

Assessment of Dysmenorrhea and Menstrual Hygiene Practices among Adolescent Girls in Some Nursing Schools at EL-Minia Governorate, Egypt

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Abstract: Most females exhibit some degree of pain and discomfort during menstrual period, which can impact on their daily activities, and disturb their productivity at home or at their workplace. In our country many girls may lack appropriate and sufficient information regarding dysmenorrhea and menstrual hygiene, causing incorrect unhealthy behavior during their menstrual periods. This study was done for the adolescent girls to assess the prevalence & pattern of dysmenorrhea and to examine the menstrual hygiene practices among students in some Elminia nursing schools. This study conducted in some nursing school at EL-Minia governorate (Mallawy, and Abu- korkas) nursing schools. These schools were selected for data collection between the periods from Feb. 2009 to May 2009. The sample comprised 160 eligible female students according to the following criteria 14: 19 years of age, single female and free from medical & gynecological problems. The study applied a descriptive cross sectional design in which two tools were used for data collection. A special structured questionnaire was designed to assess sociodemographic characteristics, information about menstrual characteristics and practices related to menstrual hygiene and verbal multidimensional scoring system for assessment of dysmenorrhea was used to assess the severity of pain. This study was carried out in two phases; preparatory phase and the implementation phase. The present study reported a high prevalence rate of dysmenorrhea (94.4%) was categorized as (49.0%) for 1st degree of pain, (34.4%) for second-degree and (16.6%) for third-degree. Measures taken to relieve dysmenorrhea were found to be: intake of certain types of domestic hot drinks (43.0%), taking analgesics (22.5%), and (66.2%) Perform physical activities during menstrual period. All students (100.0%) took complete hot baths during menstruation. About one-fourth (26.9 %) of students just took rest and staying at home, who believed that physical activities will increase the menstrual pain and increase feeling of exhaustion. On conclusion the high prevalence of dysmenorrhea was observed and the useful measures mentioned and encouraged are: exercise practiced by (66.2%) of students and the entire students (100%) take hot bath during menstruation (76.8%) from them practiced hot bath as a management for dysmenorrhea, however the necessity to adopt a healthy behavior, which includes: appropriate nutrition and appropriate use of medications based on a physician's prescription was a very important issue.

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Introduction

Teenager girls with menstrual pain regularly present to physicians. The experience of pain with menstruation is common for 70–91% of teenagers. Also, there are a number of physical, psychological and emotional symptoms that occur premenstrual and during menstruation, which are reported by 96% of teenagers. Menstrual pain and symptoms cause school absence in 14–51% of teenagers and interference with life activities for 15–59%. (O'Connell, 2006).

On the multidimensional scoring system the severity of dysmenorrhea was defined as mild, moderate and severe based on the pain, limitation of activities and medication taken. Severe dysmenorrhea was defined as clearly inhibition of the daily activities

associated with systemic symptoms and poor improvement with analgesics (Parker et al, 2010).

Approximately 10% to 15% of dysmenorrheic women are disabled for 1 to 3 days per cycle, and dysmenorrhea is responsible for the loss of approximately 140 million working hours in the United States. Thirty-eight percent of women regularly use medical therapy to treat their dysmenorrheal (Ostrzenski, 2002).

Due to the negative effects of dysmenorrhea on an individual's psychological status, health-related quality of life (HRQoL) may be disrupted among adolescent women. (Dorn et al, 2009).

The reaction to menstruation depends upon awareness and knowledge about the subject. The

manner in which a girl learns about menstruation and its associated changes may have an impact on her response to the event of menarche. Although menstruation is a natural process, it is linked with several misconceptions and practice, which sometimes result into adverse health outcomes (Dasgupta and Sarkar 2008).

Menstrual hygiene deals with a woman's special health care needs and requirements during her monthly menstruation or menstrual cycles. These areas of special concern include choosing the best period protection, or feminine hygiene products, how often and when to change her feminine hygiene products, bathing, care of her vulva and vagina, as well as the supposed benefits of vaginal douching at the end of each menstrual period (Lawan, et al, 2010).

Primarily poor personal hygiene and unsafe sanitary conditions result in gynecological problems. Infections due to lack of hygiene during menstruation are often reported. Repeated use of unclean napkins or the improperly dried cloth napkins before its reuse results in harboring of micro-organisms causing vaginal infections (Adinma, 2009).

The nurse plays a very important role in pain management through offering comfort measures and reassurance to relief anxiety. Her role includes as well, offering alternative therapies for symptoms relief, checking safety or side effects of these therapies and refer female nurse students to a physician if severe symptoms (such as in-tense pain or vomiting) occur regularly for 3 months or more (Castrence, 2001).

Many young girls in our country may lack appropriate and sufficient information regarding dysmenorrhea and menstrual hygiene, causing incorrect unhealthy behavior during their menstrual period. So this study was designed as a survey questions to assess the prevalence & pattern of dysmenorrhea and menstrual hygiene practices and is supposed to contribute to improving the girls' health practice toward menstruation.

Research design

This study was a descriptive cross sectional design.

Setting

This study conducted in some nursing schools at EL-Minia governorate (Mallawy, and Abu- korkas) nursing schools between 1/02/2009 to 1/05/2009.

Participants:

The students in the above mentioned settings were included in the study with the following criteria:

- 1-Females at ages of 14: 19 years.
- 2- Single female.
- 3-Free from medical & gynecological problems

The total number of eligible female students in the two nursing schools in El- Minia governorate was recruited in this study (160) student. (86 students) from Mallway nursing school, and (74) from Abu-Korkas nursing school. Ten percent of these students were recruited for the pilot study.

Tools of data collection:

Data were collected using an interview questionnaire that was designed by the researchers to collect the necessary data. It based on review of related literatures and reviewed by experts from Obstetrics and Gynecological nursing department and a medical related specialist, the questionnaire was divided into three parts as follows:-

Socio demographic data.

Menstrual characteristics data.

Data related to menstrual hygiene practices.

The second tool is the Verbal multidimensional scoring system; it was used to assess the severity of pain designed by Andersch B & Milsom (1982). Data collection took place within 5 months from 1/02/2009 to 01/05/2009. Permission was obtained from the director of schools.

Methods:

In this descriptive study, 160 eligible female students were recruited from two nursing schools at El Minia governorate; in each selected school, two classes from among the five different levels of first, second, third, fourth and fifth grades of the study was coordinated by the district schools' top officials and their approvals were obtained before conducting the study. Students were informed about the aim of the study, and they participated voluntarily in this study. The investigator obtained students' consent and explained the observation sheet for the entire studied sample. Students completed the questionnaire and returned it to a collector. The identity of the students was kept confidential. The observation sheet was used by the investigator to collect the required data. This study was carried out in two phases; Preparatory phase, in which the proposed study settings were assessed for the number of students in the nursing schools, The second phase is the implementation phase, in this phase a clear explanation of the nature and the aim of the study were given to the students to obtain their informed verbal consent. The investigator distributed the questionnaires and the scoring system sheet to the students, explained to them how to fill the forms, and was present all the time for any clarification needed. Each student took about 10 to 15 minutes to fill the sheets. This phase ended by a pilot study. A pilot study was performed on 10% of the female school students with similar characteristics of those in the main study for content validation. The investigator had a lot of

barriers during collecting data concerning the study as a lot of students felt ashamed to share their personal experience of the menstrual cycle adding to absenteeism of participating students during the school days.

The statistical analysis was done using SPSS-16 statistical software package and excel for figures. The contents of each tool were analyzed, categorized by the investigator. Data were presented using descriptive statistic in the form of number and percentages for quantitative variables. Means and standard deviations were applied for qualitative variables. Statistical significance was considered at ($P < 0.05$), high significance if less than 0.01, or insignificant if more than 0.05.

Ethical approval

The study was approved by Ethical committee of faculty of Medicine and faculty of Nursing, Assiut University. Informed consent with explanation will obtained from all participating students before enrollment in the study. They are free to ask any questions about the details of the study. Every student is free to refuse participation in the study without affecting the service or clinical management. Confidentiality will be achieved by the use of locked files and the names of the participating student replaced by numbers. All other roles advised by the ethical committee were applied.

Results:

A total of 160 students were recruited into the study, 86 students from Mallway nursing school, and seventy-four from Abu-Korkas nursing school. Their demographic data were presented in Table 1. It shows that the age of students ranged from 15 – 19 years with Mean \pm SD (17.2 ± 1.1), it also shows that 60% of students were < 18 years. Regarding place of residence, the majority of the students (82.5%) were from rural areas, versus 17.5% of students were from urban areas. According to parent education and occupation, less than half of student's father were secondary educated and government employees however, about half of their mothers were illiterate and the majority were housewives.

Concerning the characteristics of menstruation, Table 2. illustrated that the age at menarche of the respondents was more than or equal 13 years in more than two-thirds of the students (68.8%), with mean \pm SD (13.2 ± 1.0). Regarding number of pads, this table shows that (69.4%) of the students use more than or equal 3 pads per day during menstrual period. In addition; more than three-quarters of the students (76.2%) have the same symptoms before menstrual cycles in all cycles, versus 23.8% of them have different symptoms. According to sources of

information, the mother was the most common source of information for students (59.4%), and the minority for grandmother and mass media (0.6% & 3.1% respectively).

Table (3) delineated that the prevalence of dysmenorrhea was detected in 94.4% of the students. About half of them (49.7%) categorized as first degree pain, 33.8% had second degree pain, while the rest (16.6%) of the students had third degree pain. Regarding time of pain, near half (46.4%) of the students had the pain with menstrual beginning and continues for 24-hours. However, the most common site of pain was the lower abdomen, while only 2.6% of the students have the pain in extremities.

The most common site of pain was the lower abdomen (58.9%), while only 2.6% of the students had the pain in extremities. Also, it is clear that (57.6 %) of the students had the same pain degree every menstrual cycle; versus 42.4% of them have different pain degree.

As regards pattern of taking analgesics to relieve pain, Table (4) demonstrates that less than one-quarter of the studied sample (22.5%) were taking analgesics, less than half were taking it two times or more for two days or more and the vast majority (97.1%) of them taking analgesics for relieving pain. It is clear that (41.7%) of the students have continuous pain during menstrual period and, the pain was continued from the first to the second day in (46.0%) of the students, while the pain was continued during all menstrual duration in (30.2%) of the students. and just (12.0%) of the students need to go to physician for relieving menstrual pain.

As shown in Table (5); the variable measures used to relieve menstrual pain, more than one-third (35.8%) of the students mentioned that menstrual pain decreases their daily activities. Also, (82.1%) of them mentioned that taking hot bath decreases the menstrual pain. More than three-quarters of them (76.8%) mentioned that taking hot drinks decreases the menstrual pain. As regard psychological status, (81.5%) of the students reported that psychological status affects pain degree. Also, (17.9%) of the students mentioned that there were some types of food affects degree of menstrual pain.

The physical activities performed during the menstrual period are presented in Table 6. Where about two-thirds of the students (66.2%) perform physical activities during menstrual period and more than three-quarter (78.3%) of them mentioned that it decreases the degree of pain. As regard the purpose of performing physical activities, the main purpose was "to reduce menstrual pain" (55.7%), followed by (31.1%) as a habits, and (13.2%) of the students perform physical activities to prevent menstrual symptoms. Regarding causes of avoiding activities, the main cause of avoiding activities is feeling of

exhaustion (35.2%), followed by habits (25.9%).

As regard habits of students toward menstrual pain and hygiene, Table 7 reveals that (71.2%) of the students were taking hot drinks before and during menstrual period, less than half of them (42.1%) taking hot drinks two times per day. The fenugreek

drink represents 50% of hot drinks. The purpose for drinking hot drinks was to relief pain in (43%) and the least (15.8%) mentioned that it has healthy benefits. Regarding taking rest at home during menstrual period; it is clear that (26.9%) of the students were taking rest at home. The main reason for taking rest was to relief pain (76.7). However all students (100%) were taking hot bath during menstruation. The main cause of taking hot bath was cleaning and improving circulation (67.5%), and (16.9%) were taking hot bath to prevent bad odor & killing microorganisms. No significant difference was observed regarding both menstrual pain and age at menarche and between menstrual pain and place of residence. Figures (1&2).

Table (1): Sociodemographic characteristics of the students.

Variable	No. (n= 160)	%
Age: (years)		
< 18	96	60.0
18	64	40.0
Mean \pm SD (Range)	17.2 \pm 1.1 (15 – 19)	
Class:		
1 st year	48	30.0
2 nd year	0	0.0
3 rd year	49	30.6
4 th year	44	27.5
5 th year	19	11.9
Residence:		
Rural	132	82.5
Urban	28	17.5
Father education:		
Illiterate	27	16.9
Read and write	28	17.5
Primary	17	10.6
Preparatory	10	6.2
Secondary	68	42.5
University	10	6.2
Father Job:		
Farmer	12	7.5
Worker	21	13.1
Skilled worker	16	10.0
Government employee	65	40.6
Free business	27	16.9
Dead	15	9.4
Retired	4	2.5
Mother education:		
Illiterate	79	49.4
Read and write	21	13.1
Primary	16	10.0
Preparatory	5	3.1
Secondary	35	21.9
University	4	2.5
Mother job:		
Housewife	142	88.8
Workers	18	11.2

Table (2): Distribution of students according to characteristics of menstruation

Variable	No. (n= 160)	%
Age of menarche: (years)		
< 13	50	31.2
13	110	68.8
Mean \pm SD (Range)	13.2 \pm 1.0 (11 – 16)	
Duration of menstruation: (days)		
< 5	78	48.8
5	82	51.2
Mean \pm SD (Range)	4.6 \pm 1.1 (2 – 8)	
Interval of menstruation: (days)		
28	71	69.6
> 28	31	30.4
Mean \pm SD (Range)	28.4 \pm 2.4 (20 – 35)	
Rhythm of menstruation:		
Regular	102	63.8
Irregular	58	36.2
Number of pads/ day:		
< 3	49	30.6
3	111	69.4
Mean \pm SD (Range)	3.0 \pm 0.9 (1 – 6)	
Sources of information:		
Mother	95	59.4
Sisters	9	5.6
Grandmother	1	0.6
Peers	18	11.2
Books & Journals	19	11.9
Mass media	5	3.1
Clerics	13	8.1

Table (3): Findings related to prevalence of dysmenorrhea and the pattern of pain among the studied sample

Variable	No. (n= 160)	%
Menstrual pain:		
Yes	151	94.4
No	9	5.6
Time of pain:		
Before menstrual cycle	31	20.5
With menstrual beginning and continues for 24 hour	70	46.4
With menstrual beginning and continues for 48 hour	47	31.1
Before 1 week of menstruation	3	2.0
Degree of pain:		
First degree	74	49.0
Second degree	52	34.4
Third degree	25	16.6
Site of pain:		
Lower back	18	11.9
Lower abdomen	89	58.9
In extremities	4	2.6
Lower back & abdomen	28	18.5
All the above	12	7.9
The same pain degree every menstrual cycle:		
Yes	87	57.6
No	64	42.4
If No, what's the pattern of pain difference:		
Little differentiation	45	70.3
Moderate differentiation	16	25.0
Severe differentiation	3	4.7

Table (4): Distribution of female students according pattern of taking analgesics

Variable	No. (n= 151)	%
Taking analgesics during menstrual period:		
Yes	34	22.5
No	117	77.5
Times of taking analgesics/ day:		
Once	19	55.9
Twice or more	15	44.1
Duration of taking analgesics:		
One day	20	58.8
Two days or more	14	41.2
Reasons of taking analgesics:		
To relief pain	33	97.1
Habit	1	2.9
Degree of pain sensation:		
Mild	74	49.7
Moderate	52	33.8
Severe	25	16.6
Continuous pain during menstrual period:		
Yes	63	41.7
No	88	58.3
Duration of continuous pain:		
One day before and 1st day	15	23.8
1st – 2nd day	29	46.0
All menstrual duration	19	30.2
Need going to physician:		
Yes	18	11.9
No	133	88.1

9 of the students have zero degree of pain

Table (5): Distribution of students according to variable Measures used to relieve menstrual pain

Variable	No. (n= 151)	%
Interference of pain on daily activities:		
Interfere (limiter restrict activity)	54	35.8
Not interfere (no limitation of activity)	97	64.2
Effect of taking hot bath on pain relieve:		
Decrease the pain	124	82.1
No effect	27	17.9
Effect of taking hot drinks on pain relieve:		
Decrease the pain	116	76.8
No effect	35	23.2
Effect of psychological status on pain:		
Effective	123	81.5
Not effective	28	18.5
The same sensation of pain every cycle from 1st cycle to following menstrual cycles:		
Yes	55	36.4
No	96	63.6
Effect of specific foods on pain degree:		
Yes	27	17.9
No	124	82.1

Table (6): Physical activities during menstrual period

Variable	No. (n= 160)	%
Perform physical activities during menstrual period:		
Yes	106	66.2
No	54	33.8
Effect of physical activities on pain degree:		
Decrease pain	83	78.3
No effect	23	21.7
Purpose of performing physical activities:		
Habits	33	31.1
To prevent menstrual symptoms	14	13.2
To reduce menstrual pain	59	55.7
Causes of avoiding activities:		
Habits	14	25.9
Not having enough time	5	9.3
To avoid associated menstrual pain	11	20.4
Fear from hemorrhage during menstruation	5	9.3
Feeling of exhaustion	19	35.2

Table (7): Distribution of the students according to their habits toward menstrual pain and hygiene

Variable	No. (n= 160)	%
Taking hot drinks before and during menstrual period:		
Yes	114	71.2
No	46	28.8
Types of hot drinks:		
Fenugreek	57	50.0
Tea	19	16.7
Coffee	1	0.9
Cinnamon	4	3.5
Anise	22	19.3
Yanson	10	8.8
Natural herbal	1	0.9
Times number of taking hot drinks:		
Once	34	29.8
Twice	48	42.1
Three times	20	17.5
More than three times	12	10.5
Purpose for drinking hot drinks:		
Habits	23	20.2
To relief pain	49	43.0
Because it have healthy benefits	18	15.8
Because it help to flow of all menstrual blood	24	21.1
Taking rest at home during menstrual period:		
Yes	43	26.9
No	117	73.1
Reasons for taking rest:		
To relief pain with menstruation	33	76.7
Habits	5	11.6
Fear of bleeding	5	11.6
Taking hot bath during menstruation:		
Yes	160	100.0
No	0	0.0
Causes of taking hot bath:		
Habit	15	9.4
Cleaning & improving circulation	108	67.5
Prevent bad odor & killing microorganisms	27	16.9
Increase flow of menstrual blood	8	5.0
Others (decrease the pain)	2	1.2

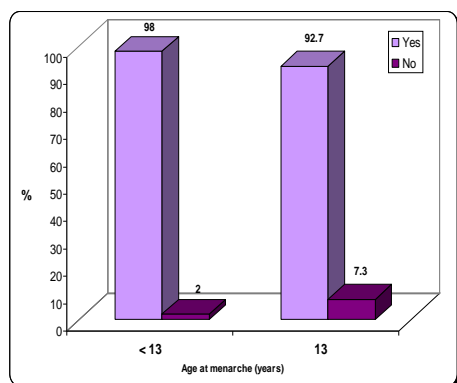


Fig. (1): Relationship between age at menarche and menstrual pain

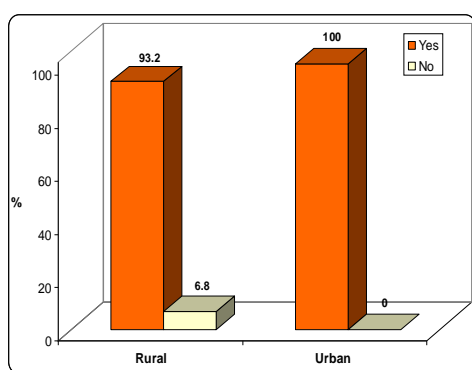


Fig. (2): Relationship between residence and menstrual pain

Discussion

The menstrual period is a natural phenomenon that occurs throughout the reproductive age of most women. Most females experience some degree of pain and discomfort related to their menstrual period (dysmenorrhea) which could have important impacts on the activities and disturb their productivity at home or at their work place. (Poureslami and Osati., 2002).

Dysmenorrhea is highly prevalent during adolescence but the incidence of this disease is very often underestimated depending on different measurement methods 20-90% of adolescent girls report dysmenorrhea (Gábor, 2005). There is a wide variation in the estimate of dysmenorrhea from studies around the world; it was reporting a range between 28% and 71.7% (Burnett et al, 2005 and Pitts et al, 2008). The findings of the present study showed a high prevalence of dysmenorrhea, it was found to be as high as (94.4%) with a varied degree on intensity. Similar findings (87.87%) were reported by George and Bhaduri, (2002). Furthermore, in similar studies from Turkey, the prevalence of dysmenorrhea has been

reported to be between 58.2% and 89.5% (Nur & Sümer, 2008 and Polat et al, 2009).

In the present study, the mean age of menarche of the respondents was 13.2 years this is in agreement with the study conducted in Rajasthan by Khanna et al (2005) who found that the mean age at menarche is 13.2 years, and the study by Ammari et al (2004) as the age of menarche was 13.8 years among Jordanian girls.

Concerning menstrual cycle characteristics, the present study revealed that student girls duration of menstrual flow ranged from 2 to 8 days and the menstrual cycle length from 20 to 35 days. This finding was supported by the study carried out by Christensen and Kochrow (2006) as the majority of girls have menstrual cycle length varies from 24 to 32 days, with average cycle lasting 20 days.

Regarding to source of information about menstruation, mothers were found to be the main source of information (59.4%). This finding is in accordance with Ersog et al (2004), Kari et al (2005) and Tiwari et al (2006) and nearly accordance with Poureslami and Osati (2002) who found that (75%) received this information from their relatives such as mother and sister. While Ayatollahi et al (2002), disagreed with the current study finding since they found that school nurse were the first source of information in Iran. Furthermore, Rajni et al (2009) found that friends were the most important source of information (83%), while the source of information for others was T.V. (3%), mothers (5%), magazines (5%), movies (10%) and relatives (6.5%). In the contrary, the present study revealed that friends represented only (11.2%) as a source of information. Singh et al (1999) reported that the major source of information about menstruation and reproductive health was media (television, radio (73.1%), while in the present study, media represented only (3.1%). This result could be related to that girls are embarrassed to watch these programs that discuss menstrual issues in presence of other family members or there is no specific programs discussing adolescent physical changes including menstruation.

As regard menstrual hygiene, the findings of the present study revealed that more than two thirds (69.4) of the study sample were changed their perineal pads for three or more times per day, a few of them nearly one third (30.6%) change it 1 to 2 times per day. This is may be due to that the girls reported that they changed pad when it becomes fully soaked with blood. This result was in agreement with Moawad (2001) in the study done about indigenous practices of Saudi girls in Riyadh during their menstrual period,

As regards taking rest at home during menstruation it was found that (26.9%) from sample taken rest at home (absences from schools). This finding disagreement with Parker et al (2010) in their

study about menstrual disorder of teenagers in high schools in the Australian they found (70%) from the sample were absences from schools.

As regards medication taken during menstruation it was found that (22.5%) of girls take medication either analgesics or antispasmodics.

In relation to methods used to relieve menstrual pain, this study reflects that intake of hot drinks, bath, physical activity and antispasmodic drugs were the lines of management in (43.0%, 82.1%, 55.7 % and 22.5% respectively) this finding was consistent with study done by El-Gilany et al (2005) in Mansoura city where rest, herbal, and drugs were the lines of management in (42.6%), (36.7%) and (34.7%) respectively. In contrast Davis and Westhoff (2001) mentioned that in total of 192 students there was (32%) who reported taking warm bath and 67 % were self medicated with analgesics.

As regards the various relieving measures for dysmenorrhea, the present study revealed that the intake of domestic hot drinks before and during the cycle was relieving dysmenorrhea. These findings are supported by Ali (2002) who stated that consumption of large amounts of any liquid beverages may be closely related to premenstrual syndrome (PMS).

Considering the effect of menstrual pain on daily activities of students' girls approximately two thirds of study sample (64.2%) not affected by menstrual pain and practiced normal activity during menstruation. This result disagreed with (Liliwati et al, 2007), who reported that dysmenorrhea among adolescent girls in a rural school in Selangor and Malaysia affects negatively on school activities which showed significantly increasing numbers of school and class absences with increasing pain score.

Relieving measures such as consumed hot drinks were widely (71.2%) used by the studied sample, (43.0%) of them used hot drinks to relief the pain, misuse of analgesics to alleviate the suffering from pain practiced by (22.5%) of students and staying at home to rest as a major step to relieve menstrual pain and other reasons like as fear of bleeding mentioned by (26.9%) of students. On the other hand, useful measures mentioned and encouraged are: exercise practiced by (66.2%) of students and the entire students (100%) take hot bath during menstruation. More than three-quarters (76.8%) of them practiced hot bath as a management for dysmenorrhea. This finding nearly agreed with Tazeen et al (2010) who studied knowledge and practice of female adolescents regarding menstrual hygiene in Pakistan, reported that (83.9%) of the adolescent female taking bath to relieve menstrual pain. This finding disagreed with Poureslami and Osati. (2002) who studied attitude of female adolescent about dysmenorrhea and menstrual hygiene in Tahrán found just (32%) takes bath.

Conclusion:

Based on the findings of the present study it was concluded that: Dysmenorrhea is highly prevalent among adolescent nursing schools. The students perform good menstrual hygiene practices as regard physical exercise, change their perineal pads frequently, take hot bath and only one-fourth of them take rest at home during menstruation. These findings may reflect good performance of nursing students towards some menstrual hygiene practices. However, the necessity to adopt a healthy behavior, which includes: appropriate nutrition, and appropriate use of medications based on a physician's prescription was very important issue.

Recommendations:

Based on the findings of the present study it was recommended that:

- School based programs must be reconstructed to improve student's knowledge about the factors contributing to dysmenorrhea, and its complications and the importance for physician referral when indicated.
- Encourage the girls to increase the vitamin in their food intake by increase the vegetables, fruits and decrease the salt in their food.
- Additional studies may be needed using a wider geographic scope and a larger sample size that should include young girls in general secondary schools rather than nursing schools and their mothers are proposed in order to produce sufficient and comprehensive information.

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