Awareness of Blind Adolescent Girls Regarding Primary Dysmenorrhea: Outcomes of Audio Peer Educational Guidelines

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Abstract:

Background: Primary dysmenorrhea is a common problem among adolescent girls which can have negative effects on their daily life activities. **Aim:** To evaluate the awareness of blind adolescent girls regarding primary dysmenorrhea: outcomes of audio peer educational guidelines. **Subjects and Methods:** A quasi-experimental research design was used in this study that was conducted at Al-Noor and Al-Amal School for the Blind, preparatory and secondary in Beni-Suef City. A purposive sample of 150 blind adolescent girls from the previously mentioned settings was used in this study. Three tools were used (pre/posttests): 1) Students' interviewing questionnaire to assess their knowledge about primary dysmenorrhea, 2) An observational checklist to evaluate girls reported practices regarding primary dysmenorrhea and 3) Blind students' satisfaction level questionnaire to appraise satisfaction level on audio peer educational guidelines used among blind adolescent girls. **Results:** There were significant differences regarding knowledge and their reported practices about primary dysmenorrhea between pre, one month post, and follow-up phases of educational guidelines. **Conclusion:** The present study concluded that the educational guidelines had a positive effect on improving awareness of blind adolescent girls-students regarding primary dysmenorrhea. **Recommendations:** Integrating the topic of menstruation, menstrual hygiene, and menstrual sickness management into the course contents of the blind school's objectives.

Keywords: Primary Dysmenorrhea, Awareness, Blind Adolescent-Girls, Audio-Peer Educational Guidelines.

Introduction

Adolescence is a serious developmental stage, a transition period from childhood to adulthood and puberty in the life of young girls, puts into motion hormonal, psychological, cognitive and physical changes which converts the girls from a child to a sexually matured woman with a change from total dependence to relative independence **(Steinberg, 2014)**. The World Health Organization (WHO) illustrates adolescents as persons among the age of 10 and 19 years. Adolescence in girls has been identified as a special stage in their life cycle that requires special attention **(WHO, 2014)**.

Internationally, adolescents consists 20% of the earth people and living generally (85%) in developing countries. Approximately 52% of the girl people (26% of the overall people) in the reproductive stage **(National Institute of Public Cooperation and Child Development, 2014).**

Blindness is the disturbing of physical condition with profound emotional and economic effects. It leads to mainly important differences in lifestyle, habits which may reason of troubles in physical, psychological and social alteration of blind girls. It reasons a severe result on the adolescent girls, family and community. Vision is one of the most very

important channels through which the adolescent is conversant concerning environment and essential in organizing experiences. Consequently, it is considered the majority of traumatic sensory impairment **(Mosbeh, Faheim & Hassan, 2016).**

According to WHO, the incidence of visually impaired were 148 million worldwide and 110 million cases of low vision that could be at danger of becoming blind. Approximately 90%, of the world visually diminished people, live in the developing countries, this means that 9 out of 10, who are visually diminished live in the developing countries as well. It is predicted that over 25,000 child and young people are sorted as blind or partially viewed within the United Kingdom **(Keil, 2014; Alam et al., 2016)**.

The start of menarche is one of the chief physiological changes that take place in adolescent girl's life **(Jha, 2018)**. Menstrual cycle, which is controlled by the hormones of the hypothalamopituitary axis and is one of the milestones of puberty in girls, engages the cyclical shedding of the inner lining of the uterus therefore, the adolescent stage in a girl is recognized as a special period **(Ameade et al., 2018)**. A number of women, before or during menstruation also had to contend with dysmenorrhea. Dysmenorrhea refers to the happening of painful menstrual cramps of uterine origin. It is the most ordinary gynecologic complaint in adolescents and young women. The occurrence accounted ranges between 40 to 80% in different countries including Malaysia, Nigeria and Ghana **(Savitha et al., 2016)**.

Dysmenorrhea may be classified into primary and secondary. Dysmenorrhea may begin a few days before menstruation and lasts for a few hours to several days. Primary dysmenorrhea may start with menarche or within a year of menarche even as secondary dysmenorrhea commences several years after menarche **(Derseh et al., 2017)**. Greater part of women experiences some degree of cramping, especially in the first year of their reproductive life. Primary Dysmenorrhea (PD) is a key women's health load and is also one of the public problems in the world **(Dharshini et al., 2021)**.

In Arab countries such as Oman, Iraq, Lebanon and Saudi Arabia, the reported occurrence of PD was 94%, 89.4%, 74.3%, and 60.9% respectively **(Ibrahim et al., 2015)**. The cause of PD has up till now to be established. It has been credited to uterine contractions with ischemia and production of prostaglandin. In addition, PD may be classified into mild, moderate and severe, depending on the level of pain experienced and the devastating effects of the problem **(Aziato et al., 2014).** Pain may give out to the back of the legs or the lower back. Menstruation is linked with nausea, vomiting, diarrhea, headache, weakness and major symptoms, including pain, unfavorably affects daily life and school performance, causing frequent short-term school absenteeism among female adolescents **(Kamel et al., 2017).**

Peer education is a ordering of educational strategies presented by members of a subculture, society, or a grouping of people for their peers. A peer is a person who has equal status with another as in age, background, social status, and interests. So, peer education is the process of allocation knowledge and experiences among members of a collection who have similar concerns and characteristics, to attain optimistic health effects **(Akuiyibo et al., 2021).** Because of all parents and people know that the present-day adolescents are highly influenced by peer (peer pressure) and they are extremely expected to follow what their peers do, it is very significant to engage peers to bring about a major change in society **(Dwivedi et al., 2020).**

The nurse has a vital role in supporting, educating, and training blind students, meeting their needs by designing programs to improve their activities and healthy lifestyle or even confining in teaching classes about (hand hygiene, adequate rest, bath pattern during menstruation, perineal care, pain reliever, anxiety relieve, warm compress or heating pad, exercises, abdominal massage, changing cloths and washcloths with soap and water) focusing on the targeted areas of nutrition, physical activity, personal hygiene, pain, and anxiety

relief, infection prevention and health protection from hazards or disease. People's adherence to control measures is affected by their knowledge and practices towards dysmenorrhea management.

Significance of the study

Severe dysmenorrhea has physical, psychological and social consequences. Pain is devastating and impairs activities of daily living. The adolescent blind girls in pain become depressed and moody and this interferes with social interactions. Therefore, the majority of blind girls all over the world suffer from anxiety, shame, discomfort, and isolation during menstruation **(Dwivedi et al., 2020)**. In Egypt, which is a large country in terms of land area and population size, the incidence of dysmenorrhea was evaluated only in two districts and studies have accounted a prevalence of 76.1% and 90.4% among secondary school girls and nursing University students in Assiut respectively, compared to 75% and 78.8% among general and technical secondary school girls in Mansoura, respectively **(Kamel et al., 2017)**. The onset of menstruation is celebrated in some cultures as it shows that the girl is becoming a woman. It, however, also heralds a period of inhumane treatment of some post-pubescent girls since some cultures and religions consider the menstruating woman as impure leading to forced seclusion, reduced mobility, as well as dietary and social restrictions **(Anusree et al., 2014)**.

In a lot of societies, young people have limited and incomplete access to the correct information because their parents also lack the necessary knowledge and skills to educate them or parents are moreover busy or feel mortified or uncomfortable discussing reproductive health with their children **(Akuiyibo et al., 2021)**. As peers can influence each other's feelings of health, habits, and behaviors, a variety of studies have indicated peer education to be more effective than usual methods (e.g., training provided by teachers or parents) when sensitive subjects like sexual relationships and substance abuse are worried. Therefore, the current study aimed to examine the effect of audio peer educational guidelines on the awareness of blind adolescent girl students regarding primary dysmenorrhea **(Demirezen et al., 2020)**.

Aim of the study:

The current study aimed to evaluate the awareness of blind adolescent girls regarding primary dysmenorrhea: outcomes of audio peer educational guidelines.

This aim could be achieved through the following objectives:

1. Assess knowledge and reported practices of blind adolescent girls students regarding primary dysmenorrhea management before, one month after, and at follow-up phases of implementing audio peer educational guidelines.

2. Implement audio peer educational guidelines upon primary dysmenorrhea management.

3. Assess the level of satisfaction among blind adolescent girl students on audio peer educational guidelines on primary dysmenorrhea management.

Research hypothesis:

1. Blind adolescent girls' students' knowledge and reported practices about primary dysmenorrhea management will be improved after receiving audio peer educational guidelines.

2. Blind adolescent girl students' satisfaction with audio peer educational guidelines will be improved after receiving the program.

Operational definitions

- **Awareness:** Knowledge and extent of the practice
- **Knowledge:** Information acquired through experience (or) education
- **Practice**: The application of any method.
- **Primary Dysmenorrhea:** Painful menstruation without evidence of an organic defect.

- **Management of Primary Dysmenorrhea**
- It refers to the actions (or) efforts taken to reduce pain by adolescent girls who were having primary dysmenorrhea.

Subjects and Methods

Research Design:

Quasi-experimental research design (pre and post-test) was used to accomplish the current study.

Settings:

The current study was conducted at Al-Noor and Amal School for blind students, preparatory and secondary in Beni-Sueif Governorate, Egypt. These settings are broad governmental schools. They contain 12 classes (6 classes for primary education, 3 classes for preparatory education, and 3 classes for secondary education). Another part of the school involves areas for administration, activities, art, and daily living activities for blind students. Al-Noor and Al-Amal School for the blind students is the only school for visually impaired children in Beni suef Governorate and locates in Bani suef city and serve all districts such as (Beni suef district, Al-Wasta district, Nasser district, Al-Fashn district, Ehnsia district and BPA district). It affiliates with the special education sector which is a part of the Ministry of Education

Subjects:

A purposive sample of 150 blind adolescent girls was recruited for this study.

Subject allocation: The researchers selected 15 peer adolescent students group of blind adolescent girls to be a helper in educating the other adolescent girls and they were excluded from the study sample. The study sample (150) was divided into 15 groups. Each group consisted of 10 blind adolescent girls. The studied sample was selected according to the following:

Inclusion criteria: Blind adolescent girls who:

- Aged 11-18 years.
- Free from medical health problems and no verbal or hearing response problems.
- Already menstruated and suffered from primary dysmenorrhea
- Willing to participate in the study and follow the instructions

Tools of data collection:

The data collection tools were composed of three tools to collect the necessary data

Tool I: Interviewing questionnaire sheet (pre/one month post and follow-up tests)

It was designed by the researchers in light of the pertinent and related literature and written in simple Arabic language, to collect data related to:

Part (1): Characteristics of the studied adolescent student's girls which included, age, educational level, and residence.

Part (2): Adolescent students' menstrual data such as frequency of dysmenorrhea, taking analgesics, menarche age, pain length, pain intensity, working ability, absenteeism, pain experience, and menstrual symptoms whether lack of concentration, abdominal discomfort/GIT symptom, headache/joint, and muscle or pelvic pain/body ache, irritability, nervousness, loss of appetite and anorexia, feeling of heaviness in the lower abdomen, lethargy, and tiredness, and sleeplessness …etc.

Part (3): Blind adolescent students' knowledge about primary dysmenorrhea: It was adopted from (**Aziato et al., 2014, Bernardi & Lazzeri, 2017 and Dharshini et al., 2021)** to assess adolescent students' knowledge about dysmenorrhea management such as; structures of the female reproductive organs, define of dysmenorrhea, the definition of primary dysmenorrhea, causes of primary dysmenorrhea, the clinical manifestation of primary dysmenorrhea, the proper time for menarche and dysmenorrhea, risk factor of dysmenorrhea, management of primary dysmenorrhea, methods used to relieve

dysmenorrheal pain, a therapy used to reduce dysmenorrheal pain and dietary needs of girls as well as their sources of information about premenstrual syndromes.

Scoring system: Knowledge items were divided into 15 questions and each question was owed to three score levels: Complete and/or correct answer was achieved (3), while the incomplete correct answer was scored (2), and don't know or the wrong answer was scored (1). The total score was classified into either adequate level (from 75% and more) or Inadequate level (less than 75%) from the total score (60).

Tool II: An observational checklist

The observational checklist was used to evaluate blind students' reported practices (pre//one month post and follow-up tests). Adapted from **(Savitha et al., 2016; Kamel et al., 2017 and Ameade et al., 2018).** It was filled in by the researchers to evaluate adolescents' practices in relation to dysmenorrhea management as hand hygiene, adequate rest and bath pattern during menstruation, perineal care, pain reliever, anxiety relief, warm compress or heating pad, exercises, abdominal massage, changing cloths and washcloths with soap and water.

Scoring system: Each step was allocated to two score levels, which are: do was scored (2), and not done scored (1). The total score was classified into either competent (from 75% and more) or incompetent (less than 75%) from total score as the following: Hand hygiene (10 steps) and total score = 20; adequate rest (5 steps) and total score=10; bath pattern during menstruation (15 steps) and total score = 30; perineal care (11 steps) and total score = 22; abdominal massage (5 steps) and total score = 10; changing cloths (5 steps) and total score = 10; washcloths with soap and water (10 steps) and total score = 20; pain relieve (5 steps) and total score = 10, anxiety relieve (4 steps) and total score = 8; warm compress or heating pad (5 steps) and total score = 10; and exercises (5 steps) and total score = 10.

Tool III: Blind students' satisfaction level questionnaire: That was adopted from (**Bijlani and Pardeshi, 2016; Beena, 2016**). It was used to appraise satisfaction levels on audio peer educational guidelines using among blind adolescent girls. It included five items with 3 options, highly satisfied =3, satisfied = 2, and dissatisfied =1. Therefore, the obtainable score is 5–15 and the total score was classified as either Dissatisfied (from <50%), Satisfied (from 50% -75%) and highly satisfied >75% from the total score.

Development of Educational Guidelines:
The data was collected through the following phases:

1. The assessment phase: In this phase, the researchers started by introducing themselves to the blind adolescent girls, and provided them with a concise idea, aims, and predictable outcomes of the study. Then, oral consent was achieved from the girls. The researchers were interviewing the blind adolescent girls and began to clarify the questionnaire components and the study plan. After clarification, the researchers started to evaluate and fill the pretest by reading the questions to each girl and after that their responses were noticed on the questionnaires. Every blind adolescent girl student was assessed by recognizing her socio-demographic data, menstrual history, level of knowledge, and practice in dysmenorrhea management. The completion of the pretest from 20 to 25 minutes, the researchers informed the girls-students that there would be some /one-month post-test subsequent to explaining educational sessions and follow-up assessment after 2 months.

2. The implementation phase: This phase passes through three steps

First: The researchers interviewed the selected 15 students' peer groups and began to teach them to be capable of education and expression. The researchers gave training education to peer educators during discussions between researchers about knowledge and practice of safety techniques used in dysmenorrhea management. After that, the groups started to re- demonstrate discussion until the students were knowledgeable in

expressing teaching. This training obtained 3 sessions /a week. Each meeting or session takes about 40 minutes. First session for knowledge about dysmenorrhea, the second session about practices, and the third session for revision to confirm the ability to instruct and express peer education.

Second: For audio- peer education accomplishment, the researchers began to record the audio educational guidelines. It is a recorded conversation between the 10 students' peer group about knowledge and practice of safety and appropriate method used in dysmenorrhea management. Audio peer is a dramatized, only audio performance is played on discussion, music, and sound effects with no image aids to help blind adolescent girls to recognize all knowledge about dysmenorrhea. For blind adolescent girls, an audio player replaces absent visual material with a sound clarification. Audio guidelines are the more effective and proficient way to promote health and wellbeing by using peer drama to expand the knowledge and practices of blind adolescent girl students through their aids.

Third: The researchers began to be situated the blind adolescent girl students understudied comfortably in the class, setting the laptop and speakers to be connected correctly, the blind adolescent girls are isolated into 15 groups, each group included 10 girls and each peer educator with the aid of researchers learned one group about knowledge and practice of safety technique used in dysmenorrhea management, explained to them about audio peer guidelines and learned them to keep calm to hear clearly after education finished, the audio guidelines were played for the duration of 30 minutes. After the audio peer educational guidelines ended, the researchers asked the students if they want to do over again discussion, discuss with the girls, respond to all questions and construct them clearly in all aspects of the audio player.

3. The evaluation phase

In this stage, the researchers filled a post-test to assess the level of knowledge and practice about dysmenorrhea management /one-month post following to explain educational sessions by interpreting and investigating the questions to each girl, and after that their answers were marked on the questionnaires. It acquired about 30 minutes (from 20 to 25 minutes for knowledge and practice evaluation plus 5 minutes for satisfaction`s level evaluation. Follow up evaluation following 2 months, the researchers followed the studied blind adolescent girl students for re-assessment and reporting the effect of audio peer educational guidelines on dysmenorrhea management and responding any worry from the girls to reassess minor problems of menstruation, level of knowledge and practices about dysmenorrhea management and assessment of satisfaction level on audio peer educational guidelines among blind adolescent girls. It took about 20-30 minutes.

Administrative design:

Official steps were completed to get permission to carry out the present study at Beni-Suef Al-Noor and Al-Amal school, written approval letter was taken from the responsible authorities (Faculty of Nursing Dean at Beni-Suef University to the directors of the Al-Noor and Al-Amal School), subsequent explaining the aim of the study and planned schedule for completion of the study actions. All information about the aim, the significance of the study, and the procedures of the existing study were explained to all blind girl students, the subjects were informed that they have the right to contribute or withdraw from the study at any time. The blind adolescent girl's students were reassured that the information taken will be secret and the researchers used it only to attain the purpose of the study.

Validity and reliability of study tools:

Content validity was established by a group of experts (5) including 2 Pediatric Nursing, 2 Maternity and Gynecological Nursing specialties and 1 Obstetric and Gynecological Medicine. Their opinions were obtained concerning the tools format layout, and consistency. The tools' content was tested concerning knowledge accuracy, relevance, and competence. Reliability of all points of the tools was done. The reliability test was established by using the Cronbach alpha to assess internal consistency construct validity. Cronbach alpha r = 0.85 for knowledge and 0.86 for practices.

Pilot study:

A pilot study was conducted on 10% of the total study subjects to test the clarity and practicability of the tools and the suitability of the settings. Those who contributed to the pilot study were later included in the study as there were no modifications to the tools.

Fieldwork

The data collection started from the first of January, 2022 till the end of May, 2022. The educational program was conducted at students' residences of the institution after the studying day had finished. The students' residence of the institution is 3 wide places in the school. Each place contains 50 beds for blind students. The researchers were interviewing each one of the blind adolescent girls and began to explain questionnaire components and the study plan. After interpretation, the researchers started to assess and fill pretest by reading the questions to each girl and after that their responses were noticed and documented on the questionnaires. The researchers selected 15 peer adolescent students group from blind adolescent girls' students to be helpers in educating the other adolescent girls after educating them by hearing the audio educational program. The studied sample was divided into 15 groups; each group consisted of 10 blind adolescent girls. The student girls' assessment was done individually pre-intervention, then evaluated post and at follow-up individually (half an hour for each one). The studied sample were informed to be in contact with the researchers by telephone for any guidance.

Statistical analysis:

Data were coded and transformed into a specially designed form to be appropriate for the computer entry process. Data were entered and analyzed by using Statistical Package for Social Science (SPSS) version 22. Graphics were done using the Excel program. Quantitative data were uttered as mean and standard deviation (X±SD). Qualitative data were expressed as numbers and percentages. It was analyzed by using the chi-square test (X^2) for 2X2 tables. ANOVA test was used to analyze the differences among group means.

Results

Table (1): Represents characteristics of the studied sample. It was clear from this table that 52% were between age 13-15 years and the mean age group among studied sample was 15.4 ± 1.61. Regarding education, 80% of studied blind adolescent girls had secondary education. Concerning residence, 64% of the studied girls were from rural areas.

Figure (1): Explains sources of information regarding primary dysmenorrhea among studied blind adolescent girls. It shows that 40% of the studied sample had their information about primary dysmenorrhea from their friends, only, 20% of them had their information from their families.

Menstrual history of the studied blind adolescent girls was shown in **Table (2)**. It was illustrated that the frequency of dysmenorrhea in 43.4% of the studied girls is frequently occurs, 76.7% taking analgesics and 56.7% of them had menarche age between 13-15 years and moderate menstrual pain. Concerning pain length, 40% of the studied blind adolescent girls had length of pain between 1-2 days and 60% of them had moderately affected their working or learning ability.

Table (3): Signifies menstruation problems and dysmenorrhea among blind adolescent girls on pre and follow up phases. About physical symptoms, it was illustrated that all the blind girls (100%) had pain in (head, joint, muscle or pelvic and all body parts and also sleeplessness in pre education while, 70% and 85% of them didn't have pain or sleeplessness in the following up phase of educational guidelines. Also, 85% of them had irritability, loss of appetite and anorexia and feeling of heaviness in the lower abdomen in pre education and decreased to 20%, 15% and 18% in the following up phase respectively, follow up educational guidelines. For this reason, there were statistical and highly statistical significant improvement amongst blind adolescent girls after one month of nursing intervention and after the following menstruation in some problems of menstruation and dysmenorrhea in the following up phase of educational guidelines than in pre education ($P<0.05$).

Knowledge of blind adolescent girls on primary dysmenorrhea throughout the guidelines phases were reported in table (4). It was found that there were highly statistically significant improvements in adolescent girls' knowledge one month post and at follow up phases of guidelines implementations.

Table (5): Points out that there were highly statistically significant improvements in blind adolescent girls' reported practices one month post and at follow up of audio peer educational guidelines intervention regarding all practices items about primary dysmenorrhea management**.**

Table (6): Signifies mean and standard deviation of knowledge and reported practices on pre, post and follow-up phases of primary dysmenorrhea among blind adolescent girls. Concerning girls' mean scores of knowledge on pre intervention were 48.62 ±1.35 compared to 82.40 ±1.38 and 78.05 ±1.53 on post and follow-up phases respectively. While, mean scores of girls' reported practices at pre intervention were 49.00 ±1.18 compared to 84.79 ±1.36 and 80.24 ± 2.0 on post and follow- up phases respectively. There were highly statistical significant improvements among girls' knowledge and their reported practices in post than pre intervention of audio peer educational guidelines ($P<0.05$).

Level of satisfactions concerning audio peer educational guidelines about primary dysmenorrhea among blind adolescent girls was illustrated in **figure (2).** It was found that 55% were highly satisfied with audio peer educational guidelines.

Table (1): Demographic Characteristics of the Studied Blind Adolescent Girls (N= 150)

Characteristics	**No (n=150)**	**%**
Age		
11-<13	48	32.0
13-<15	52	34.7
15-<18	50	33.3
Mean ± SD	15.4 ± 1.61	
Education		
Preparatory	30	20.0
Secondary	120	80.0
Residence		
Rural	96	64.0
Urban	54	36.0

Figure (1): Distribution of Adolescent Girls Regarding Sources of Information about Primary Dysmenorrhea (N = 150)

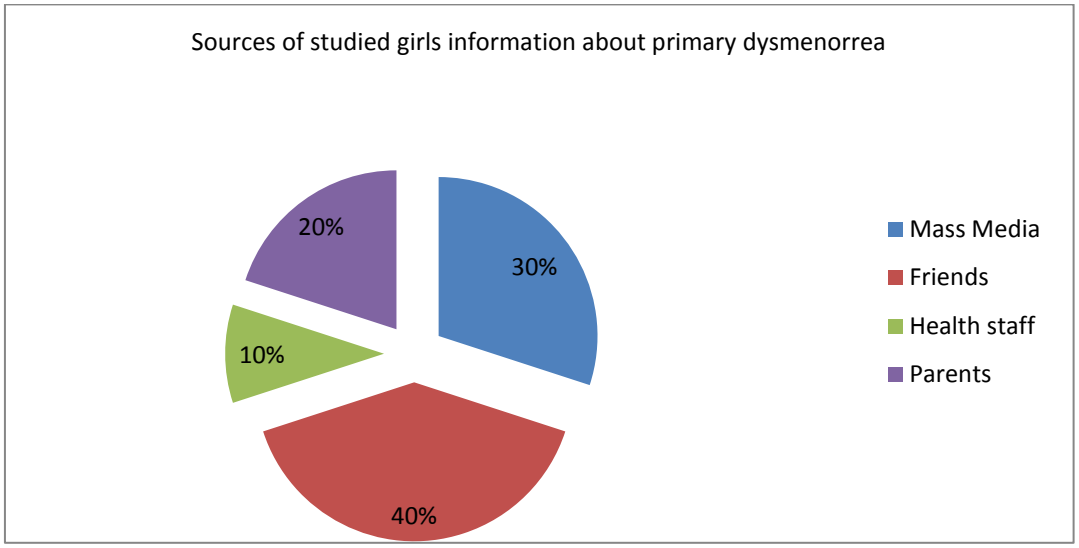

Table (2): Menstrual History of the Studied Blind Adolescent Girls (N= 150)

Items	No (n=150)	%
Frequency of dysmenorrhea		
Less frequently	32	21.3
More frequently	65	43.4
Rarely	53	35.3
Taking analgesics		
Yes	115	76.7
No	35	23.3
Menarche age/ years		
10-12	40	26.7
13-15	85	56.7
16-18	25	16.6
Pain length		
1 day	23	15.3
1-2 day	60	40.0
2-3 days	45	30.0
Total period	7	4.7
Nil	15	10.0
Pain intensity		
Mild	45	30.0
Moderate	85	56.7
Severe	20	13.3
Working or learning ability		
Moderately affected	90	60.0
Clearly inhibited	20	13.3
Unaffected	40	26.7

Table (3): Distributions of Menstruation's Problems and Dysmenorrhea among Blind Adolescent Girls on Pre and Follow-Up Phases (N = 150)

Problems	Pre education		Follow up		P-value
	Yes	No	Yes	No	
	%	%	%	%	
Lack of concentration	45.0	55.0	5.0	95.0	.459
Abdominal discomfort/GIT symptoms	80.0	20.0	20.0	80.0	.459
Headache/joint and muscle or pelvic pain/body ache	100.0	0.0	30.0	70.0	.000**
Irritability	85.0	15.0	20.0	80.0	.160
Nervousness	82.0	18.0	15.0	85.0	1.000
Loss of appetite and anorexia	85.0	15.0	15.0	85.0	.000**
Feeling of heaviness in the lower abdomen	85.0	15.0	18.0	82.0	.000**
Lethargy and tiredness	80.0	20.0	15.0	85.0	.000**
Sleeplessness	100.0	0.0	15.0	85.0	.021 *

Table (4): Knowledge of Blind Adolescent Girls on Primary Dysmenorrhea throughout Educational Guidelines Phases (N = 150).

Girls' Knowledge	Pre- guidelines		Post- guidelines		Follow up	
	Adequate %	Inadequate %	Adequate %	Inadequate %	Adequate %	Inadequate %
Structures of the female reproductive organs	32.0	68.0	90.0	10.0	88.0	12.0
Define of dysmenorrhea	25.0	75.0	80.0	20.0	87.0	22.0
Definition of primary dysmenorrhea	15.0	85.0	95.0	5.0	90.0	10.0
Causes of primary dysmenorrhea	25.0	75.0	96.0	4.0	96.0	4.0
Clinical manifestation of primary dysmenorrhea	45.0	55.0	90.0	10.0	85.0	15.0
Proper time for menarche and dysmenorrhea	12.0	88.0	85.0	15.0	82.0	18.0
Risk factors of dysmenorrhea	15.0	85.0	90.0	10.0	85.0	15.0
Management of primary dysmenorrhea	28.0	72.0	94.0	6.0	92.0	8.0
Method used to relieve a dysmenorrhea pain	20.0	80.0	90.0	10.0	85.0	15.0
Therapy used for reduce dysmenorrhea pain	35.0	65.0	94.0	6.0	92.0	8.0
Dietary needs of girls	10.0	90.0	92.0	8.0	88.0	12.0
T-test	**X^2 =32.2 pre- guidelines vs. post- guidelines**					
P value	**X^2 = 64.4 pre - guidelines vs. follow- up**					<0.001**
	X^2 = 28.6 post - guidelines vs. follow- up					

Table (5): Bind Adolescent Girls' Reported Practices about Primary Dysmenorrhea on Pre, One Month Post and at Follow-Up Phases (N = 150).

Practices of Primary Dysmenorrhea	Pre- guidelines		One- month post- guidelines		Follow up	
	Competent %	Incompetent %	Competent %	Incompetent %	Competent %	Incompetent %
Hand hygiene	20.0	80.0	88.0	12.0	85.0	15.0
Adequate rest	40.0	60.0	96.0	4.0	95.0	5.0
Bath pattern during menstruation	10.0	90.0	90.0	10.0	85.0	15.0
Perineal care	37.0	63.0	96.0	4.0	95.0	5.0
Pain relieve	30.0	70.0	88.0	12.0	85.0	15.0
Anxiety relive	35.0	65.0	88.0	12.0	85.0	15.0
Warm compress	25.0	75.0	90.0	10.0	85.0	15.0
Exercises	5.0	95.0	88.0	12.0	85.0	15.0
Abdominal massage	15.0	85.0	90.0	10.0	85.0	15.0
Changing cloths	35.0	63.0	90.0	10.0	88.0	12.0
Wash cloths with soap and water	30.0	70.0	95.0	5.0	92.0	8.0
Bath pattern during menstruation	20.0	80.0	88.0	12.0	85.0	15.0
T-test	**X^2= 14.6 pre-vs. post- guidelines**					
P value	**X^2 = 26.4 pre - guidelines vs. follow- up**					<0.001**
	X^2 = 16.8 post - guidelines vs. follow- up					

Table (6): Mean Scores of Knowledge and Reported Practices of Blind Adolescent Girls about Primary Dysmenorrhea Pre, One Month Post and at Follow-Up Phases of Guidelines Implementation (N = 150)

Variables	Pre test (Mean ± SD)	One Month Post-test (Mean ± SD)	Follow-up (Mean ± SD)	Anova test	P-value
Students' Knowledge	48.62 ±1.35	82.40 ±1.38	78.05 ±1.53	- 4.044	.000
Students' Practices	49.00 ±1.18	84.79 ±1.36	80.24 ± 2.0	- 7.243	.000

Figure (2**):** Satisfaction' Level regarding Audio Peer Educational Guidelines about Primary Dysmenorrhea among Blind Adolescent Girls (N = 150)

Discussion

Primary dysmenorrhea (PD) was a widespread problem among girls which includes a lot of symptoms physically and emotionally. It seriously affects personal life and learning **(Cui & Xie, 2016)**. The quality of life is extremely affected in dysmenorrheic girls, which is an important public health problem that needs attention **(Dharshini et al., 2021)**. This study aimed to evaluate the awareness of blind adolescent girls regarding primary dysmenorrhea: outcomes of audio peer educational guidelines.

In the present study, the mean age of the studied adolescent girls at menarche was found to be 15.4 ± 1.61 years and more than one-third ranged from 13 to 15 years old. This study result was supported by **Goda et al., (2020)** who found in his study that, the mean age of students was 16.31±0.9.

In relation to the sources of information regarding primary dysmenorrhea among studied blind adolescent girls, the present study showed that the majority of them had their information from their friends; only, the minority had their information from their families. The present study results were unsupported by **Ahmed et al., 2021** who reported in their study that, among one hundred adolescent girls, more than three-quarters of them had their sources of information from their mothers. Also, the study done by **Bijlani & Pardeshi, (2016)** was incongruent with the previous findings, they reported that the sources of information for the majority of them were their mothers and only the minority of girls had information about menarche from teachers and their friends. The present study result may be attributed to the that many adolescents are shy about asking for details from their mothers or lack the opportunity to conduct self-search about the information due to their blindness and limited health programs concerned with primary dysmenorrhea among blind girls in Egypt.

Also, this disagreement may be due to those differences in culture, tradition, and education in rural areas than urban areas. Also, it may be due to poor attention from the teachers to satisfy the educational needs of adolescent girls regarding menstruation.

Regarding the menstrual history of the studied blind adolescent girls, the current study revealed that the majority of the studied girls taking analgesics, had dysmenorrhea more frequently, had menarche age between 13-15 years and had a length of pain between1-2 days, and their dysmenorrhea moderately affected their working or learning ability. In the same line, **Mohammed & Mahmoud (2022)** mentioned in their study that, in many cases, menstrual pain is minor and can be treated at home. The Sedatives most commonly used to control pain are Ibuprofen and Aspirin, doctors may prescribe stronger pain relievers such as naproxen or codeine. Self-help practices to reduce pain as, stopping smoking; exercising such as swimming, walking, or cycling. Placing a heating pad or a bottle of hot water on the abdomen, bathing in warm water and massaging also help in relieving pain. In addition, relaxation techniques such as Yoga, Pilates, and Electronic nerve stimulation through the skin help in distracting from pain and discomfort.

This result was similar to the study done by **Jeyanthi (2017)**, who reported that the age of menarche of visually challenging adolescent girls was 11-14 years, their menstruation lasts from 3 to 5 days, all of them had minor alignments during menstruation but two-thirds of them had severe bleeding and irregular menstruation and their interval between menstruations were above 35 days. Also, these results are supported by **(El-Kurdy, Fadel, and El-Sayed, 2020)** who showed that half of the studied blind adolescent girls had menstruation at the age of 12-14 years, about more than half of them had a duration of the menstrual cycle above 30 days, students had menstrual flow about 5-7 days. The present discrimination in the menstrual cycle, the intensity of pain, intervals, and bleeding may be due to personal differences or differences in hormonal changes among blind adolescent girls.

Concerning menstrual problems and dysmenorrhea among blind adolescent girls on pre and follow-up phases. Regarding physical symptoms, it was illustrated that all the blind girls had pain in (the head, joint, muscles, or pelvic and all body parts and sleeplessness in pre-education which improved in follow-up educational guidelines. Also, the majority of them had irritability, loss of appetite and anorexia, and feeling of heaviness in the lower abdomen in pre-education, and decreased to a minority in the following up phases. There were highly statistically significant improvements amongst blind adolescent girls after one month of nursing intervention and after the following menstruation in some problems of menstruation and dysmenorrhea in follow-up educational guidelines than in pre-education.

In the same line the study done by **Gilbert & Foster (2020)**, support the findings, they found that the majority of blind adolescent girls' reported an improvement in menstrual minor alignments after the application of measures regarding menstrual minor alignments management and receiving education on structured audio educational sessions regarding menstruation. Also, the study done by **Acheampong, et al., (2019)** supports the study findings, they reported that after three months of intervention, blind adolescent girls reported an improvement in minor symptoms of menstruation especially back pain, pain in the pelvic region, and improving in sleeping. This agreement may be due to audio peer educational guidelines intervention is effective in improving menstrual sickness management among blind adolescent girls, also they lose the ability to reading individually so, audio is a more effective method to convey messages among them.

In relation to knowledge of blind adolescent girls on primary dysmenorrhea throughout the guidelines phases. It was concluded that there were highly statistically significant improvements in adolescent girls' knowledge one month post and at follow-up phases about all knowledge items of primary dysmenorrhea than before guidelines implementations. This result was similar to the study done by **Gilbert & Foster, (2020**), who reported that after audio drama intervention, the visually challenged girls had an improvement in the level of knowledge in post-intervention than pre. Also, these findings are supported by the study that was done by **Hennegan (2016)**, who stated that most of the visually impaired girls had incorrect knowledge in pre-intervention of audio drama sessions while the majority of the studied sample had correct knowledge in post and follow-up tests after one month. In the researcher's opinion, this result may be due to the importance of using audio peer educational guidelines program to improve their knowledge about primary dysmenorrhea, menstrual hygiene, and practices among blind adolescent girls and they really need to know this information, especially regarding health and their bodies.

As regards bind adolescent girls' students' reported practices about primary dysmenorrhea on pre, one month post, and at follow-up tests. The study results revealed that there were highly statistically significant improvements in blind adolescent girls' reported practices one month post and at follow-up of audio peer educational guidelines intervention regarding all practice items about primary dysmenorrhea management. This result was similar to the previous studies that reported that most blind adolescent girls had poor practices about menstrual hygiene and management of minor complaints before the audio-drama education regarding menstruation compared to post-intervention and there was a highly statistically significant difference at $P \leq 0.001$ **(Gilbert & Foster, 2020; Water Aid, 2010)**.

In addition, the study done by **(Helwa, and Mitaeb & Al- Hamshri, 2018**) supported the previous findings, which found that there were improvements in the visually challenged girls, practices regarding personal hygiene, and menstruation practices after one month of implementation of the audio drama program using peer education than before implementation with highly statistically significant differences. This agreement in findings may be attributed to the effect of audio peer educational guidelines on nursing intervention using peer education in changing practices of blind adolescent girls regarding

menstrual hygiene and sickness management.

Regarding mean scores of knowledge and reported practices of blind adolescent girls-students about primary dysmenorrhea pre, one month post, and at follow-up phases of guidelines implementation. The study results concluded that there were highly statistically significant improvements in girl students' knowledge and their reported practices in post than pre-intervention of audio peer educational guidelines. These findings are congruent with the study done by **Jeyanthi (2017),** who stated that there were obvious improvements in mean and standard deviation in knowledge among the studied sample in posttest than in pre-intervention and there were highly statistically significant differences.

About satisfaction level regarding using audio peer educational guidelines about primary dysmenorrhea among blind adolescent girl students. the present study showed that the majority of them were highly satisfied with audio peer educational guidelines. These results are consistent with the previous study done by **El-Kurdy, Fadel & El-Sayed (2020)** who found that the majority of visually challenged adolescent girls had high satisfaction regarding the audio drama program including an explanation of the menstrual educational sessions. Also, these findings are supported by the study by the **Ministry of Drinking Water and Sanitation (2015)** which reported that the majority of the blind adolescent girls were satisfied with the researchers and audio drama intervention on menstruation while the minority only had high satisfaction. This agreement may be due to that finding indicating that the intervention is harmless, competent and economic, and easy to follow. Also, it gives a strong picture that blind adolescent girls can benefit from the use of audio peer educational guidelines method.

Conclusion:

In the light of the present study findings, it could be concluded that the audio drama nursing intervention using peer education was an effective means of improving blind adolescent girls' knowledge and practices regarding primary dysmenorrhea. Also, there was a highly statistical improvement in menstrual symptoms, total scores of knowledge and practices, and level of satisfaction regarding intervention among studied blind adolescent girls in post-test and follow-up tests than pre-intervention.

Recommendations:

Based on the study findings, the following recommendations are proposed:

Continuous health education programs should be applied to raise the awareness of blind adolescent girls regarding dysmenorrhea in different settings.

Integrating the topic of dysmenorrhea, menstruation, menstrual hygiene, and menstrual sickness management into the course contents of the blind school's objectives.

Further research is required to expand the understanding of the special needs of blind adolescent girls and girls with various disabilities regarding dysmenorrhea menstruation.

Further studies should be carried out on a large number of such groups of students for evidence of the results and generalization.

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