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The Impact of Audio Play on Awareness and Practice of Menstrual Hygiene between Visually Challenged Adolescent Girls

Sherin Nithya.S[1], Geetha .C[2]

[1]Dept of Child Health Nursing, Kasturba Gandhi Nursing College, Sri BalajiVidyapeeth, Puducherry, sherinnithya@gmail.com

[2]Dept of Child Health Nursing, Kasturba Gandhi Nursing College, Sri BalajiVidyapeeth, Puducherry, drgeethachockalingam@gmail.com

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ABSTRACT: Menstrual health is a comprehensive condition of physical, mental, and social well-being, not only the absence of sickness or disability related to the menstrual cycle.(WHO2018).

OBJECTIVES: To determine the impact of AI audio play on awareness and practice on menstrual hygiene among visually challenged Adolescent girls.

METHOD: The researchers used a quantitative method to analyse 45 visually impaired girls, selecting them using a purposive sampling technique and utilizing a pre-experimental one-group pre-test post-test design. Pre existing knowledge was assessed by using semi structured interview questionnaires and practice was assessed by self reporting practice check list. After the pre test, menstrual practices were thought by AI audio play to the Visually Challenged Girls on hygiene. After 3 weeks post test was done through using the same tool.

RESULT: There was an insufficiency of awareness and practices on menstruation before the interventions of audio play short term sessions prepared through Artificial Intelligence. Also, there were an improvement and highly statistically significant differences in the total scores of awareness and practices of visually challenged girls regarding menstruation after the AI audio play on appropriate menstruation practices. ($P<0.001$).

CONCLUSION: Girls who are visually challenged benefited from listening to an Audio play prepared through AI on menstrual hygiene, which increased their awareness and adherence to the best practices.

Key Words: Audio play, AI- Artificial Intelligence, Knowledge, Practice, Menstrual hygiene, Visually Challenged girls

Introduction

The onset of menarche, or the first menstrual cycle, is one of the very profound physiological change over that a female undergoes during adolescence. (1). Visual impairment is a critical medical disease that has far-reaching psychological and monetary consequences. Because of this, visually impaired girls often adopt new, unhealthy routines (2) that might have negative effects on their health and social lives. The menstruation cycle is a most valuable base of reproductive life in teenagers (3). Menstruation, the monthly bleeding experienced by all the women, is a normal physiological function that, unlike most others, has to be managed properly. One of the vital processes of adolescence is the shedding of the uterine mucosa, and from puberty forward, every woman menstruates for an average of two to seven days every cycle. It has religious and cultural connotations that might influence how young girls see themselves and how their communities react to their needs (5). In many societies, discussions about menstruation are taboo. While menstruation is a natural part of growing up, many teenagers know very little about it, it's typical and pathological forms, the symptoms it might bring, or how to deal with them if they arise (6). Menstruation has been stigmatized for a long time in many cultures. Adolescent girls' views, attitudes or a lack of precise knowledge about menstruation may be affected by this sequential process (7). A collection of physiological, psychological, and emotional problems associated with a girl's menstrual cycle is known as menstrual disorder. In light of the fact that these burdens are significant even for typically developing adolescents, it is clear that it is very challenging for visually impaired youngsters to cope with the menstrual cycle(8). These girls who are visually impaired need to learn about menstruation and proper menstrual hygiene. The girls who are visually impaired will benefit much from audio education. The audio play

teaching material is helpful in saving of time and can be ran repeatedly to achieve needed outcomes for the visually challenged children(9); Nowadays, artificial intelligence is making the creation of health education material more easier, and an interdisciplinary method using artificial intelligence to supporting a human creator in audio play production is being created. Natural language processing, health information retrieval, and automated mixing are used to investigate the task[10]. it is an invoke better to teach the adolescent girls, and it plays a vital role in the societal development of visually changed teenage girls. The term refers to a method of conveying information through audio media.

OBJECTIVES:

- To assess the awareness and practice on menstrual hygiene and determine the impact of AI audio play on awareness and practice on menstrual hygiene among visually challenged Adolescent girls.

TERMINOLOGIES:

Impact: It refers the level of change caused by audio play on menstrual hygiene to develop awareness and practices among visually challenged girls.

Audio play:

The phrase "audio play" is used to describe acoustic performances that have a highly structured and sensationalized schedule of events related to menstrual hygiene prepared by the assistance of Artificial Intelligence.

Artificial Intelligence(AI)

Artificial intelligence is a field that combines computer educational science and large datasets to give solution to the problems and make the complex work to become easier.

Menstrual Hygiene

The term "menstrual hygiene" is to describe the practice of keeping oneself clean and healthy before, during, and after menstruation, with the goal of preserving one's reproductive health and avoiding sickness.

HYPOTHESES:

H1: There will be a significant difference between pretest and post test level of awareness and practice on menstrual hygiene among visually challenged girls.

MATERIAL AND METHODS:

This research used a quantitative method using 45 samples of visually challenged girls, and the samples were selected using a purposive sampling technique. The investigation was also performed in a one-group pre-test post-test design. Pre existing knowledge was assessed by using semi structured interview questionnaires and practice was assessed by self reporting practice checklist after the pre test, through audio play method teaching prepared by artificial Intelligence on Menstrual hygiene was given.

Three times a week, this training took place. Approximately 30 minutes were allotted for each session. Three weeks of short term sessions were carried out, with the primary session focusing on information on menstrual hygiene, the second on practice, and the third on review correspondingly, and a post test was done after three weeks (21 days) using the same instruments. Special School for Children with Visual challenged in Villupuram where the data was gathered .

CRITERIA FOR SAMPLE SELECTION

Inclusion criteria:

* Visually challenged adolescent girls aged 11-19 years.
* Already attained menstruation.
* Girls who were during the data collection time.

Exclusion criteria:

- Age less than 11 years old.
- Girls have verbal or auditory problems and other medical illness.

- Girls are not interested to participate in this study.

DESCRIPTION OF THE TOOLS:

Tools of data collection:

The information was gathered with the use of a semi-structured interviewing questionnaire. . It has three tools as below. It was created by the investigators in light of the relevant and relatedness literature, and it is written in easy-to-understand Tamil and English to gather data on:

Part I. Demographic Data:

Age, religion, educational level, place of residence, mothers' education and occupation, as well as the adolescent girls' menstrual data (age attained menarche, time of menstruation, quantity of menstrual blood, and presence of minor ailing), were among the characteristics that were examined.

Part II. Knowledge Assessment interview questionnaire:

The researcher conducted a thorough literature analysis and had discussions with subject-matter experts to build a suitable instrument. It consists of structured interview questionnaire to assess the level of Knowledge regarding menstrual hygiene. There are 25 multiple-choice questions (MCQs) with four possible responses (one correct answer and three false ones). There is a 0–25 point scale. The obtained scores were interpreted into percentage and interpreted as follows.

Table 1:Scoring Interpretation:

Scoring	Percentage	Interpretation
1-8	<50%	Inadequate Knowledge
9-16	50-75 %	Moderately Adequate Knowledge
17-25	>75%	Adequate Knowledge

III- Self-reported practices assessment checklist

The investigator conducted a thorough literature search, spoke with subject matter experts, and sought faculty opinion before finalizing the practice evaluation checklist. There are 20 questions total, with a point awarded for each correct response. The results were expressed as a percentage when the calculation was completed.

Table 2:Score Interpretation:

Scoring	Percentage	Interpretation
1-7	<50%	Poor Practice
8-14	50-75 %	Average practice
15-20	>75%	Good Practice

Methods

a.Administrative and ethical considerations:

The researchers were able to get official permission from the study Settings administrations before beginning their work. The significance, design, and expected results of the research were all well explained. All participating students who covered the inclusion criteria were informed of the study's goal and their opportunity to decline participation in accordance with research ethical guidelines. After that, individuals agreed to take part in the research by giving their informed permission.

b.Validity and reliability of study tools:

The Validity of the content was assessed through a panel of five experts, three of whom were actual subject matter experts. Their feedback on the instrument's structure, reliability, and scoring scheme was solicited. The knowledge, expertise, and correctness of the tool's material were all put to the test. All of the tools' reliability

was checked. Cronbach's alpha was to determine reliability by evaluating the construct validity of internal consistency. Cronbach's alpha 'r' is set at 0.92.

DATA COLLECTION & PROCEDURE:

The data was received by the following phases:

1. The primary assessment phase:

In this first stage, investigators introduced themselves to the teenage girls with visual impairments and explained the study's purpose in clear terms. Girls were then interviewed and given the opportunity to provide their verbal approval. While conducting interviews with the visually challenged girls, the investigators explained the purpose of the above study and the components of questionnaire. When the questions were clarified, the researchers began assessing and filling out the pretest by reading the questions to the girls and noting their replies on the questionnaires. Each visually challenged person demographic information, menstruation history, and menstrual hygiene knowledge and practice were recorded. In about twenty to twenty-five minutes, the pretest was filled out in its entirety. After the researchers explained the educational session to the girl who is visually impaired, they told her that there would be a posttest three weeks later using the same questionnaire.

2. The implementation phase:

The second phase included instruction through an audio play material which was created by the assistance of Artificial Intelligence approach. This instruction was conducted three times each week. The timing of each session was thirty minutes. Menstrual hygiene education sessions were held over the course of three weeks, with the first day session devoted to theory, the second day to practice, and the third to review.

The AI audio play is a to dramatize, audio-only performed that plays on talk, music, and audio effects to assist visually-impaired girls learn everything there is to know about menstruation. For girls who are visually impaired, an audio play may fill in the gaps with an auditory description of the topic at hand. Promoting health and well-being to reach visually impaired girls with assistive technology utilizing an audio play is a more efficient and successful method.

3. Evaluation Phase:

After three weeks (21 days) of teaching sessions post test was conducted with same tools. Along with the Satisfactory rating scale on AI Audio play regarding menstrual hygiene and Research performance were assessed.

DATA ANALYSIS AND INTERPRETATION:

Table 3: Frequency and Parentage Arrangement of Demographic variables N=45

SL.NO	DEMOGRAPHIC VARIABLES	FREQUENCY (n)	PERCENTAGE (%)
1.	Age in years		
	a. 11-13	13	28.8
	b. 14-16	19	42.2
	c. 17-19	13	28.8
2.	Religion		
	a. Hindu	41	91
	b. Christian	3	6.7
	c. Muslim	1	2.3
3.	Standard of Education		
	a. 7^{th}Std	6	13.3
	b. 8^{th}Std	7	15.5
	c. 9^{th}Std	26	57.7

	d. 10th – 12 thStd	6	13.3
4.	Monthly income by family		
	a. Lesser than 3000/ Month	14	31.3
	b. Rs.3000-6000/ Month	12	26.6
	c. Rs. 6000-10000/Month	8	17.7
	d. Morethan 10000/Month	11	24.4
5.	Area of Residence		
	a. Urban	23	51.1
	b. Rural	10	22.2
	c. Sub-Urban	12	26.7
6.	Age at Menarche		
	a. 11-14 years	40	88.8
	b. 15-16 years	4	8.9
	c. Above 16 years	1	2.2
7.	Do you have regular menstruation		
	a. Yes	35	77.8
	b. No	10	22.2
8.	Duration of Menstrual cycle		
	a. Below 28 days cycle	22	48.9
	b. 28-30 days cycle	20	44.5
	c. Above 30 days cycle	3	6.7
9.	Days for Menstrual flow per cycle		
	a. Less than 3 days	1	2.2
	b. 3-5 days	35	77.8
	c. 6-7 days	8	17.8
	d. More than 7 days	3	6.7
10.	Any other Discomfort during Menstruation		
	a. Yes , Specify	14	32.3
	b. No	31	67.7
11.	Do you have the basic Knowledge of Menstruation		
	a. Yes	7.	15.6
	c. No	38	84.5
12.	If. Yes -the source of Information		
	a. Parents	5	71.4
	b. Teachers	2	28.6
	c. Friends or Elders	0	0
	d. Mass Media	0	0
	e. Health care workers	0	0

Table 3. Shows that and frequency percentage arrangement of demographic variables of visually challenged girls. With regard to the age , 13(28.8.2%) girls belong to the age group of 11 to 13 years, 19.(42.2%) girls belong to 14-16 years, 13(28.8.2%) girls belong to the age group of 17 to 19 years. Based on Religion 41(91%) girls belong to Hindu religion. 3(6.7%) Education 6 (13.3%) of them doing 7 th std , 7(15.5%) doing 8 th Std, 26(57.7%) are doing 9 th Std, 6 of them are doing 10-12 th Std. Family monthly income 14 (31.3 %) of them had less than Rs.3000 and more than Rs 1000 family income 11(24.4%) them had.. Area of Residence , 23(51.1%) of them are residing at urban and 10(22.2%) of them are residing at rural. Age at Menarche, between 11-14 years 40 (88.8%) students attained., 1 girl (2.2%) had attained after 16 years. 35(77.8%) had regular menstrual cycle.10.(22.2%) are not having regular menstruation cycle. Duration of Menstrual cycle, 22(48.9%) had below 28 days of menstrual cycle, 3(6.7%) of them had above 30 days of menstrual cycle. Days

for Menstrual flow per cycle, 35(77.8%) had 3-5 days menstrual flow, 53(6.7%) had More than 7 days. Any other Discomfort during Menstruation, 14(32.3%) had miner aliments during menstruation cycle. Rest of them not having any discomfort. 38(71.4%) not having the basic Knowledge of Menstruation. The source of Information, 5(46.7%) had the information from parents, 2(4.4%) of them received information from teachers.

Figure1:Pre test and post test level of knowledge on Menstrual hygiene

N=45

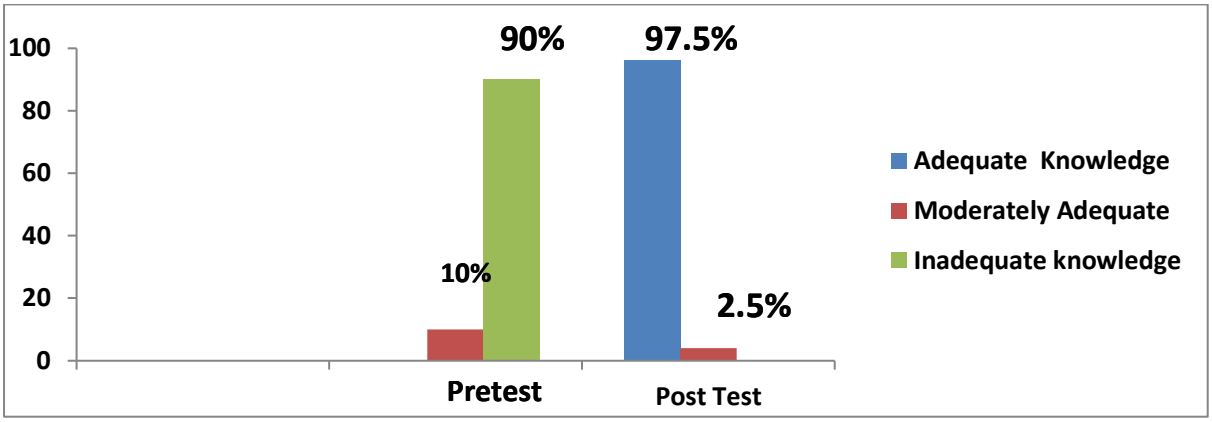

Figure 1 In pre-test out of 45 samples 41(90%) had inadequate knowledge, 4(10%) had moderate knowledge and none of them had adequate knowledge. In post-test majority of the samples had adequate knowledge 44(98%) and 3(2%) had moderate knowledge about Menstrual hygiene.

Figure2.Pre test and post test level of Practice on Menstrual hygiene N=45

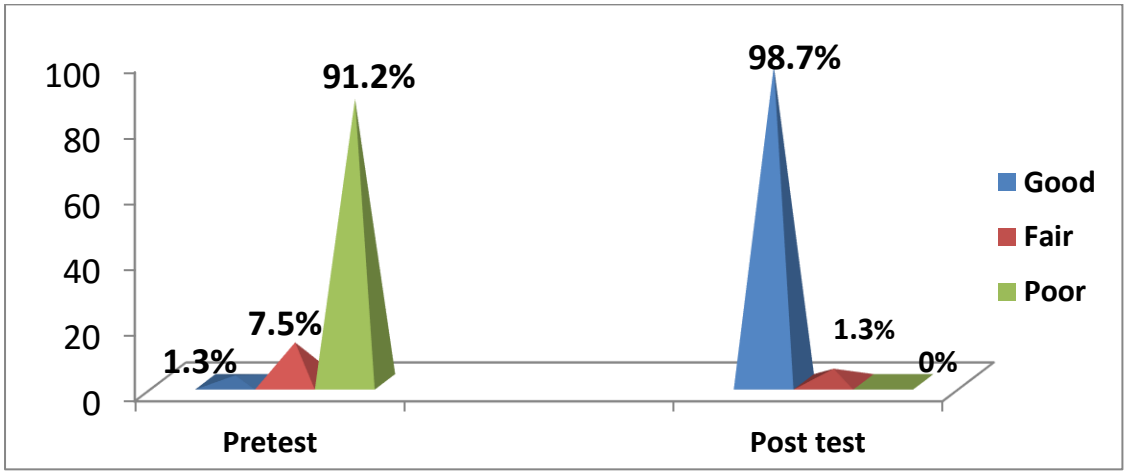

Figure2:In pre-test out of 45 samples most of them 41(91.5%) had poor practice, 3(7.7%) had fair and one had good practice1(0.8%). In post-test majority of the samples had good practice 43(98.7%) and 2(1.3%) had fair practice and none of them had poor practice on Menstrual hygiene**.**

Table4:Comparison table of pre test &post test level of Knowledge and practice assessment score regarding before and after AI Audio play on Menstrual hygiene among visually challenged girls

N=45

Level		**Mean**	**SD**	**Std Error mean**	**Difference**	**T-test**	**P -vaue**
Level of	Pretest	3.42	1.444	0.204	13.760	14.996	<0.001

Knowledge	Post test	17.18	1.746	0.247			
Level of Practice	Pretest	39.98	5.68	0.603	33.140	19.854	<0.001
	Post test	73.12	6.319	0.887			

Table 4 Comparison table of pre test & post test level of Knowledge assessment score regarding before and after AI Audio play on Menstrual hygiene shows the effectiveness of Audio play educational material. Regarding knowledge pre test and post test mean score 3.42 and 17.18 respectively and P- value <0.001. Regarding practice pre test and post test mean score 39.98 and 73.12 respectively and P- value <0.001.There is a significant difference between pretest and post test scores of knowledge and practice between visually challenged adolescent girls. Hence the state the hypothesis (H1) was accepted.

DISCUSSION:

When the endometrium breaks down and causes bleeding, it causes the menstrual cycle. Girls in school, especially those who are blind or visually impaired, are at a significant disadvantage. Adolescent females must use excellent menstrual hygiene habits to avoid acquiring a urinary tract or genital tract infection.

The demographic characteristics of blind females are shown on Table 3, along with their frequency and percentage distribution. Among the pupils in the sample, 40 (88.8%) reached menarche between the ages of 11 and 14, whereas 1 girl (2.2% of the total) had menarche at the age of 16. Thirty-five of them (77.8%) had regular periods. The percentage of women who do not have regular menstrual cycles is 10(22.2%). In terms of the length of their menstrual cycles, 22 of the women (48.9%) had cycles shorter than 28 days, while 3 (6.7%) had cycles longer than 30 days. There were 35 (72.8%) with a menstrual cycle that lasted between three and five days, and 53 (6.8%) that lasted more than seven days. Fourteen patients (32.3%) reported suffering from other discomfort during menstruation. The rest of them are quite comfortable. Seventy-one percent, don't know the basic knowledge on menstruation. 5 (46.7%) had heard the information on menstruation through their parents, and two (4.4%) had learned it from their teachers.

The results were consistent with those reported by Das & Baker et al (11) and Jeyanthi (12), who found that an average age of menarche for teenage girls was between 12 and 14 years old, that their menstrual cycles lasted between 3 and 5 days, that all the girls experienced minimal alignments during menstruation, and that the average time between periods was greater than 35 days(13). The researcher speculates that individual variations or hormonal changes may account for the observed variance in menstrual cycle lengths among the visually challenged girls.

Pre- and post-test measures of knowledge among visually impaired teenage girls about menstrual hygiene and the treatment of menstrual disorders. The majority of visually impaired girls in this research scored higher on the post-test than the pre-test, indicating that their level of knowledge is adequate. These results were consistent with those reported by Ahmed et al. (2), he found that following an audio drama nursing investigation , the majorly of visually impaired girls scored higher on post- and follow-tests compared to before the intervention.

The current research found that when comparing pre- and post-test levels of menstrual hygiene practice among the samples, the post-test levels of practice were higher among visually challenged girls. Similarly to what Ahmed et al.(2) found, there was a statistically significant difference between pre- and post-intervention levels of knowledge of menstruation after exposure to an audio-drama. This was corroborated by Diao et al. (14), who investigated the effects of an audio play focused on adolescent health education on females who are visually impaired and found that it improved the teenagers' physiological , mental health, pubertal, and total competency of life (QoL) of teenagers, but no social (QoL). AI has created tools to promote the reproductive health of people with deformities; yet, those who were in need this knowledge may not have accession to them. This research was created as a resource for those in need (15). This concordance in findings was also linked, according to the researchers, to the impact of audio play in influencing the behavior of visually impaired females with regards to menstrual hygiene.

The majority of students in this research who were visually impaired expressed satisfaction with the educational sessions as a whole, including their organisation, the topics discussed, and the clarity with which the concepts were explained. This research demonstrates that today's visually impaired teenage girls are able to quickly learn and use the latest innovations in assistive technology for a variety of educational and practical purposes.

CONCLUSION:

Based on the evidence and outcomes of the present study, it was concluded that the AI audio play intervention was an efficient method on increasing the visually challenged teenagers' Awareness and habits about menstrual hygiene. Girls who are visually impaired might acquire a great deal of information and experience via the use of the audio play educational approach.

RECOMMENDATIONS:

1. Providing supplementary educational programming, especially for disabled adolescent females, to increase their knowledge of adolescent health.
2. Tailoring the use of today's educational tools to the specific needs of teenage girls who are blind or visually impaired.

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