

## Awareness of Blind Adolescent Girl Students Regarding Premenstrual Syndromes: Outcomes of Educational Guideline

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### Abstract

**Aim:** This study aimed to evaluate the outcomes of educational guideline on awareness of blind adolescent girl students regarding premenstrual syndromes. **Subjects and Methods:** A quasi-experimental design was utilized in this study, that was conducted at Blind School in Benha Institute. A purposive sample of 80 blind adolescent girl students from the previously mentioned setting. The following study tools were used(pre/posttests): 1) Students' interviewing questionnaire to assess their knowledge as regards premenstrual syndromes. 2) An observational checklist to evaluate studied students' practices such as perineal care. 3) Numerical pain scale to assess pain severity level. 4) Hamilton Anxiety Rating Scale to assess anxiety level. **Results:** The mean age of adolescent girls was  $15.9 \pm 2.3$  years. There was significant differences regarding knowledge and practices (perineal care, methods of cleaning, use of pads, dispose of pad and methods of drying), pain and anxiety relieve (e.g warm compress and exercises) about premenstrual syndromes between pre, post and follow up educational guideline. **Conclusion:** The present study concluded that, the educational guideline had a positive effect on awareness of blind adolescent girl students regarding premenstrual syndromes. **Recommendations:** Further studies should be carried out on a large number of such group of students for evidence of the results and generalization.

**Key words:** Premenstrual syndrome, Awareness, Blind adolescents, Educational guideline.

### Introduction

Adolescence is a transition period from childhood to adulthood and characterized by a spurt in physical, endocrinal, emotional and mental growth with a change from complete dependence to relative independence. The period of adolescence for a girl is a period of physical and psychological preparation for safe motherhood. Health of adolescent girls influences on health of the future population as the direct reproducers of future generations (Rizk, 2013; Verma et al., 2015).

Blindness is the disturbing of physical condition with deep emotional and economic effects. It leads to major variations in lifestyle, habits which may cause problems in physical, psychological and social adjustment of blind girls. It causes a serious effect on the adolescent girls, family and community. Vision is one of the most essential channels through which the adolescent is conversant about environment and vital in organizing experiences. Therefore, it is considered the most traumatic sensory impairment (Whelan et al., 2009; Shanbhag et al., 2012). According to the World Health Organization (WHO), the incidence of vision impairment was 148 million worldwide and 110 million cases of

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low vision that could be at hazard of becoming blind. Around 90%, of the world visually diminished people, live in the developing countries, this means that 9 out of 10, who are visually diminished live in the developing countries as well (Alam et al., 2016). It is estimated that over 25,000 children and young people are classified as blind or partially sighted within the UK (Keil, 2014).

Menstruation is a monthly bleeding, natural physiological process that requires proper management. Unlike other normal bodily processes, it is linked with religious and cultural meanings that can affect the perceptions of young girls as well as the ways in which the communities around them respond to their needs (Nemade et al., 2009; Sudeshna & Aparajita, 2012). Uterus is the womb that will cradle a fetus as it grows. A fertilized egg will implant here so it is important for the uterus to have a nice fresh supply of nutrients and treats to help the egg during early development. The uterine lining has an expiration date and if the adolescent girls do not become pregnant, the lining is cleared out during menstruation. A cycle is counted from first day of the period to first day of the next period. The average menstrual cycle is 28 days long. Cycles can range anywhere from 21 to 35 days in adults and from 21 to 45 days in adolescent (Jugal et al., 2013; Boosey et al., 2014).

The premenstrual syndrome (PMS) is the condition in which one or more of the various symptoms affect an adolescent's life style, job and daily life, and disappears after the menstruation. The symptoms ranging from emotional and behavioral symptoms such as depression, angry outbursts, irritability, anxiety, confusion, social withdrawal, poor concentration, sleep disturbance, and thirst, and appetite changes, to physical symptoms including breast tenderness, bloating and weight gain, headache, swelling of the hands or feet, and aches or pains (Yamamoto et al., 2009). The causes of PMS are not clear. Meanwhile,

cause thought to be, by an underlying neurobiological vulnerability, to normal fluctuations in the circulating sex hormones estrogen and progesterone levels during the menstrual cycle. The role of sex steroids in PMS is supported by observations that symptoms often improve with treatments resulting in ovulation suppression (Daley, 2009).

Treatment of PMS includes various non-pharmacological and pharmacological methods. Before the initial pharmacological treatment, in order to cope with PMS symptoms, it is more important to provide accurate and sufficient knowledge to make necessary arrangements in the life style of the adolescent. The modification of the dietary habits, weight control, stress management, gaining and maintaining exercise habit have positive influences on the problem. In addition, adolescent's commitment on responsibility and participation in own care take an important place in the reduction or prevention of PMS (Milewicz & Jedrzejuk, 2006). In spite of, professionals' performance in lifestyle counseling is suboptimal, yet it is very important that healthcare providers promote healthful behaviors for adolescent with PMS. There are studies indicating that diet and physical activity decrease PMS and improve adolescent quality of life, thereby lowering the risk of premenstrual dysphoric disorders (Goel & Kundan, 2011).

Nurses play a key role in informing adolescents about PMS and providing consultations and educational guidelines on how to improve their quality of life, as well as encouraging the recognition of this common condition and in helping them cope with these symptoms through lifestyle change, nutritional supplement, herbal, , and hypnosis therapy. Furthermore, encourage adolescent girls to participate in aerobic exercise three times a week to promote sense of well-being, decrease fatigue, and reduce stress and pain. Behavioral counseling and stress management are integral part of management (Ricci & Kyle, 2009;

**Lowdermilk et al., 2010**). Furthermore, dietary recommendations to eliminate cramps include increasing fiber, calcium and complex carbohydrates, cutting fat, red meat, dairy products, caffeine, salt and sugar. Recent research suggests that, vitamin B supplements, primarily vitamin B6 in a complex, magnesium and fish oil supplements (omega-3 fatty acids) also, may help relieve cramps (**Chocano-Bedoya et al., 2011**).

Educational guidelines for menstrual problems management should include: perineal care, frequent warm bath, exercise (moderate exercise, deep breathing and abdominal breathing brings more oxygen to the blood which relaxes the uterus, walking alleviates irritability and tension), rest, iron supplementation to replace iron lost in menses, decreasing intake of caffeine (tea, coffee, coals and chocolate) to reduce anxiety. As well, decreasing intake of salty food to reduce fluid retention, and eating six small meals per day to prevent hypoglycemia and increasing fluid intake (**Ramadan, 2011; Yasmin et al., 2013**).

#### **Significance of the study:**

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In a multinational study, it is reported that PMS cause notable impact on general health. So, there is a very urgent need to focus on the importance of care for PMS and menstruation, however the opportunity of care is often missed (**Goel & Kundan, 2011**).

In Egypt, education about PMS for adolescents is very limited through the formal school system. Both national and subnational surveys have stated that Egyptian adolescent girls need basic information on menstrual topics because they often receive information from sources that may be misleading or inaccurate. Surveys have revealed that both adolescent girls and their parents should get more information on these

topics to be educated at school (**Abd-Elstattar & Mohamed, 2015; Alam et al., 2016**).

Visually, impaired girl may be less likely than other girl in her age to notice the changes in physical development that girl and others are beginning to undergo, and may need some more detailed explanations if girl can't see the pictures and diagrams in the typical books for teens and preteens. Many girls are shy about asking for details, so for all these reasons, it is important to approach the subject

The nurse can be supporter for blind adolescent students, meeting their needs by designing programs to improve their healthy life style or even confining in teaching classes focusing on the targeted areas of nutrition, physical activity, stress management, personal hygiene, injury prevention and health protection from hazards (**Chandra-Mouli & Pate, 2016**). Therefore, the current study aimed to evaluate the outcomes of educational guidelines on awareness of blind adolescent students regarding PMS.

#### **Aim of the Study:**

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This study aimed to evaluate the outcomes of educational guideline on awareness of blind adolescent girl students regarding premenstrual syndromes. This aim was achieved through the following:

- Assess students' knowledge about premenstrual syndromes
- Assess students' practices for premenstrual syndromes
- Assess level of pain and anxiety among studied students
- Develop and implement the educational guideline based on students`

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premenstrual syndromes and evaluate its effect on their knowledge and practices.

**Hypothesis:**

It was hypothesized that; the educational guideline will have a positive effect on awareness of blind adolescent girl students regarding premenstrual syndromes.

**Subjects and Methods:**

**Research design:**

A quasi-experimental design was utilized to conduct this study

**Setting:**

The present study was conducted at Blind School in Benha Institute, which contain the following:

- Twelve classes for education (6 classes for primary, 3 for preparatory & 3 for secondary).

- Another part of school for administration, activities, art and daily living of blind adolescent girl students.

**Subjects:**

A purposive sample included 80 of students. A total number of students was 171 blind adolescent students ,the studied girls selected according to the following criteria:

\* Blind adolescent girls aged 11-18 years.

\* Girls free from medical health problems.

\* Have menstruation.

\* Didn't attend any program regarding premenstrual syndromes.

**Tools of data collection:**

**I. Students' interviewing questionnaire** (pre/post and follow up tests)

It was designed by the researchers in light of the relevant and related literatures **Ramadan, R. (2011)and Keil, S. (2014).**, and written in simple Arabic language, to collect data related to:

\* Characteristics of the studied students which included ,age, educational level, residence, age at menarche.

\* Students' knowledge: To assess adolescents' knowledge about premenstrual syndromes such as; definition, causes, manifestations, effect, treatment and management. As well as their source of information about premenstrual syndromes.

*Scoring system:* Knowledge content was divided into 20 questions and each question was assigned to three score levels: Complete and/or correct answer was scored (3), while incomplete correct answer was scored (2), and don't know or wrong answer was scored (1). The total score was categorized into either satisfactory level (from 70% and more) or unsatisfactory level (less than 70%) from total score (60). Alpha Cronbach test = 0.85.

**II - An observational checklist** (pre/post and follow up tests).

Adapted from; **Sewell and Strickling (2004) ,Ramadan (2011),; Abd-Elsattar and Mohamed (2015) and Alam et al. (2016)** it was filled in by the researchers to evaluate adolescents' practices in relation to premenstrual syndromes as perineal care (methods of cleaning, use of pads, dispose of pads and methods of drying), pain and anxiety relieve (e.g. warm compress, and exercises). Alpha Cronbach test = 0.87.

*Scoring system:* Each step was assigned to two score levels, which are: done was

scored (2), and not done scored (1). The total score was categorized into either competent (from 70% and more) or incompetent (less than 70%) from total score as the following: Perineal care (22 steps) and total score = 44; Pain relieve (10 steps) and total score = 20, Anxiety relieve (7 steps) and total score = 14, warm compress (4 steps) and total score = 8; and exercises (5 steps) and total score = 10. Alpha Cronbach test = 0.85.

**IV- Hamilton Anxiety Rating Scale** (pre/post and follow up tests).

Adopted from **Hamilton (1959)** this scale formed of 14 variables: Anxious mood, tension, insomnia, cognitive changes, depression, somatic (sensory), cardiovascular, respiration, gastrointestinal, genitourinary, autonomic symptoms, somatic (muscular) and the behavior, to evaluate level of anxiety for adolescents. Testing reliability of the scale items using alpha Cronbach test = 0.83.

*Scoring system:* Each item is scored on a scale of 0 (not present) to 4 (severe): 0 = Not present, 1 = Mild, 2 = Moderate, 3 = Severe, 4 = Very severe. With a total score range of 0–56, where <17 indicates mild severity, 18–24 moderate severity, 25–30 severe and 31-56 very sever.

**V-Numerical Pain Scale:** (pre/post and follow up tests). Adopted from **Hawker et al. (2011)** it was used to measure pain severity for adolescents. It consisted of a line divided by numbered points ranged from (0-10). Students` answers were sorted as follows: No pain (zero), mild pain (1-<4), moderate pain (4-<7) and severe pain (7 - 10). Alpha Cronbach test = 0.86.

**Validity and reliability of study tools:**

Content validity was ascertained by a group of experts (5) including 3 Pediatric Nursing, 2 Maternity and Gynecological

Nursing specialties. Their opinions were elicited regarding to the tools format layout, consistency, scoring system. The tools content was tested regarding to the knowledge accuracy, relevance and competence. Reliability of all items of the tools were done.

**Pilot study:**

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

**Ethical considerations:**

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Approval to conduct the study was obtained from the director of the previous selected setting. All students who agreed to participate and meet the inclusion criteria were informed about the study aim and their rights according to research ethics to participate or not in the study. Then, they gave their consent to participate in the study.

**Procedure:**

\* The study was started and completed within 12 months from beginning of May 2014 to end of April 2015.

\* The aim of the study at first was simply explained to students under study.

\* The researchers started to collect data from the students at the selected setting, “the Blind School in Benha Institute” using the pre-constructed tools.

\* Data were collected 2 days/week (Mondays & Tuesdays) from the students during the morning period in the previously mentioned setting from 9.00 a.m. to 2.00 p.m.

The tools were filled in by the researchers according to health condition of students under the study. Theory assessment was done individually pre-intervention. Then evaluated pre/post and follow-up individually (half an hour for each one). Otherwise, time 10–15 minutes for anxiety scale and about 5 minutes for pain scale assessment.

\* The guidelines were developed based on analysis of the actual educational needs of students under study in pretest.

\* Content of the guidelines was written in simple Arabic language by the researchers, then in Brill manner by specialist, consistent with the related literatures and students' level of understanding.

\* The guidelines were presented in theoretical and practical sessions. Subjects were divided into small groups (5 – 6) students and repeated sessions included all students. Each group attended 4 sessions (2 theories and 2 practices). Moreover, each student was guided by simple instructions and then orientation about the aim, contents and expected outcomes was done.

\* The theoretical sessions were taken in 2 sessions (each session for 30 minutes) and cover the following items: Definition, causes, manifestations, effect, treatment and management of premenstrual syndromes.

\* Sessions were conducted through lectures and group discussions and use of learning aids and tools that are specifically developed for the blind and visually impaired. Examples of tools used are text-to-audio systems, recordings, and other audio devices. Full, specific descriptions were used in teaching at all times. In most cases, vague words and expressions can result in

misunderstanding or failure to grasp specific meanings. For example, instead of saying, "Pick up that pencil over there," say "Pick up that pencil on the desk next to the clock. "Keep learning tools organized and in their own designated places. This procedure will allow students to find learning materials and supplies that are needed on a regular basis without having to constantly look for certain supplies. Sometimes require special learning environments to help them better interpret and understand the world around them such as describing actions and visions in explicit detail, or continue reading. Brill booklets were distributed as handout.

\* The practical sessions were taken in 2 sessions (each session for 30 minutes) and covers the following items: perineal care (methods of cleaning, use of pads, dispose of pad and methods of drying), pain and anxiety relieve (e.g., warm compress, and exercises). The session taken individually after assessing them individually pre-intervention. Then evaluated pre/post and followed up individually (half an hour for each one).

\* Sessions were conducted through demonstration and re-demonstration using simulation and models and concentrate in tactile exploration. The researchers showed students the paraphernalia used during menstruation, were given a sanitary pad or napkin to feel so get a sense of its shape and texture while explaining how will wear it to absorb the blood. Also, the researchers showed the girl a tampon and let her feel how it works. If the girl needed a more detailed description before trying to use one because these aren't as self-explanatory as pads.

\* A narrower pad may be more comfortable for girls to use initially. Encourage girls to practice putting pads on,

taking them off, and disposing of them properly.

\* Covering the eyes and doing the things that teaching to the students. This gives an idea for suggestions or adaptations that will be useful to them.

\* Help students set up a calendar to keep track of their monthly cycle. If not able feel whether is spotting, suggest to wear a panty liner two or three day before the expected period to begin.

\* Initially students may want to change the pad on a schedule-day, every four hours—until she's able to judge when a change is needed. This may help reduce the chances of stained clothing and the accompanying embarrassment.

\* Students were informed to be in contact with the researchers by telephone for any guidance.

\* Evaluation for the effect of guidelines on the studied students using the pre-constructed tools as follows:

\*Posttest was done after application of the guidelines.

\*Follow up test after two months later by using the same tools.

#### **Administrative design:**

An official approval was obtained from the administrators of the study settings to carry out the study. A clear explanation was given about the aim, nature, importance and expected outcomes of the study.

#### **Statistical Design:**

The data collected were organized, sorted, tabulated and analyzed using the Statistical Package for Social Sciences (SPSS). They were presented in tables and charts using numbers, percentages, means, standard deviations, t-test and Chi-square ( $\chi^2$ ) test. Level of significance was considered  $p < 0.05$ .

**Results: Table (1) Characteristics of the Studied Adolescent Girls (n=80)**

%	No	Socio-demographic characteristics
<b>Age/years</b>		
6.2	5	11-<13
26.0	21	13-<15
67.5	54	15-<18
<b>Mean ± SD 15.9 ± 2.3</b>		
<b>Order</b>		
20.0	16	First
47.5	38	Second
20.0	16	Third
12.5	10	The last
<b>Educational level</b>		
20.0	16	Primary school
50.0	40	Preparatory school
30.0	24	Secondary school
<b>Mean age at menarche</b> 8.01 ± 1.89		
<b>Residence</b>		
40.0	32	Urban
60.0	48	Rural
<b>Mothers' education</b>		
27.5	22	Primary
30.0	24	Secondary
42.5	34	High
<b>Mothers' occupation</b>		
45.0	36	Working
55.0	44	House wives

Table (1) shows that 67.5% of the studied adolescent girls their age ranged between 15-<18 years with a mean age of  $15.9 \pm 2.3$  years. Concerning their educational level, 50.0% of them have preparatory school. As regards residence, 60.0% of them reside rural areas. In relation to mothers' occupation and education 45% and 42.5% of them were working and had high education respectively.



**Fig (1) Distribution of Adolescent Girls Regarding the Source of Information about Premenstrual Syndromes**

Figure (1) illustrates that the sources of information for girls were friends (70%), followed by teachers (17%), then family (7%), and the least mass media (6%).

**Table (2): Adolescent Girls' Satisfactory Knowledge about Premenstrual Syndromes Pre/Post and Follow up (n=80)**

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Knowledge about premenstrual syndromes	Students' satisfactory knowledge		
	Pre-test	Post- test	Follow up
	Satisfactory	Satisfactory	Satisfactory
	%	%	%
Definition	22.0	92.0	85.5
Causes	20.0	96.0	82.0
Signs and symptoms	35.0	90.0	85.0
Effect	40.6	91.0	79.0
Treatment	23.5	92.0	84.3
Management	19.0	85.0	78.0
<b>Mean ± SD</b>	24.1±9.5	91.7±2.9	83.3±3.2
<b>T-test</b>	<b>T1= 52.8* pre-intervention versus post-intervention</b>		
<b>P value</b>	<b>T2 = 17.5* post -intervention versus follow- up</b>		

\* Significant P=< 0.05

Table (2): shows studied adolescents' satisfactory knowledge about premenstrual syndromes in pre/posttests. Results indicated significant improvement in adolescent girls' knowledge as regards post and follow-up tests (mean percent = 91.7±2.9 and 83.3±3.2 respectively) compared to pre – test (24.1±9.5), with t – test = 52.8 & 17.5 respectively) at p < 0.05.

**Table (3): Adolescent Girls' Competent Practices Regarding Premenstrual Syndromes (n=80).**

Practices regarding premenstrual syndromes	Students` competent practices		
	Pre-test	Post- test	Follow up
	%	%	%
Perineal care	18.0	92.0	85.5
Pain relieve	35.0	90.0	80.0
Anxiety relive	11.0	95.0	85.0
Warm compress	19.0	94.3	92.0
Exercises	17.0	95.1	89.0
<b>Mean ± SD</b>	20.3± 6.8	93.8±2.2	86.2±4.5
<b>T-test P value</b>	<b>T1 = 72.4* pre-intervention versus post-intervention</b>		
	<b>T2 = 13.8* post -intervention versus follow- up</b>		

\* Significant P =< 0.05

Table (3): Reveals the studied adolescent girls' competent practices regarding premenstrual syndromes in pre/posttests. Results indicated significant improvement in adolescent girls' practices as regards post and follow - up tests (mean percent = 93.8±2.2 and 86.2±4.5 respectively), compared to pre – test (20.3± 6.8), with T1 and T2 = 72.4 & 13.8 respectively p < 0.05.

**Fig. (2): Presentation of Anxiety and Pain Levels among the Studied Adolescent Girls in Pre/Post Tests(n=80).**

Fig. (2): Reveals studied adolescent girls' anxiety and pain levels in pre/posttests. Concerning pain level, significant improvement was indicated in posttest / follow–up test (39.8 & 16.3 respectively) compared by pretest 47.4. As regards anxiety level, significant improvement was indicated in posttest a follow–up test (35 & 7.5 respectively) compared by pretest 49.5.

**Discussion:**

Menstruation is the vaginal bleeding that occurs in adolescent girls and women as a result of hormonal changes. It normally happens in a predictable pattern once a month (Chandra-Mouli & Pate, 2016). This study aimed to evaluate the outcomes of educational guidelines on awareness of blind

adolescent girl students regarding premenstrual syndromes.

In the present study, the mean age of the studied adolescent girls at menarche, was found to be 8.01 ± 1.89 years (table 1). This study result was supported by Antonio Bellastella et al (2013) who found in their study about opposite influence of light and blindness on pituitary–gonadal function,

taking into account the data appeared in the literature and the results of other previous studies, light stimulus seems to influence favorably gonadal function both in humans, likely through inhibition of melatonin secretion. Instead, the lack or reduction of light stimulus in humans can induce; increased plasma melatonin concentrations and impairment of pubertal development in young blind girls and of ovarian function and fertility in blind adult women. Menarche in blind girls has been described as being advanced or delayed as detected by **Maruska and Femald (2011)** in their study about social regulation of gene expression in the hypothalamic-pituitary-gonadal axis.

As regards source of information about menstruation and premenstrual syndromes, this study result revealed that, friends were the source of information for less than three-quarters of studied students (Fig. 1). This may be due to that many girls are shy about asking for details, for this reason, it is important to approach the subject, so that health education programs and guidelines could bring significant improvement in their awareness regarding management of menstrual problems, so communication with blind girls is a necessary factor in solving adolescent demands, hence right source of guidance should be available. This finding is incongruent with **van Eijk et al. (2016)** who reported in their study about menstrual hygiene management among adolescent girls in India that, mother was the first and only informant in most cases of girls, while other sources of information were friends. Furthermore, **Beena Narayan (2013)** mentioned that, more than half of the respondents discussed their queries with their mothers. Further, quarter of them discussed their queries with friends; fifth acquired information from television advertisements and programs; and less than fifth from talking with their siblings, in the study of health, hygiene, and nutrition: A cause of

concern among adolescent girls at Kumaun Uttaranchal in India.

Considering students' satisfactory knowledge as regards; definition, causes, signs & symptoms, effects, treatment and management of PMS, results of the current study showed significant improvement in posttests compared to pretest. The most of adolescent girls lacked correct knowledge and understanding about premenstrual syndromes and they faced many restrictions and most of them used old clothes to manage menstrual fluid. (Table 2)

Regarding the effect of PMS and its treatment, girls said that the pain was intolerable and they could not even attend the class. Majority of the girls reported that they did not use any pain reliever due to the cost of medicine and if they did, some used traditional therapists. The previous findings may be due to that visually impaired and blind girls may be less likely than other girls to notice the changes in physical development that she and others are beginning to undergo, and she may need some more detailed explanations if she can't see the pictures and diagrams in the typical books for teens and preteens.

The rate of desirable awareness regarding physical and psychological health was 12% and 28%, respectively, in the study about knowledge assessment of educational health needs in blind adolescent females during puberty in Tehran by **Bahari et al. (2016)**. In a similar study, **Narayan et al. (2001)** and **Oche et al. (2012)** reported that PMS interferes with daily activities, school absenteeism and reduced quality of life and poor achievement of school work.

These results are in accordance with **Wahba and Fahimi (2012)** who reported in their study about the need for reproductive health education in Egypt that, young girls receive very limited reproductive health

education through the formal school system. Both national and subnational surveys have shown that young Egyptians lack basic information on reproductive health topics and often receive information from sources that may be misleading or inaccurate. Surveys also have shown that both young girls and their parents would like more information on these topics to be taught at school. Depicting the management during menstruation shows that less than quarter of girls used sanitary pads during menstruation, more than half of them used old cloth pieces and less than fifth used new cloth pieces. Cleanliness of external genitalia was unsatisfactory (frequency of cleaning of external genitalia is 0-1/day) in less than a quarter of girls.

In this respect, **Farage and Kand (2011)** studied the cultural aspects of menstruation and menstrual hygiene in adolescents and mentioned that, about three quarter of girls reused cloth pieces and more than half of them properly disposed the cloth pieces or sanitary pads used, i.e., they wrap the used cloth piece or sanitary pad in a paper bag and disposed in a place used for solid waste disposal. In a similar study, **Quazi et al. (2008)** reported in their study about beliefs and practices regarding menstruation among the adolescent girls of high schools and junior colleges of the rural areas of Thane district that, less than quarter of the girls used sanitary pads. Moreover, the apparent reasons for not using sanitary pads were lack of knowledge, high costs, unavailability and shyness. Additionally, **Mason et al. (2013)** in their research about qualitative study to explore young schoolgirls attitudes and experiences with menstruation in rural western Kenya stated that, in the pre-test phase, more than half of girls reported that they changed the pad only twice a day while in the post-test it decreased to less than quarter thereby showing improved menstrual hygiene and practice following health education. In the post-test period, significant improvement was observed in their menstrual practice ( $p < 0.000$ ).

In the present study, the studied students` practices were improved in posttest as regards the following: Perineal care (methods of cleaning, use of pads, dispose of pad and methods of drying), pain and anxiety relieve (e.g., warm compress, and exercises) (Table 3) this may be due to that, visual impairment affects the whole process of information gathering so, both blind and low vision, tactile learning is their pathway to progress. Increased knowledge about management of premenstrual syndromes from childhood may escalate safe practices and may help in mitigating the suffering of girls. On the other hand, anatomically approximate dolls, models, mannequins and even sculptures may help blind girls understand human anatomy. **Patil Sudha Rani (2014)** found that more than quarter of adolescents wash perineal area from front to back, less than quarter of them wash from back to front and more than half use both directions, in the study about knowledge and practices of menstrual hygiene among married adolescents and young women in Chittoor District of Andra Pradesh, India. **Jyotsna Bhudhagaonkar1, Bhudhagaonkar and Shinde (2014)** in their study about impact of structured education regarding menstrual hygiene practices among adolescent girls, stated that, cleanliness of external genitalia was unsatisfactory among adolescent girls under study. Hence it is important to educate the girls with scientific knowledge and dispelling their myths and misconceptions thereby encouraging safe and hygienic practices for safeguarding themselves against various infections. Their results were reinforced by **Nemade et al. (2009)** who studied the impact of health education on the knowledge and practices about menstruation among the adolescent girls of Kalamboli and suggested that the girls should have better awareness about menstrual hygienic practices through health education. In addition, **Shanbhag et al. (2012)**, in a study about perceptions regarding menstruation and practices during menstrual cycles among high school adolescent girls in resource limited settings

around Bangalore City and **Dasgupta and Sarkar (2008)** in study about menstrual hygiene, they investigated previously how hygienic is the adolescent girl and stated that knowledge and practices about cleanliness of the external genitalia was unsatisfactory among studied students because frequency of cleaning the external genitalia was nil or less than 2 times per day in more than half of them . On the other hand experts reported that tactile exploration by children who are visually impaired is no more sexually stimulating than seeing people nude is to sighted children. Of course, actual touching of bodies becomes less appropriate as the child grows older. The overemphasis of oral language without the experiences of moving, touching and doing often results in the use of “empty language.” Empty language occurs when the student uses language for which there is no real understanding (**Keil, 2014**).

Research suggests that when sensory input, including tactile input, is imbedded within a purposeful activity, it is meaningful to the central nervous system and can promote learning, blind adolescent need families and professionals to provide intense stimulation, motivation and movement. If these adolescents do not become actively engaged in experiences and exploration at an early age, their approach to gathering information is passive and they cannot fully develop their sense of touch. Adolescents with visual impairment must learn to be active seekers of information about their world. Real hands-on, do-it-myself experiences are the place to start. Experiences need to be interactive, actively engaged and initiate some of the movement not all adult-directed in order to learn from an experience as clarified by **Sewell and Strickling (2012)**.

Otherwise, pain level was improved at posttests comparing to pretest (Figs 2). From the researchers' opinion this may be due to that inadequate awareness and management

of premenstrual disturbance in adolescents' developmental and formative years have the potential to negatively effect on human development, quality of life and future health, so that comprehensive nurse programs including adolescent, place nurses directly in contact with young girls and their families where they play an helpful part in providing individual health counseling, health promotion and planning.

As regards the anxiety level among studied students, results revealed that about one fifth of them had a sever anxiety and there was improvement in their level of anxiety after application of guidelines. This may be due to hormonal disturbance and the trials of blind female adolescent students to divert their attention from their disabilities and gain their attention related to education, physical health and increasing their self-esteem. So for all these reasons, it is important apply guidelines. **Rizk (2013)** described that anxiety was indicated in more than two third of students in study about effect of aromatherapy abdominal massage, using peppermint versus ginger oils on primary dysmenorrhea among adolescent girls.

This was in agreement with Dipali and Seema ( 2010). who mentioned in the study about the Impact of health education on knowledge and practices about menstruation among adolescent school girls of Kalamboli, Navi- Mumbai that, adolescents' lifestyle practices were mostly inadequate as regards exercise, sleeping, diet, drinks, medication, pain management, personal hygiene and washing of clothes. After implementation of the program considerable improvements were noticed in adolescents knowledge and practice. However, **McMahon et al. (2011)** who studied reflections on menstrual management among school girls in rural Kenya and advised that mindfulness is the practice of stopping and noticing each anxiety symptom before it consumes, and

then doing the best to calm down after management. In their study, **Dhingra et al. (2009)** stated that, about knowledge and practices related to menstruation among Tribal (Gujjar) adolescent girls, as regards influence of diet and exercise program on menses, more than three quarter of girls mentioned that the diet has an influence on menses. Since the appropriate diet such as, fruits, vegetables and corns, along with avoiding too much salt and sugar are useful in pain and anxiety reduction in premenstrual period, the necessity of educating girls about appropriate nutrition and diet is sensible. In addition, **Whelan et al. (2009)** and **Boosey et al. (2014)** emphasized that iron is involved in the synthesis of serotonin from tryptophan and daily supplementation with 200 mg of magnesium oxide is recommended to reduce complaints of weight gain, swelling, pain and breast tenderness. Magnesium supplementation should be also recommended as a treatment for PMSs. Girls need for counseling and recommendation on food sources of calcium, vitamin D and B in particular riboflavin and thiamine, as well as magnesium and iron. This was in agreement with **El-Mowafy et al. (2014)** in their study about effect of health education program on knowledge and practices about menstrual hygiene among adolescent girls at orphanage home .The study concluded that. adolescents lacked appropriate knowledge and practices about menstruation in the pre- program phase. After implementation of the program considerable improvements were noticed in adolescents girls' knowledge and practice .

As highlighted by **Dhingra et al. (2009)**, exercise is a vital part of healthy living, and an important part of dealing with anxiety caused by PMS. Several studies have linked aerobic runs with controlling anxiety symptoms and pain, exercise is a general anxiety cure, so it should be especially effective for those that struggle with anxiety.

#### **Conclusion:**

The current study concluded that, the educational guidelines had positive effect on awareness of blind adolescent students regarding premenstrual syndromes.

#### **Recommendations:**

- An orientation program should be prepared for such group of students regarding premenstrual syndromes.
- Increasing awareness of mothers about physical and physiological changes and needs of their adolescents.
- Improving knowledge and skills of those working with such group of students regarding medical, social, and legal aspects of youth and adolescent health needs.
- Further studies should be carried out on a larger number of such groups of students for evidence of the results and generalization.
- Availability of guidelines about premenstrual syndromes for blind girls in suitable manner as Brill booklets at their schools and libraries.

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