقة بصرياً بمدينة دمياط. **أدوات جمع البيانات:** تم استخدام ثلاث أدوات لجمع البيانات، الأولى: استمارة تقييم منظم لمعرفة الخصائص الاجتماعية وخصائص الدورة الشهرية بالإضافة الي معلومات الفتيات عن الدورة الشهرية **والأداة الثانية:** تقييم الممارسات الصحية أثناء الدورة الشهرية **والأداة الثالثة:** تقييم القيود والسلوكيات المتبعة أثناء الدورة الشهرية لدي الفتيات معتلي البصر. **النتائج:** أشارت نتائج الدراسة إلى: كان هناك نقص في معرفة وممارسات المراهقات ذوات الإعاقة البصرية فيما يتعلق بالدورة الشهرية قبل تنفيذ الجلسات التعليمية السمعية. بينما كان هناك تحسن في المعرفة والممارسات الصحية المتبعة للفتيات المدروسات فيما يتعلق بالدورة الشهرية بعد تطبيق الجلسات التعليمية السمعية مع وجود فروق ذات دلالة إحصائية عالية. **الخلاصة:** كانت الجلسات التعليمية السمعية فعالة في تعزيز المعرفة والممارسات الصحية المتعلقة بالدورة الشهرية للمراهقات معتلي البصر. **التوصيات:** يجب توفير برنامج تعليمي مستمر لتوعية المراهقات فيما يتعلق بالدورة الشهرية.

**الكلمات المرشدة:** الدورة الشهرية- المراهقات -المعرفة -الممارسات الصحية -جلسات تعليمية سمعية- معتلي

البصر.