- *Basic Research*

Effect of Audio-Drama Integrated Peer-Education regarding Premenstrual Syndrome on Knowledge, Practices and Satisfaction of Visually Challenged Adolescent

Aziza Fathy El Sayed[1], Ola Abdel-Wahab Afifi Araby[2], Elham Abozied Ramadan Saied[3], Eman Abd El-Mordy Elsayed Ahmed[4]

[1]Lecturer of Obstetrics & Gynecological Nursing, [2,3]Assist. Professor of Obstetrics & Gynecological Nursing, Faculty of nursing, Benha University, Egypt, [4]Lecturer of community health nursing, Faculty of nursing, Benha University Egypt.

*Corresponding author: Eman Abd-Elmordy Elsayed Ahmed.

Email: eman.elsyad@fnur.bu.edu.eg

Abstract

Background: Adolescents with visual impairments face greater challenges in understanding puberty changes like menstruation and premenstrual syndrome. Using integrated audio drama offers an effective, accessible way to support their learning and adaptation. **Aim:** The purpose of this research was to investigate the effects of audio-drama integrated peer-education regarding premenstrual syndrome on knowledge, practices and satisfaction of visually challenged adolescents. **Design:** A pre-post quasi-experimental design (one group, time series). **Research Setting**: The research was carried out at Benha, Qalubia Governorate, Egypt's Al-Noor School for Blind Students, which serves as a primary, preparatory, and secondary school. **Sample:** 42 blind adolescent females, 14 in preparatory school and 28 in secondary school, were included in the purposive sample. **Tools of data collection:** Four tools were employed: A structured interviewing tool. Adolescents' reported practices questionnaire, questionnaires on Menstrual Distress and Adolescents' Satisfaction. **Results:** The outcomes of the post-intervention and follow-up phases differed from the pre-intervention phase in a highly statistically significant way, favoring follow-up in terms of knowledge, premenstrual syndrome severity, reported practices, and satisfaction. **Conclusion:** The use of audio-drama integrated peer-education about premenstrual syndrome improved the knowledge, severity perception, reported practices, and satisfaction levels of adolescents with visual impairments. **Recommendations:** Implementing audio drama educational sessions could help raise awareness and improve menstrual health practices among blind adolescent girls in various contexts and incorporating information about premenstrual syndrome and its management into the curricula of schools for visually impaired students is recommended.

Keywords: Audio-Drama Integrated Peer-Education, Premenstrual Syndrome, Visually Challenged Adolescents

Introduction

The stage marking the transition from girlhood to womanhood is referred to as adolescence. According to the World Health Organization, adolescents or teenagers are individuals aged between ten and nineteen years ***(Amr, 2021***). One of the biggest obstacles that adolescents face is physical, psychological, emotional, and social maturity, which is linked to significant changes (***Hou et al., 2023)***. Adolescents usually acquire secondary sexual traits around this age. Females go through ovulation and menstruation during this time, which can lead to difficulties such as irregular periods ***(Gürkan & Bilgili, 2022).***

But when adolescents experience limitations and disabilities in addition to puberty, these changes pose more serious problems. Recent research indicates that because visually impaired girls have less social connections and are less involved with their environment, adolescents with visual impairments often have limited awareness of the physical and emotional changes occurring during adolescence. Insufficient knowledge and unhealthy habits make it challenging for them to manage their menstrual cycles and related discomforts or disorders. Consequently, visual impairment becomes a significant barrier to developing proper health practices and addressing common adolescent health concerns (***Abeje & Berhanu, 2020)***.

One of the most crucial ways that adolescents organize their experiences, effectively engage with their environment, and learn about it is through their vision. It gives them vital excitement and information. More discomfiture is typically evoked by visual impairment than by any other handicap. The WHO defines severe vision impairment as having a corrected acuity of fewer than 6/60 and visual impairment as having a corrected acuity of less than 3/60 in the better eye ***(Leekuan et al., 2022).*** There are serious emotional, psychological, educational, social, and economical repercussions associated with visual impairment, a debilitating medical disease. It results in the most significant lifestyle and habit changes, endangering the development of adolescent females. Adolescents' females with visual impairment experience physical, psychological, and social integration problems as a result of their lifestyle choices. Adolescents with visual impairments have difficulties during puberty and have a lesser level of self-awareness. Access to education is less than 10% for children with disabilities ***(Bahari et al., 2021)***.

Adolescents with visual impairments are therefore more affected since their disability hinders their ability to learn and cope with puberty-related changes like menstruation ***(Pant, 2021)***. Maintaining general health, and effective menstrual management is crucial ***(Arunachalam et al., 2022).*** Future sexual and reproductive health might be negatively impacted by ignoring menstruation illnesses and the morbidities associated with them, such as Pre-Menstrual Syndrome (PMS) ***(Azhary et al., 2022)***.

The clinical condition known as PMS lasts for three consecutive cycles, starting five days prior to menstruation and ending four days later. Over 29% of adolescents worldwide have premenstrual symptoms, which are incredibly common. Adolescents with visual impairments may experience persistent symptoms of varying intensities that disrupt their enjoyment, psycho-motor state, and routine daily activities ***(El-Houfey et al., 2023).***

Hormonal imbalances including excessive estrogen and insufficient progesterone have been proposed as possible causes for PMS because PMS is correlated with changes in the menstrual cycle. One important etiological element that has been connected to symptoms is serotonin. However, it is believed that some lifestyle choices, such as smoking, drinking, using caffeine, and sleeping too much, are linked to PMS ***(Turan et al., 2024).***

There are three types of PMS: mild, moderate, and severe. It will be challenging for adolescents with severe PMS to maintain their daily activities, academic relationships, social and psychological well-being, and level of satisfaction ***(Chen et al., 2023).*** PMS is defined as the presence of at least one somatic symptom (such as breast tenderness, headache, abdominal bloating, or swelling in the limbs) along with at least one emotional symptom (such as irritability, anxiety, confusion, depression, sudden anger, or social isolation) during the five days prior to menstruation ***(Bagirisano et al., 2024)).***

Numerous treatments are available to alleviate the symptoms of PMS. Adolescents with mild to severe PMS symptoms can benefit from supportive counseling, education, exercise, and a balanced diet. For more severe symptoms, however, non-pharmacological treatments must be used in addition to pharmaceutical treatment. PMS is treated using oral contraceptives, gonadotropin-releasing hormone agonists, and NSAIDs. Slow-acting natural remedies and health supplements like calcium, chaste berries, and saffron may still be helpful ***(Suaidi et al., 2020).***

Using targeted audio-educational activities to increase awareness (understanding, attitude, and practices) is the first step towards improving the health of visually impaired adolescents with PMS. Understanding physiological changes, lifestyle modifications (such as eating and exercising), stress and anger management training, and group counseling designed specifically for visually impaired can all help reduce the mood-behavioral symptoms of this illness ***(Daneshvar et al., 2023)***.

The care and education of adolescents must be provided by highly qualified personnel who possess the necessary skills and training. Therefore, when audio-structured peer education groups are led by highly qualified health care experts, health education for the visually impaired can be effective. An audio-dramatic educational program is an auditory presentation that examines a prearranged set of educational measures ***(Heiba et al., 2023).***

An extremely dramatic and well-structured audio presentation that illustrates events and imparts understanding is called an audio drama. That can be played repeatedly to get the desired effects and saves time. Using sound to communicate information is known as audio theater. This is a performance that just contains sound and is delivered on audio media, such CDs or tapes. The foundation of audio drama is sound effects, music, and information flow. The same degree of presence that sighted people receive from audiovisual stimuli can be provided to blind adolescents through audio theater. "Audio drama enhances the sense of reality over simply listening to data," according to one blind person ***(Amr, 2021)***.

Peer education is "the opportunity to discuss sensitive life issues in an informal peer group setting and the provision of credible and reliable information about these topics." Peer therapy includes "people from similar groupings who are not professionals who help to clarify life issues and identify solutions by listening, clarifying, feeding back, summarizing, questioning, and being positive, supportive, and reassuring, and then helping plan, organize, and issues-solve.". While peer counseling can be conducted individually, in groups, or a combination of both, peer education is typically conducted in cohorts ***(Topping, 2022).***

By giving visually impaired the necessary information and skills on healthy living, diet, exercise, personal hygiene, infection prevention, and health protection, community and obstetric health nurses can help adolescents manage their PMS on their own. Adolescents with visual impairments may require additional support from community and obstetric health nurses

to address this issue through care and education utilizing cutting-edge strategies like peer-education with audio-drama integration ***(Dodd et al., 2022).***

Significant of the research:
At least 2.2 billion people are blind or visually handicapped worldwide. Compared to high-income civilizations (0.3 per 1000 children), blindness is more common in low-income societies (1.5 per 1000 children). Almost three-quarters of the 1.4 million blind youngsters in the world live in the poorest nations in Asia and Africa. Roughly 7% of blind children are adolescents, and 90% of blind individuals worldwide live in developing nations, ***(Maatoug et al., 2023***).

Egypt has a high disability rate, with the most prevalent types being physical and visual disabilities. Improving quality of life requires having access to inclusive care services. According to the WHO, 1.4 million children under the age of 19 suffer irreversible blindness, while over 2.2 million people have visual impairments as of 2019 ***(Fouad et al., 2023).***

According to the World Health Organization's 2022 report, visual impairment remains a significant public health issue in Egypt, particularly affecting children and adolescents. The report highlights that a considerable proportion of Egyptian youth experience varying degrees of visual impairment, with congenital conditions being a leading cause. These impairments often present early in life and are compounded by limited access to preventive and therapeutic eye care services, especially in underserved communities. The educational inclusion and specialized support available in schools, residential care organizations, and community settings are inadequate relative to the scale of the problem, necessitating enhanced intervention and targeted curriculum adaptations to meet the needs of visually challenged adolescents ***(World Health Organization, 2022)***

A common, recurring, and varied disorder that affects women throughout their reproductive lives, particularly adolescents, is PMS. 29.8% of adolescent females suffer from PMS ***(El-deeb et al., 2020).*** Research conducted in the Menoufia Governorate in 2021 found that 75% of adolescent students with vision impairments knew very little about PMS because they were unable to obtain basic health information and their requirements were frequently disregarded ***(Mahazam et al., 2021).*** Therefore, the purpose of this research was to evaluate the understanding, practices, and satisfaction of visually impaired adolescents pupils with reference to PMS.

Aim of the research:
The purpose of this research was to investigate the effects of audio-drama integrated peer education regarding premenstrual syndrome on knowledge, practices and satisfaction of visually challenged adolescents.

Research hypotheses:
H1: The use of audio-drama integrated peer education is expected to improve the visually impaired adolescent's knowledge of PMS than before intervention.

H2: It is expected that when audio-drama integrated peer education is implemented, visually impaired adolescents PMS practices will improve than before intervention.

H3: After four months from using audio-drama integrated peer education, it is expected that visually impaired adolescents will experience less severe PMS than they did previously.

H4: The great majority of adolescents with visual impairments are expected to be really satisfied with peer education that incorporates audio-drama.

Operational definitions:

- ***Audio-drama education*:** refers to technologies that allow adolescents females who are blind or visually impaired to access information and print. These devices provide dramatized audio performances of music, sound effects, and conversations without the use of visual aids. The researchers created it in plain Arabic to enhance the awareness, skills, and contentment of visually challenged adolescents.
- ***Peer education:*** is a method where individuals teach and share knowledge, experiences, and behaviors with others who are similar to them, aiming to improve health, awareness, or change behavior through mutual support and shared understanding.

Conceptual definitions:

- ***Visual challenge:*** is a substantial, frequently irreversible decrease of visual acuity that can be categorized as either acquired or congenital, moderate, severe, or blindness. It has an impact on social communication and interpersonal relationships.
- ***Visual impairment of adolescent's girl:*** Anybody between the ages of twelve and eighteen is considered an adolescent, according to the WHO. adolescent females with visual impairment—defined as having a visual acuity of less than 6/24 or being blind from congenital or acquired causes—were included in our research.
- ***Satisfaction:*** focuses on meeting adolescent girls' needs, wants, or expectations in connection with medical treatment. The "health care service" consists of peer education about PMS that is interwoven with audio-drama

Subject and methods

Research Design:

The research methodology used was a Pre-post quasi-experimental design (one group, time series). "A quasi-experimental design is a research design that does not include random assignment" as defined by ***(Privitera, and Delzell, 2019).***

Setting:

The primary, preparatory, and secondary Al-Noor School for Blind Students in Benha, Qalubia Governorate, Egypt, served as the research's setting. With two floors and ten classes, Al Noor School has 161 students in total: 45 secondary students, 37 preparatory students, and 79 elementary children. The sole school in Benha City to children with visual impairments is Al-Noor School, which is exclusively for blind female pupils. It is connected to the Special Education Division of the Ministry of Education.

Sampling:

Sample type and size: A purposive sample of 42 blind adolescent females (14 in preparatory school and 28 in secondary school) was included.

Sample technique: The forty-two research participants were divided into five groups, three of which had eight adolescents and two of which had nine. Five peer-students from third-grade secondary school females were selected by the researchers to serve as volunteers and mentors to the other adolescent females. The findings of the research did not include these students.

Inclusion Criteria:

- Girls between 13 and 20years.
- Previously diagnosed with any type of PMS.
- Those who have never been married.
- Having the ability to interact.

Exclusion criteria:

- Adolescents with cognitive impairments
- Those with communication or linguistic problems.

Tools:

Four tools were used for data collection**:**

Tool (I): A structured interview created by researchers after reviewing relevant literatures *(Karimu, 2021); Drosdzol-Cop et al., 2020)*. It included four parts:

Part I: General characteristics of adolescent: it comprised of 4 items (age, residence, and education of girls and their mothers).

Part II: Menstrual history of adolescents: It consisted of 5 items (age at menarche, duration of menstrual flow, amount of blood flow, frequency of menstrual cycle and regulation of menstruation).

Part III: Medical and family history of adolescents: It comprised of 4 items (age of visual impairment detection, causes of visual impairment, consanguinity between parents, and family history of visual impairment).

Part IV: Adolescents girls knowledge questionnaire: it was adapted and developed by the researchers based on review of related literatures (***Abdalla and Gibreel, 2016), (Mahdi and Khairi, 2020) and (benti Abdalla et al., 2023),*** to assess adolescent females' knowledge regarding PMS. All questions asked were in the form of MCQ questions. It consisted of 10 questions such as (meaning of PMS, causes of PMS, duration of PMS, emotional symptoms of PMS, behavioral symptoms of PMS, physical symptoms of PMS, effect of PMS on life activities, effect of PMS on academic performance and self-care practices to relieve PMS).

Scoring system:

Each question was weighted according to the answers given (multiple choice questions). Each item was assigned a score of (1) if the answer was correct and (0) if the answer was incorrect or unknown. The overall score was calculated by adding the scores of each question. The higher scores reflect higher levels of knowledge. The ***overall knowledge score was categorized as follows:***

Parameter	Score
Adequate knowledge	**60% to 100%**
Inadequate knowledge	**less than 60%**

Tool (II): Adolescents females' reported practices questionnaire, it was adapted and developed by the researchers based on review of related literatures (***Shu-Ling, et al., 2018) and Abdelazeem et al. 2022).*** To assess the reported practices of adolescent's females with visual impairment regarding PMS. It included 27 statements with 3 responses (never, sometimes and regular) assessing the following four domains: nutritional status domain (13

statements), physical activity domain (4 statements), sleep patterns domain (4 statements), stress management domain (6 statements).

Scoring system:
The students' reported practices were scored as follows: practiced regularly was given (2), sometimes was given (1), and never practiced was given (0). The subtotal score for each domain is represented as means and SD. The total score ranged (0 to 54) which ***categorized into two categories***:

Parameter	Score
Satisfactory	**60% to 100%**
Unsatisfactory	**less than 60%**

Tool (III): Menstrual Distress Questionnaire (MDQ): it was adopted from ***Cassioli et al., (2023) and Ross et al., (2003).*** This is a interviewer-administered questionnaire consisting of 46 items used for evaluating, monitoring, and managing premenstrual and menstrual symptoms. It identifies both the severity and types of premenstrual symptoms experienced. Researchers also utilize this tool to assess the effectiveness of various therapeutic interventions. The questionnaire is divided into eight subcategories: pain (6 items), concentration (8 items), behavior change (5 items), autonomic reactions (4 items), water retention (4 items), negative affect (8 items), arousal (4 items), and control (6 items).

Scoring system:
The students were instructed to rank the symptoms from **1** ("no experience of the symptom") to **6** ("acute or partially disabling symptoms") and it was done for the most recent menstrual cycle. The total score ranged from 46 to 276; with higher scores indicating more severe PMS. Score for overall PMS is obtained by calculating a mean of the adolescent females' responses to all 46items; eight subscale scores are obtained similarly by calculating a mean of the responses to subscale items. ***The severity of PMS was categorized as follow:***

Parameter	Score
No symptoms of PMS	≤ 46
Mild symptoms of PMS	From 47 to 122
Moderate symptoms of PMS	From 123 to 199
Severe symptoms of PMS	From 200 to 276

Tool (IV): Adolescents females' satisfaction questionnaire: it was adapted and developed by the researchers based on review of related literatures (***Jeyanthi, 2023) and (Nobre, et al., 2000).*** To measured females' satisfaction with the audio drama teaching package. The survey had 9 statements and three response options: agree, to somewhat agree and disagree. The survey covered topics such as (motivating methods in teaching, effective methods in teaching, helpful methods to enhance knowledge and self-care practice, adequacy of content, clearance of content, content meet your expectations clearance of recorded voice, appropriate duration of audio recording and method of recording was interesting)

Scoring system:
The statement responses were graded as follows: agree (3), to somewhat agree (2), and disagree (1). The total score was computed. The total score varied from 9 to 27 which ***categorized into three categories:***

Parameter	Score
Highly satisfied	**75% to 100%**
Satisfied	**50% to less than 75%**
Unsatisfied	**less than 50%**

Tools' Validity and Reliability:

Tools' validity:

To ensure tool clarity, relevance, comprehensiveness, and applicability, a panel comprising three obstetrics and gynecological nursing experts, alongside three community health nursing specialists from Benha University, conducted a thorough evaluation of the questionnaire's validity. No modifications were necessary. Based on the opinions of experts. **Tools' reliability:** The reliability of tools was done by Cronbach's Alpha coefficient test, which revealed that the internal consistency of research tools as following:

Tools	Cronbach's alpha value
Tool: Adolescents females' knowledge questionnaire	Internal consistency (α =0. 89).
Tool II: Adolescents females' reported practices questionnaire	Internal consistency (α =0. 87).
Tool III: Menstrual Distress Questionnaire (MDQ)	Internal consistency (α =0.84).
Tool IV: Adolescents females' satisfaction questionnaire	Internal consistency (α =0. 75).

Ethical consideration:

Before starting the study, ethical approval was obtained from Benha University's Faculty of Nursing ethical committee, and permissions were secured from the research Setting. Researchers explained the study's purpose to gain the trust of the female adolescents, who provided oral informed consent with assurances of confidentiality. The study posed no physical, social, or psychological risks, respected human rights, and allowed participants to withdraw at any time. After analysis, all data collection tools were destroyed to maintain privacy.

Pilot Study:

In order to test the tools' objectivity, clarity, feasibility, and applicability, as well as to identify any potential roadblocks or issues that might arise for the researchers and impede data collection, the pilot research involved five adolescent females, representing 10% of the total sample size. It also ought to identify any issues specific to the statements as a series of questions and clarity. It also aided in forecasting the amount of time needed to gather data. Based on the results of the pilot, no modifications were made. Consequently, a small number of adolescent females and the pilot sample were added to the research.

Field work:

The four-month research was conducted during the first term, starting in early October 2024 and ending at the end of January 2025. Until the research sample was finished, the researchers went to the aforementioned location twice a week (on Sundays and Mondays) from 9:00 a.m. to 1:00 p.m. The research was conducted in the following stages: preparatory, assessment, planning, implementation, and evaluation.

Development of peer-education audio-drama:

Preparatory phase:

- During this phase, the researchers went to the Al-Noor School for Blind Students to look at the target cohort's needs for stress management, physical activity, healthy eating, and sleep.
- To obtain a thorough grasp of adolescent females' lifestyles and aspects within the school, regular meetings were held with students, instructors, the school administration, social workers and psychologists, food workers, accommodation supervisors, security personnel, and cleaning staff.
- Before any data was collected to create the research plan, a preparatory visit gave a baseline evaluation of the research environment. During earlier visits, information was gathered and trust was established through cordial dialogue. Before data was collected to establish the research plan, the visits provided a baseline evaluation of the research setting.

Assessment phase:

- The researchers began this step by introducing themselves to the adolescent females who were visually impaired and giving them a brief overview of the research's purpose, concept, and expected results.
- The adolescent females gave their oral consent. After interviewing the blind adolescent females, the researchers started to explain the research's design and the questionnaire's components.
- Following clarification, each girl was read the pretest questions by the researchers, who then noted her answers on the questionnaires to begin evaluating and filling them out. The assessment of each blind adolescent female involved identifying her general features, menstrual history, level of knowledge (tool I), reported practices for PMS management strategies (tool II), and the PMS that she had experienced in the previous month (tool III).
- Each girl took 20 to 25 minutes to complete the pretest. The researchers then informed the adolescents that a post-test would be administered after the educational sessions, immediately for knowledge, and after one month for reported practices and PMS and followed by a follow-up assessment after two months.

Planning phase:

- Using the data gathered from the initial evaluation as well as literatures, the researchers started creating structured audio teaching sessions.
- Following three days of literature research, the researcher created three structured audio-drama instructional sessions, which were initially given to the peer group, who had recently volunteered and educated the other adolescent females. It was written in an approachable Arabic dialect.
- The director of the El-Noor School for the Blind granted permission to print the educational booklet in braille after the supplemental learning materials were also created in an Arabic booklet and printed using braille technology. The booklet's content was written in an easy-to-understand, straightforward manner. Because the educational booklet offered by El-Noor groups for the blind is printed onto braille paper using a printer.

Implementation phase: is carried out through four steps:
Step 1: Development of audio drama program content:

- The researchers examined and talked about the data from the baseline assessment. Physical activity, sleep patterns, stress management, and nutritional status (dietary habits, balanced meal content, number of meals per day, types of snacks, and maintaining a healthy weight) were among the topics covered.
- The information was used to create a script for an audio drama production that featured a dialogue between two to five individuals. Five experts in obstetrics and gynecology and community health nursing verified the script**.**

Step 2: The researchers interviewed the selected 5 students' peer groups and began to teach them to be capable of education and expression:

- During talks between researchers regarding knowledge and practices of safety procedures employed in the management of PMS, the researchers provided training education to peer educators.
- The groups then began re-demonstrating the discussion until the students were proficient in communicating what they had learned. Three sessions per week were obtained for this instruction. Every session or meeting lasts roughly forty minutes. PMS knowledge is covered in the first session, practices are covered in the second, and peer education is confirmed through revision in the third.

Step 3: The researchers began to record the audio educational guidelines for audio-drama education accomplishment:

- The five students' peer group recorded a discussion regarding their knowledge, practices, and suitable techniques for managing PMS (nutritional status, physical activity, sleep habits, and stress management).
- In order to help blind adolescent females understand everything there is to know about PMS, Audio-Drama Integrated Peer-Education is a dramatized program that solely uses audio performances for music, sound effects, and discussion—no visual aids are used.
- An audio player provides audible elucidation for blind adolescent females in place of missing visual content. Using Audio-Drama Integrated Peer-Education to increase the knowledge and habits of blind adolescent female students through their aids to lessen the intensity of PMS, audio guidelines are a more efficient and successful method of promoting health and wellness.

Step 4: The researchers started to place the blind adolescent females understudied comfortably in the class, setting the laptop and speakers to be connected correctly:

- With the help of researchers, each peer educator taught one group of blind adolescent females about PMS management knowledge and practices, explained audio peer guidelines, and told them to remain calm so they could hear clearly after the lesson was over. The blind adolescent females were randomly split into five groups, three of which included eight females and two of which included nine.
- The audio-peer instructional guidelines were played for 30 minutes in three sessions over two weeks in a row for each group.
- PMS knowledge is covered in the first session, practices are covered in the second, and peer education is confirmed through revision in the third.
- Following the conclusion of the audio-peer educational guidelines, the researchers asked the females whether they would like to continue the conversation. The females and the researchers talked about the material that was given, answered all of their questions, and clearly constructed them.

Evaluation Phase
To evaluate the knowledge, reported practices, and severity of PMS in visually challenged adolescent females, the researchers given a post-test in the same format as the pre-test (tools I, II, and III) {immediately for (knowledge) & after one-month for (reported practices and PMS)} after the final program session. Questionnaires were used to capture the females' answers. In the follow-up phase, which took place two months after the program's final session, the researchers evaluated the results of the post-test phase as well as the adolescent females' satisfaction with the Audio-Drama Integrated Peer-Education that had been put into place.

Statistical analysis:
Data were checked before being entered into the computer. The gathered data was arranged, coded, entered into a computer, and examined using the proper statistical procedures and tests. Version 22.0 of the Statistical Package for Social Sciences (SPSS) was employed. Means, standard deviations, and frequencies and percentages were examples of descriptive statistics. The research hypotheses were tested using inferential statistics such as the Friedman and ANOVA tests. P-value > 0.05 denoted no statistically significant difference, p-value <0.05 denoted a statistically significant difference, and p-value P ≤ 0.001 denoted a highly statistically significant difference for all statistical tests performed.

Results:
Table (1): Indicates that over half (57.1%) of the adolescent girls studied were between the ages of 14 and under 16, with an average age of 14.57 ± 1.72 years. Regarding their place of residence, just under two-thirds (61.9%) lived in urban areas. Additionally, two-thirds (66.7%) of the girls had attained secondary education. In terms of their mothers' education, more than half (57.1%) had completed secondary education.

Table (2): Shows that over half (54.8%) of the adolescent girls experienced menarche between the ages of 12 and 13. For nearly two-thirds (61.9%), the menstrual flow lasted between 3 and 7 days. The blood flow for just under three-quarters (71.4%) was about 2 to 4 pads per day, and most (81.0%) had a menstrual cycle frequency ranging from 21 to 35 days. Lastly, the vast majority (83.3%) reported having a regular menstrual cycle.

Table (3): Demonstrates that half (50.0%) of the adolescent girls identified their visual impairment between the ages of 3 and under 6 years. The cause of visual impairment was congenital in more than half (52.4%) of the cases. Furthermore, over half (54.8%) were born to consanguineous parents. Finally, more than two-thirds (69.0%) reported a family history of visual impairment.

Table (4): Shows that all categories of adolescent's females' knowledge about PMS showed a highly statistically significant difference between the outcomes of the post-intervention and follow-up phases compared to the pre-intervention phase in favor of follow-up (p≤0.001).

Figure (1): Demonstrates that, with regard to PMS, 38.1% of adolescent females had adequate knowledge scores and 61.9% had inadequate knowledge scores at the pre-intervention phase, as opposed to 81.0% and 19.0% at the post-intervention and 85.7% and 14.3% at the follow-up, respectively.

Table (5): Shows that the mean scores of adolescent's females reported PMS practices at the pre, post-intervention, and follow-up phases differed in a highly statistically significant way (p-value<0.001). Over the course of program phases, the overall mean score of the reported

practices of the adolescent females under research improved from 26.00±4.67 to 38.11±4.12 and 40.90±4.83, throughout program phases respectively.

Figure (2): Reveals that, with regard to PMS, 35.7% of adolescent's females had a satisfactory reported practices score and 64.3% had an unsatisfactory reported practices score during the pre-intervention phase, as opposed to 78.6% and 21.4% at the post-intervention and 83.3% and 16.7% at the follow-up, respectively

Table (6): shows that the mean scores of the PMS subscales for adolescent's females at the pre, post-intervention, and follow-up phases differed significantly (p-value<0.001). Over the course of the trial, the total mean score of premenstrual syndrome among adolescent girls decreased from 129.69±10.59 at baseline to 101.45±9.16 and further to 94.90±8.42 across the study phases, indicating significant improvement by the follow-up phase.

Table (7): Demonstrates that the most of the adolescent females in the research had favorable agreement on all satisfaction measures, with the corresponding percentages being 88.1%, 95.2%, (83.3%), 92.9%, (90.5%), (95.2%), (85.7%), and (95.2%).

Figure (3): Demonstrates that the overwhelming most of adolescent females (90.5%) expressed great satisfaction with the audio-drama integrated peer-education program.

Table (8): Reveals that there was a highly statistically significant positive association between total knowledge score and total reported practices score of the examined adolescent females during pre, post -intervention and follow up phases (P≤ 0.001). The overall knowledge score and the total PMS score of the adolescent females under research showed a very statistically significant negative link at the pre-, post-, and follow-up phases (P≤ 0.001).

Table (9): Explains that the total reported practices score and the total PMS score of the females under research at the pre-, post-, and follow-up phases had a highly statistically

Table (1): Distribution of the studied adolescent females according to general characteristics (n=42).

General characteristics	No	%
Age (in years):		
12 - < 14	11	26.2
14 - < 16	24	57.1
≥ 16	7	16.7
Min. – Max.	**12.0 – 19.0**	
Mean ± SD =	**14.57±1.72**	
Residence:		
Rural	16	38.1
Urban	26	61.9
Females' education:		
Preparatory education	14	33.3
Secondary education	28	66.7
Mothers' education:		
Not read and write	1	2.4
Basic education	5	11.9
Secondary education	24	57.1
University education or higher	12	28.6

Table (2): Distribution of the studied adolescent females according to menstrual history (n=42)

Menstrual history	No	%
Age at Menarche		
<12 years	5	11.9
12-13 years	23	54.8
>13 years	14	33.3
Duration of menstrual flow		
< 3 days	10	23.8
3–7 days	26	61.9
>7 days	6	14.3
Amount of blood flow		
1 pad/day	5	11.9
2–4 pads/day	30	71.4
≥ 5 pads/day	7	16.7
Frequency of menstrual cycle		
< 21 days	2	4.8
21–35 days	34	81.0
>35 days	6	14.3
Regulation of menstruation		
Regular	35	83.3
Irregular	7	16.7

Table (3): Distribution of the studied adolescent females according to medical and family history (n=42)

Medical and family history	No	%
Age of visual impairment detection		
< 1 year	5	11.9
1 - < 3 years	7	16.7
3 - < 6 years	21	50.0
6 - 12 years	9	21.4
Causes of visual impairment		
Congenital	22	52.4
Hereditary	15	35.7
Traumatic causes	5	11.9
Consanguinity between parents		
Yes	23	54.8
No	19	45.2
Family history of visual impairment		
Yes	29	69.0
No	13	31.0

Table (4): Distribution of the studied adolescent females according to knowledge **regarding PMS at pre, post -intervention and follow up phases (n=42).**

knowledge items	Pre-intervention		Immediately Post-intervention		Follow up after one month		Friedman test	
	Correct answer		Correct answer		Correct answer		X^2	(P-value)
	No	%	No	%	No	%		
Definition of PMS	25	59.5	37	88.1	40	95.2	25.20	0.000**
Causes of PMS	16	38.1	34	81.0	36	85.7	36.40	0.000**
Duration of PMS	23	54.8	38	90.5	40	95.2	30.47	0.000**
Emotional symptoms of PMS	22	52.4	32	76.2	35	83.3	21.38	0.000**
Behavioral symptoms of PMS	19	45.2	30	71.4	33	78.6	23.28	0.000**
Physical symptoms of PMS	24	57.1	36	85.7	38	90.5	24.57	0.000**
Diagnosis of PMS	6	14.3	27	64.3	30	71.4	42.75	0.000**
Effect of PMS on life activities	15	35.7	35	83.3	40	95.2	42.00	0.000**
Effect of PMS on academic performance	17	40.5	29	69.0	31	73.8	24.57	0.000**
Self-care practices to relieve PMS	13	31.0	32	76.2	35	83.3	38.81	0.000**

**** Highly statistically significance P-value ≤0.001.**

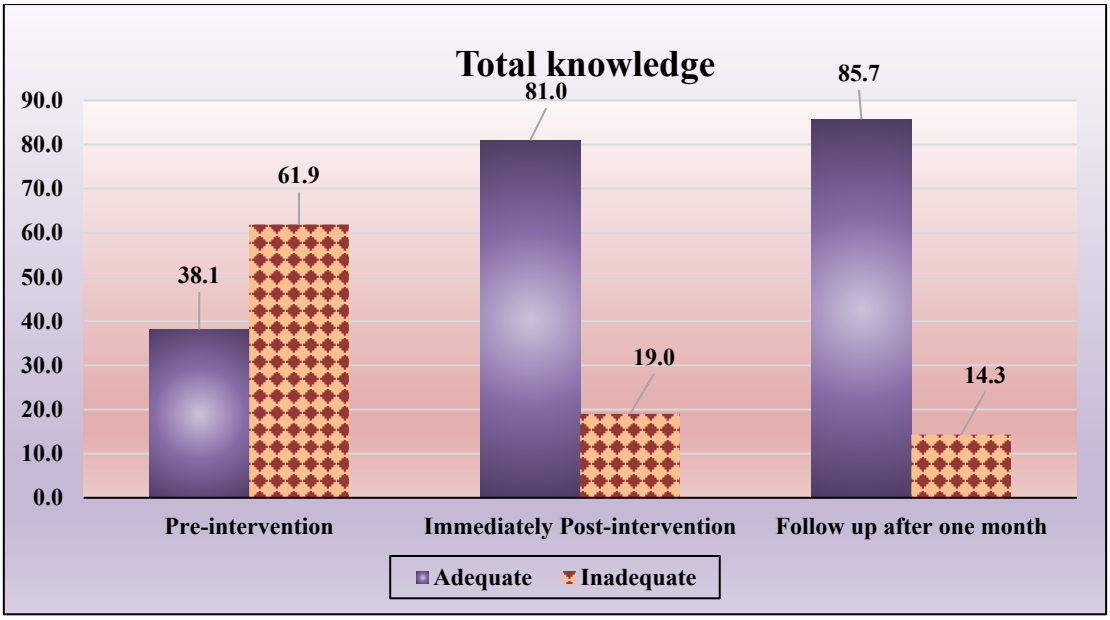

Figure (1): Distribution of studied adolescent females regarding total knowledge score about PMS at pre, post -intervention and follow up phases (n=42).

Table (5): Mean Scores of studied adolescent females' reported practices regarding PMS at pre, post -intervention and follow up phases (n=42).

Reported practices domains	Min./Max. score	Pre-intervention	One month Post-intervention	Follow up after two months	ANOVA	
		Mean ± SD	Mean ± SD	Mean ± SD	F	p-value
Nutrition	0/26	13.90±4.21	20.64±3.17	22.00±3.02	63.99	0.000**
Physical activity	0/8	2.24±1.12	3.43±1.06	4.05±1.05	30.38	0.000**
Sleep pattern	0/8	4.05±1.05	5.52±1.23	6.05±1.18	33.41	0.000**
Stress management	0/12	5.81±1.64	8.52±2.13	8.81±2.71	23.62	0.000**
Total score	**0/54**	**26.00±4.67**	**38.11±4.12**	**40.90±4.83**	**127.01**	**0.000****

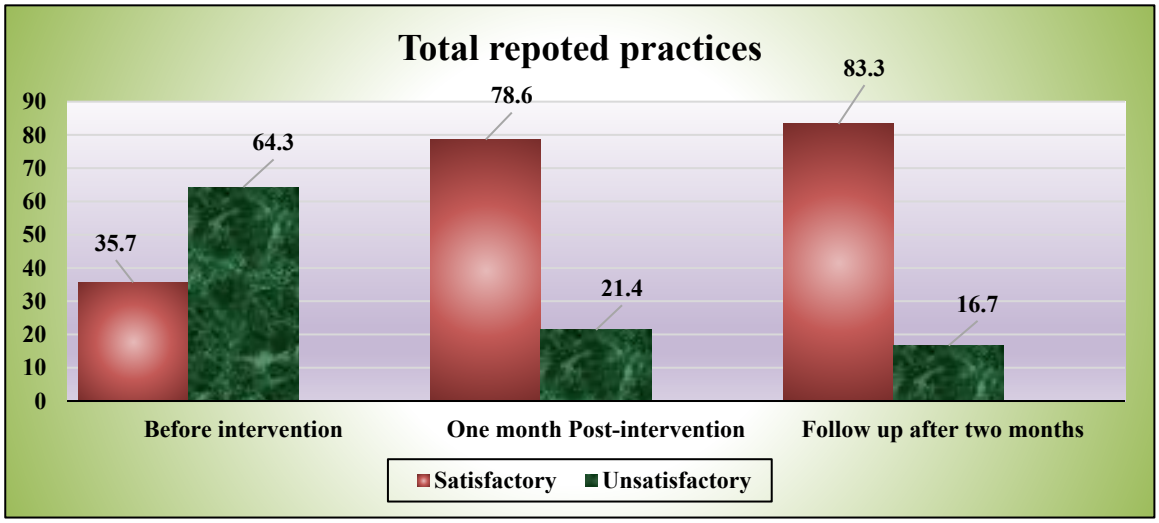

Figure (2): Distribution of studied adolescent females' regarding total reported practices score regarding PMS at pre, post -intervention and follow up phases (n=42).

Table (6): Mean Scores of studied adolescent females' PMS at pre, post -intervention and follow up phases (n=42).

Menstrual Distress Questionnaire (MDQ) Subscales	Min./Max. score	Pre-intervention	One month Post-intervention	Follow up after two months	ANOVA	
		Mean ± SD	Mean ± SD	Mean ± SD	F	p-value
Pain	6/36	14.45±4.00	11.86±3.25	11.31±2.95	10.03	0.000**
Concentration	8/48	22.38±6.25	17.76±5.38	16.29±4.95	13.75	0.000**
Behavioral changes	5/30	15.64±4.23	11.90±3.39	10.48±2.91	23.63	0.000**
Autonomic reactions	4/24	14.21±3.73	10.69±2.97	9.86±2.51	23.16	0.000**
Water retention	4/24	9.55±3.30	7.38±2.58	6.81±2.56	10.85	0.000**
Negative effect	8/48	24.07±6.75	18.12±4.50	17.81±4.51	18.19	0.000**
Arousal	5/30	14.50±3.51	11.79±2.89	11.21±2.58	14.18	0.000**
Control	6/36	14.88±4.68	11.95±3.26	11.14±2.69	12.23	0.000**
Total score	**46/276**	**129.69±10.59**	**101.45±9.16**	**94.90±8.42**	**161.20**	**0.000****

**** Highly statistically significance P-value ≤0.001.**

Table (7): Distribution of the studied adolescent females according to satisfaction about Audio-Drama Integrated Peer-Education (n=42).

Satisfaction items	Agree		To somewhat		Disagree	
	No.	%	No.	%	No.	%
Motivating method in teaching.	37	88.1	3	7.1	2	4.8
Effective method in teaching.	40	95.2	2	4.8	0	0.0
Helpful method to enhance knowledge and self-care practices.	40	95.2	2	4.8	0	0.0
Adequacy of content.	35	83.3	5	11.9	2	4.8
Clearance of content.	39	92.9	2	4.8	1	2.4
Content meet your expectations.	38	90.5	2	4.8	2	4.8
Clearance of recorded voice.	40	95.2	2	4.8	0	0.0
Appropriate duration of audio recording.	36	85.7	2	4.8	3	7.1
Method of recording was interesting.	40	95.2	0	0.0	2	4.8

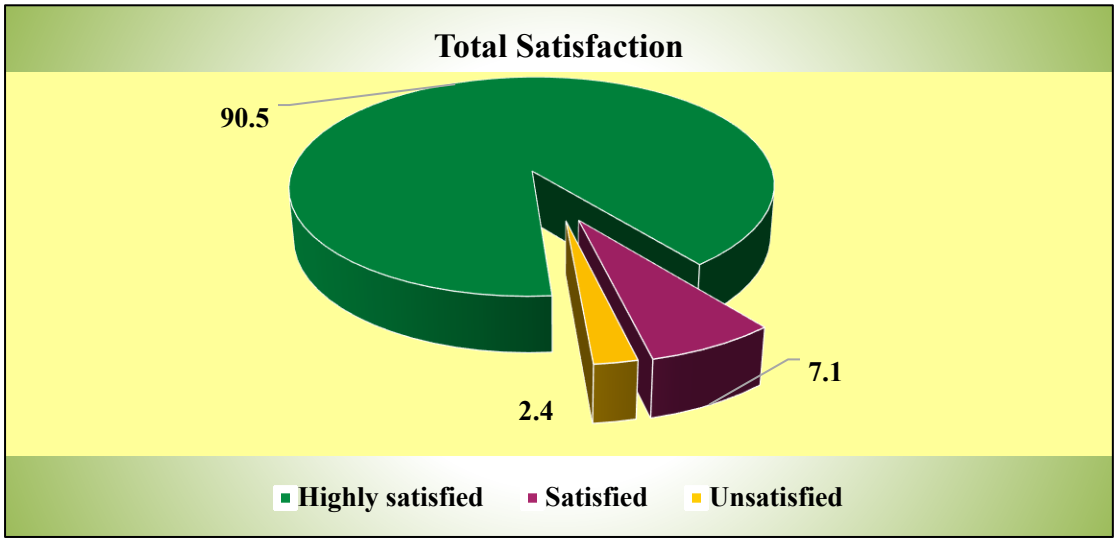

Figure (3): Distribution of studied adolescent females' regarding total satisfaction score about Audio-Drama Integrated Peer-Education at pre, post -intervention and follow up phases (n=42).

Table (8): Correlation between total knowledge score and total scores of (reported practices and PMS) of the studied adolescent females at pre, post -intervention and follow up phases (n=42).

Variables	Total knowledge score					
	Pre-intervention		Post-intervention		Follow up	
	R	P-value	R	P-value	R	P-value
Total reported practices	0.526	0.000**	0.499	0.000**	0.626	0.000**
Total PMS score	- 0.435	0.000**	- 0.417	0.000**	- 0. 550	0.000**

** Highly statistically significance P-value ≤0.001.

Table (9): Correlation between total reported practices score and total PMS score of the studied adolescent females at pre, post -intervention and follow up phases (n=42).

Variables	Total reported practices					
	Pre-intervention		Post-intervention		Follow up	
	R	P-value	R	P-value	R	P-value
Total PMS score	- 0.664	0.000**	- 0.527	0.000**	- 0. 578	0.000**

Discussion

Adolescent females are regarded as one of the most vulnerable demographics, especially those who are blind. Adolescent's females who are blind are a subset of impaired females that require special care because their eyesight cannot be restored to normal. The primary cause of visual impairment worldwide is uncorrected refractive errors, which can have an impact on students' physical, mental, and neurological health. These conditions affect how the visual system and vision work ***(WHO a, 2019).***

A week or two before their menstruation, many females experience a mix of symptoms known as PMS. Over 90% of females report experiencing premenstrual symptoms like moodiness, headaches, and bloating. Some females may experience such severe symptoms that they miss school or work. For visually impaired Adolescent females, audio education is a style of instruction that makes it simple for them to learn information that can support their health. Given that vision loss can result in a variety of cognitive, mental, physical, behavioral, and communication difficulties, it is clear that females with visual impairments need specialized education ***(Diao et al., 2022; Teherán et al., 2021).***

The purpose of the current research was to investigate the effects of audio-drama integrated peer education regarding premenstrual syndrome on knowledge, practices and satisfaction of visually challenged adolescents.

In terms of the general characteristics of the adolescent females with visual impairment under research, the current research revealed that the mean age of these females was 14.57±1.72, and that over half of them lived in an urban region. About two-thirds of the adolescent females in the research had completed high school, and over half of their moms had completed secondary school as well (table 1).

These results are consistent with those of ***Pujar & Revankar (2023)***, who studied examining knowledge about premenstrual syndrome among adolescent school girls (n=122) in India with the aim of creating an informational booklet on the topic found that the majority of adolescent females (122, or 71.8%) were between the ages of 14 and 15. Of the 101 adolescent females, the majority (59.4%) experienced their first menstrual cycle between the ages of 12 and 13. and 96 (56.5%) of the adolescent females had a family history of PMS.

These results are also consistent with those of ***Jeyanthi (2023)***, who conducted a study in India evaluated the impact of an audio drama on menstrual hygiene and the management of minor menstrual ailments among visually challenged girls, with a sample size of 60 participants and reported that all of the visually impaired females lived in urban areas and that the majority of them were 14 years old. However, these present findings were in contrast to those of ***El-Kholy and Shalaby (2022),*** who found that half of the research group's participants were born in rural areas and that the participants' average age was 18.41±0.79 years. This discrepancy might result from the cultural, traditional, and educational differences between rural and urban communities.

According to the current research findings, more than half of the adolescent females who were researched had their menarche between the ages of 12 and 13; less than two-thirds of them experienced menstrual flow for a length of 3 to 7 days. Less than three-quarters of them had normal blood flow, which was between two and four pads per day, and most of them had regular menstrual cycles with a frequency of 21 to 35 days (table 2).

Similar findings about the age of menarche, the length of menses, and regularity were reported in the current research, which is in line with the earlier research of ***Wong (2020),*** who investigated the health-related quality of life among 653 Chinese adolescent girls suffering from dysmenorrhea. Notably, the majority of students in both studies experienced regular

menstruation. These findings are also consistent with research by ***Mammo et al. (2022),*** who assessed the occurrence, severity, and related factors of primary dysmenorrhea among 733 female high school students in the Southern Ethiopia, which found that 67.6% of participants menarched between the ages of 13 and 14, with an average menarche age of 13.39 years. Eighty-three percent reported a typical amount of menstrual flow, whereas 56.3% indicated a monthly duration of three to seven days.

These results go counter to those of ***Elsawy et al. (2023),*** who evaluated how progressive muscle relaxation impacts menstrual cramps among Egyptian adolescent students and found that 68% of adolescent pupils are between the ages of 13 and 14. Sixty-six percent of the adolescent kids experienced flow for a total of five to six days. Eighty percent of the adolescent students had moderate menstrual flow (2–3 pads per day), and the most (92%) had an interval between 28 and 30 days. In addition, ***El-Kurdy et al. (2022)***, who assessed how structured audio-based educational sessions influenced menstrual knowledge and practices among 50 visually impaired adolescent girls in Egypt and discovered that half of the blind adolescent females in their research started menstruating between the ages of 12 and 14, and that more than half of them had periods that lasted more than 30 days and flowed for five to seven days. Menstrual interval discrimination among blind adolescents may result from individual variances or from variations in hormonal fluctuations.

Based on the medical and family history of the adolescent females under research, the current research's findings show that half of the females discovered their vision impairment between the ages of three and six, and that more than half of them had congenital reasons. Additionally, over half of them were consanguineous. Lastly, over two-thirds of the adolescent females in the research showed a positive family history of vision impairment (table 3).

These results are consistent with those of ***Kemmanu et al. (2021),*** who investigated the relationship between consanguinity and visual impairment in southern India and found that almost one-third of individuals had a history of consanguinity. The social-cultural society's encouragement of early and consanguineous marriage may be the cause of this.

The current research's findings contradict those of ***Vishnuprasad et al. (2023).*** Stated that less than half of students had a family history of parents using spectacles. The congenital visual impairment was presented due to consanguineous marriage, lack of health services, and health education.

Additionally, the current findings contradict those of ***Bakkar et al. (2022),*** who evaluated the clinical features and reasons for visual impairment in a group of 135 patients seen at a low vision clinic in northern Jordan and found that over half of the research participants had a family history of ocular conditions like retinitis pigmentosa and albinism.

Regarding the PMS knowledge of the adolescent females in the pre-, post-, and follow-up phases of the research. In terms of all items of adolescent females' knowledge about PMS, the current results showed a highly statistically significant difference between the outcomes of the post-intervention and follow-up phases compared to the pre-intervention phase in favor of follow-up. Furthermore, the findings demonstrated that, in comparison to the majority of the adolescent females in the research in the post-intervention and follow-up phases, over one-third of them had appropriate knowledge scores and over two-thirds had deficient knowledge scores related PMS at the pre-intervention phase. On the other hand, the fact that the topic was considered important, which resulted in high levels of interest and satisfaction throughout the audio-drama integrated peer-education, may have contributed to the increase in total knowledge score after the intervention (figure 1).

These results are consistent with those of ***Hussein et al. (2022),*** who valuated how vision impairment affects the quality of life among students at El-Nour Institute in Shebin El-Kom, Menoufia and discovered that less than three-quarters of parents had low overall awareness of visually impaired people prior to the program's implementation, but that their knowledge improved to good overall knowledge following the program's implementation. The lack of media awareness programs about visual impairment in society, low educational attainment, and disparate customs and traditions in various communities could all contribute to the pupils' inadequate knowledge of the condition.

These findings, which are similarly consistent with those of ***Pujar & Revankar (2023)***, showed that, before to intervention, 12% of adolescent females had average awareness of PMS, whereas the more than two third of adolescent females (72%) had poor knowledge.

The current research's findings regarding the reported practices of the adolescent females under investigation regarding PMS at pre, post-intervention, and follow-up phases showed a highly statistically significant difference in the mean scores of the reported practices of the adolescent females at pre, post-intervention, and follow-up phases. During audio-drama integrated peer-education, the overall mean score of the reported practices of females under research improved. Additionally, the findings demonstrated that, in relation to PMS, over one-third of adolescent females had satisfactory reported practices scores and over two-thirds had unsatisfactory reported practices scores during the pre-intervention phase, compared to over three-quarters at the post-intervention and the majority at follow-up (figure 2).

The above-mentioned findings are consistent. Following the implementation of an audio-educational program, blind female students' practice scores on menstruation showed highly significant differences, according to ***Armour et al. (2021).*** This might be because blind adolescent females benefit from using audio theater programs to better their menstrual hygiene and practices.

The current research's findings were in contrast to those of ***Woldeamanuel et al. (2020),*** who examined the prevalence and contributing factors of visual impairment among students in Southern Ethiopia and discovered that a minority of students and their parents seek medical attention on a regular basis, while the majority do not seek medical attention at all and only do so when they experience symptoms of eye issues. Education can play a significant role in raising awareness about eye care, and it may be the reason for this. Lack of education is a key impediment in recognizing eye disorders.

Regarding the mean scores of the PMS subscales for the adolescent females under research at the pre, post-intervention, and follow-up phases, the current research's findings showed a significant statistical difference between the mean scores at each of these times. adolescent females' overall mean score for PMS decreased over the course of the trial, favoring the follow-up period (table 7).

The findings of the current research indicated that the most of adolescent females were highly satisfied with audio-drama integrated peer-education in terms of their attitudes toward it (figure 3).

The above-mentioned findings are consistent with ***Jeyanthi (2023)*** findings that most visually impaired adolescent females expressed high levels of satisfaction with the audio theater program .

However, according to ***El-Kurdy et al. (2022),*** most blind adolescent females expressed satisfaction with the audio drama intervention.

Regarding the correlation factors of the present research, the total knowledge score and the total reported practices score of the adolescent females under research during the pre-, post-, and follow-up phases showed a highly statistically significant positive correlation. At the pre-, post-, and follow-up stages, there was a very statistically significant negative association between the adolescent females' overall knowledge score and their total PMS score (table 8). Furthermore, the total reported practices score and the total PMS score of the Adolescent females under research during the pre-, post-, and follow-up phases showed a highly statistically significant negative association (table 9).

These results are corroborated by ***Ramadan et al. (2021),*** who examined the educational advancement of visually challenged adolescent females in terms of their knowledge and practices of personal cleanliness and discovered a favorable correlation between the two. Therefore, it is imperative that educational programs be held using educational methods that are appropriate for this group of people with special needs in order to alleviate their suffering from the pain and health issues they experience, which they may be unable to express because of their disability. These results showed that the intervention is safe, effective, affordable, and simple to use. Additionally, it presents a compelling image of how audio-drama integrated peer-education might help blind adolescent ladies.

Conclusion:

Based on the findings of the current research; the use of audio-drama integrated peer education about PMS was found to have a favorable impact on knowledge, reported practices, severity of premenstrual syndrome and satisfaction of visually challenged adolescents. The current research's findings also showed a highly statistically significant negative correlation between the PMS score and the total knowledge score of the adolescent females under research at the pre-, post-, and follow-up phases, and a highly statistically significant positive correlation between the total knowledge score and the total of reported practices score. However, the majority of adolescent females expressed great satisfaction with audio-drama integrated peer-education, according to the current research's findings. Thus, the goal was achieved and the research hypotheses were validated.

Recommendations:

Recommendations derived from this research are as follows:

- Implementing audio drama educational sessions could help raise awareness and improve menstrual health practices among blind adolescent girls in various contexts.
- Incorporating information about premenstrual syndrome and its management into the curricula of schools for visually impaired students is recommended.
- Additional studies are necessary to deepen our understanding of the unique requirements of blind adolescent girls who also have other disabilities in relation to premenstrual syndrome.

Acknowledgments:

The authors would like to thank the visually challenged adolescent females who participated in the current research and spent their precious time. Authors also express the deepest appreciation to the director and all workers of Elnoor- school, as well as the jury committee for their support.

References:

1. Abdalla, N., and Gibreel, M. (2016). Effects of an educational program in increasing knowledge and reducing premenstrual syndrome signs, symptoms and severity among nursing college students. International Journal of Basic and Applied Sciences, 5(4), 200-209.

2. Abdelazeem, A., Hossein, Y., Eltomy, E., and Mohamed, M. (2022). Healthy Lifestyle practices among Visually Impaired Adolescent Students at El-Noor School in Minia Governorate. Minia Scientific Nursing Journal, 11(1), 21-31.
3. Abeje A, Berhanu Z. (2020). Premenstrual syndrome and factors associated with it among secondary and preparatory school students in Debremarkos town, North-west thiopia, 2016. BMC Res Notes 2020; 12:535
4. Amr, A. (2021). Audio-Drama Nursing Intervention Utilizing Peer Education on Menstrual Hygiene and Sickness Management among Blind Adolescents. Tanta Scientific Nursing Journal. 20(1), 227-255.
5. Armour, M., Parry, K, Al-Dabbas, M., Curry C, Holmes, K., MacMillan, F. (2021): Self-care strategies and sources of knowledge on menstruation in 12,526 young women with dysmenorrhea: A systematic review and meta-analysis. PLoS One. 2021;14(7): e0220103.
6. Arunachalam, S., Shetty, P., Rajendran, S., Eswaran, H., and Karthik, M. (2022). Awareness and practice of menstrual hygiene among visually impaired adolescent girls: Using Braille Methods. Ann Nurs Primary Care. 2022; 3 (1), 1017.
7. Azhary, K., Leng, K., Razali, N., Sulaiman, S., Wahab, A., Adlan, A., and Hassan, J. (2022). The prevalence of menstrual disorders and premenstrual syndrome among adolescent girls living in North Borneo, Malaysia: a questionnaire-based study. BMC Women's Health, 22(1), 341.
8. Bagirisano, J., Bazakare, I., Nkurunziza, A., Hitayezu, H., Uwera, N., Mukankusi, N. and Habtu, M. (2024). The effect of audio-recorded program on knowledge and self-reported practices of menstruation and hygiene among visually impaired young girls in Rwanda: a mixed method study.
9. Bahari, R., Shokravi, A., Anosheh, M., and Moridi, M. (2021). Effect of a health education program on puberty knowledge among visually impaired female adolescent students. Medical Journal of the Islamic Republic of Iran, 35: 74.
10. Bakkar, M. Alzghoul, E. and Haddad, M. (2022). Clinical characteristics and causes of visual impairment in a low vision clinic in northern Jordan. Clinical Ophthalmology (Auckland, NZ), 12, 631.
11. binti Abdullah, N., bin Abdul Aziz, A., Mustafa, A., Almusawi, M., and Hussein, A. (2023). Women's Health Diary: Tracker System for Menstruation, Intermenstrual, Ovulation, and Postnatal Bleeding Using Rules-Based Technique. In 2023 3rd International Conference on Mobile Networks and Wireless Communications (ICMNWC) (pp. 1-5). IEEE.
12. Cassioli, E., Rossi, E., Melani, G., Faldi, M., Rellini, H., Wyatt, B., and Castellini, G. (2023). The menstrual distress questionnaire (MEDI-Q): Reliability and validity of the English version. Gynecological Endocrinology, 39(1), 2227275.
13. Chen, Z., Imai, K., and Zhou, X., (2023). The relationship between physical activity and premenstrual syndrome in senior high school students: a prospective study, Scientific Reports, 13(1): 5881.
14. Daneshvar, S., Ahmadi, F., Naghizadeh, M., Direckvand-Moghadam, A., Mohammadian, F., Jalilian, M., and Ghazanfari, Z. (2023). Effectiveness of a school-based health education program to improve the symptoms of premenstrual syndrome in high school girls in Ilam. Journal of Education and Health Promotion, 12(1), 126.
15. Diao, H., Pu, Y., Yang, L., Li, T., Jin, F. and Wang, H., (2022). The impacts of peer education based on adolescent health education on the quality of life in adolescents: a randomized controlled trial. Quality of Life Research (2020) 29:153–161 https://doi.org/10.1007/s11136-019-02309-3.
16. Dodd, S., Widnall, E., Russell, E., Curtin, L., Simmonds, R., Limmer, M., and Kidger, J. (2022). School-based peer education interventions to improve health: a global systematic review of effectiveness. BMC public health, 22(1), 2247.
17. Drosdzol-Cop, A., Fuchs, A., Skrzypulec-Plinta, V., Radomski, D., Jarzabek-Bielecka, G., Czech, I. and Szul, M. (2020). Recommendations of the Group of Experts of the Polish Society of Gynecologists and Obstetricians in the field of gynecological and obstetric care of young women with physical and intellectual disabilities. Ginekologia Polska, 91(3):165-173.

18. El-deeb, A. Atta, H. and Osman, D. (2020). Effect of whole-body vibration versus resistive exercise on premenstrual symptoms in adolescents with premenstrual syndrome. Bulletin of Faculty of Physical Therapy, 25, 1-6.
19. El-Houfey, A., Ahmed, A., Gamal Eldein Ibraheim, S., and Atta Mohammed, W. (2023). Effect of implementing audio-educational measures on the severity of primary dysmenorrhea among blind female students
20. El-Kholy A. and Shalaby E., (2022). Effect of Pilates Exercises on Primary Dysmenorrhea among Adolescent Female Students. Tanta Scientific Nursing Journal. 26(3).
21. El-Kurdy, R., Fadel, E., and Elsayed, A., (2022). Effect of structured audio educational sessions on visually challenges adolescent school-girls' knowledge and practices regarding menstruation. International Journal of Novel Research in Healthcare and Nursing, 7(1), 497-509.
22. Elsawy, M., Ayed, A, Al Sherbeny, M., Goma, A, and Abdelwahed, Y., (2023). Effect of Progressive Muscle Relaxation Technique on Menstrual Cramps among Adolescent students. Egyptian Journal of Health Care, 14(2).
23. Fouad, R., Ahmed, A., A. and Mohamed, B., (2023). Effect of Educational Program Utilizing Audio and Braille Text on Knowledge and Practice of Visually Impaired Adolescent Girls Regarding Reproductive Health, Egyptian Journal of Health Care, 14(1): 1364-1378.
24. Gürkan, D. Y., & Bilgili, N. (2022): Prevalence of premenstrual syndrome among university students: associated factors and comfort level. Prevalence, 10(1): 44-52.
25. Heiba, F., AbdElmenim, M., and Mohammed, E. (2023). Effect of Structured Audio Educational Sessions on Knowledge and Hygienic Practices Regarding Menstruation for Visually Impaired Adolescent Girls. Port Said Scientific Journal of Nursing, 10(4), 193-223.
26. Hou, M., Herold, F., Healy, S., Haegele, A., Block, E., Ludyga, S., and Zou, L., (2023): 24-Hour movement behaviors among visually impaired US children and adolescents. Mental Health and Physical Activity, 25: 100545.
27. Hussein, A. Safan, N. Zein El-Dein, N. and El-Safi, H. (2022). Effect of Vision Impairment on Quality of Life of Students in El-Nour Institute at ShebinEl-Kom. Menoufia University, Faculty of Nursing. 1(3): 34-43.
28. Jeyanthi, P. (2023). Effectiveness of audio drama on menstrual hygiene and management of minor ailments of menstruation upon knowledge and practice among visually challenged girls.2020, Available from: https://www.ijisrt.com.
29. Karimu, A. (2021). Menstruation and the girl with visual impairment. Sexual and Reproductive Health of Adolescents with Disabilities, 85-99.
30. Kemmanu, V. Giliyar, S. Rao, H. Shetty, B. Kumaramanickavel, G. and McCarty, C. (2021). Consanguinity and its association with visual impairment in southern India: The Pavagada Pediatric Eye Disease Study. Journal of community genetics, 10(3), 345-350
31. Leekuan, P., Kane, R., Sukwong, P., and Kulnitichai, W., (2022). Understanding sexual and reproductive health from the perspective of late adolescents in Northern Thailand: a phenomenological study, Reproductive Health, 19(1): 230.
32. Maatoug, H., Baccouch, R., Borji, R., Rebai, H., and Sahli, S., (2023). Effects of music listening on postural balance in adolescents with visual impairment. Perceptual and Motor Skills, 130(1): 112-126.
33. Mahazam, A., El Magrabi, N. and Ahmed, R. (2021). Personal Hygiene Awareness among Visually Impaired El-Nour School Female Students. Port Said Scientific Journal of Nursing, 10(4).
34. Mahdi, M., and Khairi, H. (2020). Effectiveness of an educational program on female students' knowledge toward premenstrual syndrome in secondary schools in Third Al-Rusafa Education Directorate, Iraq. Iraqi National Journal of Nursing Specialties, 33(2)
35. Mammo M., Alemayehu M., and Ambaw G., (2022). Prevalence of Primary Dysmenorrhea, Its Intensity and Associated Factors among Female Students at High Schools of Wolaita Zone, Southern Ethiopia: Cross-Sectional Study Design. International Journal of Women's Health 2022:14 1569–1577.
36. Nobre, R., Temporini, R., Kara, N., and Montilha, L. (2000). Rehabilitation services for visually impaired children: early intervention or a long delay? Revista Ocupacion Humana,8(4). https://doi.org/10.25214/25907816.519.

37. Pant, P. (2021). Menstrual Experiences of Totally Blind Menstruators in Kathmandu. Journal of Education and Research, 11(2), 89-105
38. Privitera, J., and Delzell, A., (2019). Quasi-experimental and single-case experimental designs, Research methods for education: 333-70.
39. Pujari, A. and Revankar, S. (2023). Knowledge regarding premenstrual syndrome among adolescent school girls in a view to develop an information booklet. Indian Journal of Health Sciences and Biomedical Research KLEU, 16(3), 342–346. https://doi.org/10.4103/kleuhsj.kleuhsj_590_22
40. Ramadan, S. Gaber, S. El feshawy, R.Elsayed, A. and Amr, F. (2021). Audio-Drama Nursing intervention Utilizing Peer Education on Menstrual Hygiene and Sickness Management among Blind Adolescents Introduction Tanta Scientific Nursing Journal (Print ISSN 2314 –5595)(Online ISSN 2735–5519)
41. Ross, C., Coleman, G., and Stojanovska, C., (2003). Factor structure of the modified Moos Menstrual Distress Questionnaire: assessment of prospectively reported follicular, menstrual and premenstrual symptomatology. Journal of Psychosomatic Obstetrics & Gynecology; 24(3):163-74.
42. Shu-Ling, G., Mei-Fang, N., Yu-Hua, N., Chia-Chan, O., Chang, W., and Hui-Shan, N. (2018). Lifestyle in visually impaired or blind massage therapists: a preliminary study. Journal of Nursing Research, 26(5), 348-355.
43. Suaidi, T., Wong, K., Mohd Tahir, A., and Chua, W. (2020): Community pharmacists' knowledge, attitude, and practice in providing self-care ecommendations for the management of premenstrual syndrome. Medicina, 56(4), 181..
44. Teherán, A., Piñeros, G., Pulido, F., Guatibonza, M.. WalI, D. (2021). Score, A New Tool to Diagnose Dysmenorrhea and Predict Medical Leave in University Students. Int J Women's Health. 2021; 10:35-45.
45. Topping, J. (2022). Peer education and peer counselling for health and well-being: A review of reviews. International journal of environmental research and public health, 19(10), 6064.
46. Turan, A., Güler Kaya, İ., Çakır, B., and Topaloğlu, S., (2024). Prevalence and correlates of premenstrual syndrome and premenstrual dysphoric disorder among women aged 18-25 in Turkey, The International Journal of Psychiatry in Medicine, 00912174231189936., 59(1): 101-111.
47. Vishnuprasad, R. Bazroy, J. Madhanraj,K. Prashanth, H. Singh, Z., Samuel,A. and Muthukumar, T. (2023). Visual impairment among 10–14-year schoolchildren in Puducherry: A cross-sectional study. Journal of family medicine and primary care, 6(1), 58.
48. Woldeamanuel, G. Biru, M. Geta, T. and Areru, B. (2020). Visual impairment and associated factors among primary schoolchildren in Gurage Zone, Southern Ethiopia. African Health Sciences, 20(1),533-542.
49. Wong, L. (2020). Health-related quality of life among Chinese adolescent girls with Dysmenorrhoea. Reprod Health. 2020;15(1):1-10.
50. World Health Organization (WHO). (2022). Global Prevalence and Causes of Visual Impairment. Available at: https://pmc.ncbi.nlm.nih.gov/articles/PMC9128433/. Accessed on 12-12-2024 at 12 pm.
51. World Health Organization a (WHO a), (2019): World report on vision.Department of Non-communicable Diseases Available at: https://www. iapb.org/wp-content/uploads/world-vision-report-accessible1.

الملخص العربى

تأثير تعليم الأقران من خلال الدراما الصوتية فيما يتعلق بمتلازمة ما قبل الحيض على معلومات وممارسات ورضا المراهقات ذوى الإعاقة البصرية

مقدمه: تواجه المراهقات ذوات الإعاقة البصرية صعوبات أكبر في فهم التغيرات المصاحبة للبلوغ مثل الحيض ومتلازمة ما قبل الطمث .ويُعتبر استخدام الدراما الصوتية المدمجة وسيلة فعّالة وسهلة الوصول لدعم تعلمهن وتكيفهن مع هذه التغيرات.

الهدف: تقييم مدى تأثير تعليم الأقران من خلال الدراما الصوتية فيما يتعلق بمتلازمة ما قبل الحيض على معلومات وممارسات ورضا المراهقات ذوى الإعاقة البصرية.

التصميم: تصميم شبه تجريبي (مجموعة واحدة، سلسلة زمنية). **مكان البحث**: أُجري البحث في مدرسة النور للمكفوفين ببنها، محافظة القليوبية، مصر، والتي تشمل مراحل التعليم الابتدائي والإعدادي والثانوي. **العينة**: شملت العينة المقصودة 42 فتاة مراهقة كفيفة، 14 منهن في المرحلة الإعدادية و28 في الثانوية.

النتائج: أظهرت نتائج مرحلتي ما بعد التدخل والمتابعة بإستخدام تعليم الأقران المدعمة بالدراما الصوتية حول متلازمة ما قبل الحيض فرقاً ذا دلالة إحصائية عالية مقارنة بمرحلة ما قبل التدخل، حيث تحسنت المعرفة، وشدة متلازمة ما قبل الحيض، والممارسات ، ومستوى رضا المراهقات ذوات الإعاقات البصرية.

الخلاصه والتوصيات: أسفراستخدام تعليم الأقران المدعمة بالدراما الصوتية حول متلازمة ما قبل الحيض عن تحسين المعرفة، وإدراك شدة الأعراض، والممارسات، ومستوى الرضا لدى المراهقات. لذا يُوصى بتنفيذ جلسات تعليمية تعتمد على الدراما الصوتية لزيادة الوعي وتحسين ممارسات الصحة الحيضية بين الفتيات المكفوفات في مختلف السياقات، ودمج معلومات حول متلازمة ما قبل الحيض وإدارتها ضمن المناهج الدراسية الخاصة بمدارس ذوي الإعاقات البصرية.