

## Original Research Article

# Knowledge of Menstruation and the Practice of Hygiene among Adolescent Girls in Bangladesh

Murshida Akter<sup>1</sup>, Shanzida Khatun<sup>2</sup>, Happy Bandana Biswas<sup>3</sup>, Hee Soon Kim<sup>4</sup>

<sup>1</sup>MSN, RN, \*NIANER, Dhaka, Bangladesh

<sup>2</sup>PhD, MNSc, RN, Faculty of Child Health Nursing, \*NIANER, Dhaka, Bangladesh

<sup>3</sup>MNSc, RN, Faculty of Child Health Nursing, \*NIANER, Dhaka, Bangladesh

<sup>4</sup>PhD, RN, Professor, Yonsei University College of Nursing, Seoul, South Korea

\*Corresponding Author

Murshida Akter MSN E-mail-murshidaakter555@gmail.com

**Abstract: Background:** Menstruation is a normal physiological phenomenon which is unique to female and a healthy normal, mature process for adolescent girls. Menstrual hygiene is therefore an essential part of basic hygienic practices. Poor hygiene practices may affect their health. Menstrual hygiene is an issue that needs to be addressed at all levels. **Objective:** The purpose of this study was to assess knowledge of menstruation and practice of hygiene among adolescent girls in Bangladesh. **Methods:** The descriptive study design used convenient sampling technique 100 adolescent girls were recruited from Girls High School in Dhaka City. Self- structured questionnaire as follows, (1) The Demographic Data Questionnaire, (2) Experience of Menstruation related Questionnaire (3) Adolescent Knowledge of Menstruation Regarding Questionnaire, and (4) Adolescent Hygiene Practice of Menstruation Regarding Questionnaire was used to collected data. Correlation (r), t- test, and ANOVA were used for data analysis. **Results:** The mean age of the adolescent girls was 15.11±1.127. The total mean of adolescent girls' knowledge and hygiene practice regarding menstruation were 11.73±5.08 in maximum 16 score and 2.67± 3.18 in 4 point Likert scale respectively. There was a significantly positive relationship between knowledge and practice of menstruation among adolescents girls (p = <0.001). **Conclusion:** The study illustrated the number of adolescent girls had good knowledge of menstruation and menstrual hygiene practice. Therefore, future study and educational program may be necessary for this type of population. In addition further research is also demand for factors identifying the knowledge and practice of adolescent with diverse adolescent girls.

**Keywords:** Knowledge, Practice, Menstruation, Hygiene practice, Adolescent Girls.

## BACKGROUND

According to World Health Organization (WHO, 2014) adolescents remains a large and emergent portion of the world's total population. Globally there were 1.2 billion adolescent girls in the year 2009 which forms eighteen percent of the world's population (Anusree et al., 2014). In Bangladesh, approximately 27.7 million adolescents [aged 10-19 years (WHO) and 13.7 million girls, makeup about one-fifth of the total population (Bharathalakshmi, Govindarajan, Ethirajan, & Felix, 2014). Globally about 52% of the female population is of reproductive age (Vaughn, 2013), meaning menstruation is part of their normal life and menstrual hygiene is therefore an essential part of basic hygienic practices. (House, Mahon & Cavill, 2012 cited by Mutunda, 2013).

Menstruation is very important issue because of adolescence is the transition period from childhood to adulthood and complicated with several physical and psychological changes occurring in the body (Parajuli, Paudel, & Shrestha, 2017). It is associated with the ability to reproduce (Akpenpuun, & Azende, 2014). This is a landmark in the process of growth and maturation and prepares adolescent girls for motherhood (Terri, 2008). Menstruation and menstrual hygiene is an issue that every adolescent girls of reproductive age faced in her life (Kapoor, & Kumar, 2017).

In Bangladesh, school-age girls are insufficiently informed about reproductive health and about the process of menstruation, the physical and psychological changes associated with puberty, and coming of age. In Bangladesh, the issue of menstruation is rarely mentioned publicly, due to cultural taboos.

Quick Response Code



Journal homepage:

<http://www.easpublisher.com/easims/>

Article History

Received: 24.09.2019

Accepted: 05.10.2019

Published: 27.10.2019

Copyright © 2019: This is an open-access article distributed under the terms of the Creative Commons Attribution license which permits unrestricted use, distribution, and reproduction in any medium for non commercial use (NonCommercial, or CC-BY-NC) provided the original author and source are credited.

There is no mandate in the Bangladeshi educational institutions to help girls in managing their menstruation (Mutunda, 2013). Therefore, in an effort to create awareness on menstruation the first global menstrual day celebrated on 28<sup>th</sup> of May 2014 (Chin, 2014). Due to restricted in religious practices, majority of the girls have lack of scientific knowledge about menstruation and puberty. Adolescent girls often are reluctant to open discuss about their menstruation with their parents and often hesitate to seek help regarding their menstrual problems (Haque et al., 2014; Sarkar, Dobe, Dasgupta, Basu, & Shahbabu, 2017). Puberty and adolescence can be challenging times for any girls.

Menstrual hygiene is an issue that needs to be addressed at all levels (Shakya, 2017). Menstrual hygiene is important because it is a natural process of hygiene related to practice of girls during menstruation (Sharma & Moktan, 2016). It is an important issue which needs free and open discussions (Parajuli et al., 2017). Poor practices may affect their health such as increased vulnerability to Reproductive Tract Infections, (Tarhane & Kasulkar, 2015), Pelvic Inflammatory Diseases, Urinary Tract Infections, Cervical cancer, Ectopic pregnancy even may develop infertility (El-Lassy, Madian, 2013; Sarkar, Dobe, Dasgupta, Basu, & Shahbabu, 2017) study found that, 26% girls are suffering from STIs, 45.2% UTI because of poor menstrual hygiene (Das et al., 2015). Every year approximately 10 % of women worldwide are exposed to genital infections including UTI and bacterial vaginosis, and 75 % of women have a history of a genital infection (Upashe, Tekelab, & Mekonnen, 2015). Menstruation is still regarded as something unclean or dirty in Bangladeshi society (Haque et al., 2014).

Menstrual education is an essential aspect of school health education. It is necessary to know about knowledge regarding menstrual hygiene and their practice of menstruation. In addition, there was no nursing research in Bangladesh. Findings from this research will be helpful for the nurses who play a significant role for the adolescent school girls during their menstruation period.

## **2. METHODS**

### **2.1. STUDY DESIGN**

A descriptive study design was used to examine the relationship between Knowledge of Menstruation and the Practice of Hygiene among Adolescent Girls in Bangladesh.

### **2.2. STUDY PARTICIPANTS**

The study participants were 100 adolescent girls Sher-E Bangla Nagar Government girls High School in Bangladesh. The school is situated in the capital city of Bangladesh, the enough number of study sample was get here who may provide necessary information essential to find out the answer to the

research questions of this study. The sample size was estimated by using G power analysis. Calculation was consider an accepted minimum level of significant ( $\alpha$ ) of 0.05, an expected power of 0.80 (1- $\beta$ ), and an estimated population effect size of 0.30( $\gamma$ ) as the medium effect size used in the previous nursing researcher. The estimated sample size was 85 and by considering 20% attrition rate total participants of this study was 100 (Polit & Hungler, 2012). Convenient sampling technique used to recruit the eligible subjects of this study. The inclusion criteria for the selecting eligible subjects were adolescent girls; who have experienced menarche; age among 13-16years old; who read in class seven to ten; those who are cognitively intact; who were studied in Sher-E Bangla Nagar Government Girls High School. The exclusion criteria were: all adolescent girls with seriously ill and mentally disabled; who were absentees; who do not read in level eight to ten; less than 13 years and more than 17 years old; who had not started menstruation were excluded from the study.

### **2.3. ETHICAL CONSIDERATION**

A written approval was obtained from the Institutional Review Board (IRB) of National Institute of Advanced Nursing Education and Research and Bangabandhu Sheikh Mujib Medical University (BSMMU) and participatory school. Participants were assured that they can withdraw from participation at any time. The subjects were assured the anonymity and confidentiality of subjects was protected. The data will be kept in a locked cabinet for three years.

### **2.4. DATA COLLECTION INSTRUMENTS**

The instruments of this study were developed by the researcher based on literature reviewed. The instruments of this study as follow (1) The Demographic Data Questionnaire, (2) Experience of Menstruation related Questionnaire (3) Adolescent Knowledge of Menstruation Regarding Questionnaire, and (4) Adolescent Hygiene Practice of Menstruation Regarding Questionnaire.

#### **THE DEMOGRAPHIC DATA QUESTIONNAIRE**

The Demographic data Questionnaire was developed by the researcher based on literature reviewed. It consists of age, religion, adolescent educational level, father educational level, mother educational level, housing status, family income, and family size.

#### **THE EXPERIENCE OF MENSTRUATION RELATED QUESTIONNAIRE**

The Experience of Menstruation questions was developed by the researcher based on literature reviewed. It consists of duration of menstruation, feel during menstruation, foul odor during menstruation; menstruation is a secret issue, and experienced menstrual pain.

#### **Adolescent Knowledge of Menstruation Related Questionnaire**

Adolescent knowledge questions were developed by the researcher through the literature

reviewed. It consists of 18-item Self structured Questionnaire was modified by the research guide from NIANER faculty and expert personnel of Korea to measure adolescents' knowledge related menstruation Questionnaire. Kknowledge score was measured by dichotomous type of question 13 items of positive and 5 items are negative question "right or wrong" answer for each question based on their knowledge. One score was given for each right answer and 0 (zero) was given for each wrong answer. A total score of adolescent knowledge on menstruation related questionnaire was 18, rating score from 0-18.

### Adolescent Hygiene Practice of Menstruation Related Questionnaire

This questionnaire consisted of 18 items were modified by the research guide from NIANER faculty and expert personnel of Korea to measure adolescents hygiene practice of menstruation. Hygiene practice related menstruation using a 4-point Likert lype scale, ranged from 1 to 4, and 4 =Always, 3=Sometimes, and 2 = Very Few, 1= Not at all and total score was 72 respectively.

### 2.5. VALIDITY AND RELIABILITY

The validity of the instrument was assessed by three panels of Experts. First one expert from NIANER faculty, second one from Younsi University, Seoul Korea and third one from teacher of Sher-E Bangla Nagar Government Girls High. The original instruments of this study were developed in English and were translated into a Bengali version and also translated based on the back translation process by the researcher. The reliability of Adolescent Knowledge of Menstruation related Questionnaire and Hygiene Practice of Menstruation related Questionnaire.

### 2.6. DATA COLLECTION METHODS

After approval from the Institutional Review Board (IRB) of NIANER and BSMMU, and verbal consent from the school head. The researcher distributed the questionnaires to the participants by the help of the teacher. In the class the researcher gave the question to the individual participants to fill up independently. After that the researcher collected the questionnaires one by one. Then the researcher was separated the top sheet of the questionnaire from removing identification of the participants.

### 2.7. DATA ANALYSIS

Descriptive statistics such as frequencies, percentages, means, and standard deviations were used to describe the demographic characteristics of the study subjects and study variables. Pearson's product moment correlation (r), t-test, and analysis of variance were used to examine the relationship between adolescent's knowledge and hygiene practice of menstruation of the study participants.

### 3. RESULTS

This descriptive correlational research aimed to assess the Knowledge of Menstruation and the Practice of Hygiene among Adolescent Girls in Bangladesh. Participants included 100 adolescent girls in Bangladesh at Sher-e Bangla Nagar Girls High School from July 2017 to June 2018. The study results presented in four parts as follows:

#### 1. SOCIO-DEMOGRAPHIC CHARACTERISTICS OF ADOLESCENTS GIRLS

Table 1 showed that the socio-demographic characteristics of the adolescents girls. The adolescent girl mean age was 15.11 SD 1.127. Sixty one percent (61.0%) adolescent girls were Muslim, more than 50% adolescents girls had class nine and ten education. One hundred percent of adolescent girls fathers had secondary education and 60% mothers had higher secondary or above educational level. More than 60 % adolescent live in building. Nearly hundred percent adolescent monthly family income was >20, 000 Taka. The majority (83.0%) adolescents were lives in nuclear family.

**Table 1: Demographic Characteristics among Adolescent Girls (N=100)**

Characteristics	Categories	n (%)	M±SD
<b>Age</b>			<b>15.11±1.127</b>
<b>Religion</b>	Muslim	61 (61)	
	Hindu	30 (30)	
	Others Religions	9 (9)	
Class	≤Eight	44 (44)	
	≥Nine	56 (56)	
Father's level of education	Bellow or Secondary Education	100(100)	
	Higher Secondary or Above Education	0(0)	
Mother's education	Bellow or Secondary Education	40 (40)	
	Higher Secondary or Above Education	60 (60)	
Living status	Apartment	43 (43)	
	Building	53 (53)	
	Other	4 (4)	
Family income monthly	<20.000 taka	5(5)	1.95(.219)
	>20,000 taka	95(95)	
Type of Family	Nuclear	83 (83)	
	Extended	17 (17)	

Note: M = Mean; SD = Standard Deviation

## 2. EXPERIENCE OF MENSTRUATION CHARACTERISTICS OF ADOLESCENTS GIRLS

Table 2 this study showed experience of menstruation of the adolescent girls. Approximately 79% of adolescent girls had five to seven days duration of menstruation. More than 76% adolescent girls were unusual feeling during

menstruation. Sixty two percent (62%) adolescent girls had felt foul odor present during menstruation. The near about 80% of adolescent girls were mentioned menstruation was not a secret issue. The majority of adolescent girls 70% had have pain during menstruation.

**Table 2: Experience of Menstruation among Adolescent Girls (N=100)**

Characteristics		n (%)	M(SD)
Duration of Menstruation			
	<5days	11 (11)	1.99(.460)
	5-7days	79 (79)	
	>7 Days	10 (10)	
Feeling during Menstruation			
	Unusual Feeling	76 (76)	1.56(.857)
	Usual Feeling	24 (24)	
Foul odor during Menstruation			
	Foul odor present	62(62)	2.35(.809)
	Never	38 (38)	
Secret issue			
	Yes	22 (22)	1.78(.416)
	No	78 (78)	
Have you experienced menstrual pain			
	Have pain	77(77)	2.13(.872)
	Never	23(23)	

Note: M = Mean; SD = Standard Deviation.

## 3. DESCRIPTIVE STATISTICS KNOWLEDGE OF MENSTRUATION AMONG ADOLESCENT GIRLS

Bivariate analysis was performed by using T-tests and ANOVA test. Table 3 showed that there was a significantly related with adolescent knowledge of menstruation and the religion ( $p=.016$ ) as well as father

educational level ( $p =0.015$ ) and living status of adolescent girls ( $p=.022$ ) was a significantly related with adolescent knowledge. While no statistical relationship was observed between level of knowledge and adolescent age, adolescent educational level, mother educational level, family income, and family size of adolescent girls.

**Table 3: Descriptive Statistics among Demographic Characteristics and Menstrual Knowledge of Adolescent Girls**

Characteristics	Categories	Menstrual Knowledge	
		M $\pm$ SD	t/F(p)
Age	$\leq 14$	12.07 $\pm$ 4.58	.431(.667)
	$\geq 14$	11.58 $\pm$ 5.31	
Religion	Muslim	12.23 $\pm$ 4.72	4.34(.016)
	Hindu	9.80 $\pm$ 5.86	
	Others	14.78 $\pm$ 1.48	
Grade/Class	$\leq$ Eight	11.48 $\pm$ 5.133	-.439(.662)
	$\geq$ Nine	11.93 $\pm$ 5.088	
Father's education	Primary & Secondary	10.88 $\pm$ 5.714	4.41(.015)
	Higher Secondary	10.28 $\pm$ 5.711	
	University	13.36 $\pm$ 3.692	
Mother's education	Bellow or Secondary Education	11.05 $\pm$ 5.41	-1.09(.277)
	Higher Secondary or Above education	12.18 $\pm$ 4.84	
Living status	Apartment	13.14 $\pm$ 3.85	3.95(.022)
	Building	10.91 $\pm$ 5.58	
	Other	7.50 $\pm$ 6.40	
Family income monthly	<20,000 taka	8.40 $\pm$ 6.30	-1.52(.134)
	>20,000 taka	11.91 $\pm$ 4.99	

Types of family	Nuclear	11.76±5.07	.125(.900)
	Extended	11.59±5.28	

Note: M = Mean; SD = Standard Deviation

#### 4. Descriptive Statistics Hygiene Practice of Menstruation among Adolescent Girls

Table 4 illustrated in bivariate analysis by using T-tests and ANOVA test. There was a significantly related with adolescent hygiene practice of menstruation and age ( $p=0.007$ ), as well as the religion ( $p=0.001$ ), and adolescent family size ( $p=0.004$ ) was a

significantly related with adolescent hygiene practice of menstruation. While no statistical relationship was observed between level of hygiene practice of menstruation and, adolescent educational level, mother educational level, father educational level, adolescent living status, and family income of adolescent girls.

**Table 4: Descriptive Statistics among Demographic Characteristics and Hygiene Practice of Adolescent Girls**

Characteristics	Categories	Menstrual hygiene practice	
		M±SD	t/F(p)
Age	≤14	2.80±3.06	2.74(.007)
	≥14	2.62±3.06	
Religion	Muslim	2.75±.269	7.04(.001)
	Hindu	2.50±.363	
	Others	2.70±.271	
Grade/Class	≤Eight	2.70±.354	.813(.418)
	≥Nine	2.65±.288	
Father's education	Primary & Secondary	2.57±.309	2.71(.071)
	Higher Secondary	2.62±.362	
	University	2.75±.262	
Mother's education	Bellow or Secondary Education	2.62±3.91	-1.41(.161)
	Higher Secondary or Above education	2.71±3.15	
Living status	Apartment	2.68±.307	-.107(.915)
	Building	2.68±.303	
Family income monthly	<20,000 taka	2.64±.271	-.203(.839)
	>20,000 taka	2.67±.322	
Types of family	Nuclear	2.71±.295	2.93(.004)
	Extended	2.47±.358	

Note: M = Mean; SD = Standard Deviation ; t=T-test; f for ANOVA,

#### The Relationship between the Knowledge of Menstruation and the Practice of Hygiene

Finally table 5 showed that correlation between knowledge on menstruation and the hygiene practice of menstruation was analyzed. Adolescent who had higher knowledge showed higher hygiene practice

of menstruation. There was a significantly positive relationship between knowledge of menstruation and the hygiene practices of menstruation among adolescents girls ( $r=.544$ ,  $p<0.001$ ).

**Table 5: Relationship between Demographic Characteristic and Menstruation of Knowledge and Hygiene Practice among adolescent girls**

Variables/Demographic Characteristic	Menstruation of Knowledge		Hygiene Practice of Menstruation	
Age	M±SD	t/F/p	M±SD	t/F/p
≥14 years			2.80±3.06	2.74(.007)
≤14 years			2.62±3.06	
<b>Religion</b>		4.34(.016)		7.04(.001)
Muslim	12.23±4.72		2.75±.269	
Hindu	9.80±5.86		2.50±.363	
Other	14.78±1.48		2.70±.271	
<b>Father's education</b>		4.41(.015)		
Primary and secondary	10.88±5.714			
Higher secondary	10.28±5.711			
University	13.36±3.692			
<b>Living status</b>		3.95(.022)		
Apartment	13.14±3.85			
Building	10.91±5.58			
Other	7.50±6.40			



Types of family				
Nuclear			2.71±.295	2.93(.004)
Extended			2.47±.358	

Note: M = Mean; SD = Standard Deviation; t=T test; f for ANOVA

#### 4. DISCUSSION

##### 1. CHARACTERISTICS OF ADOLESCENT GIRLS

The study was a descriptive designed to assess the knowledge of menstruation and the practice of hygiene among adolescent girls in Bangladesh. A total number of 100 adolescent girls were enrolled in the present study. The demographic characteristics showed that the adolescent girls' mean age was 15.11 (SD=1.127) years ranged from 13 to 16 years. Similar study conducted by Gitanjali and Kumar (2017) reported that the mean age of all participants was 13.43 ±.83 years ranged from 14-17 years (Parajuli et al., 2016).

##### 2. ADOLESCENT GIRLS KNOWLEDGE DESCRIPTION

In this study, adolescent girls' knowledge regarding menstruation significantly differed by religion, father educational level, and living status of adolescent girls. Study of Sharma and Moktan (2017) found that Muslim adolescents had higher knowledge regarding menstruation. The possible reasons might be due to Muslim as they need to maintain purity that has the obligation to pray five times Salat in a day. During menstruation, Muslim cannot pray due to religious belief. Therefore, Muslim adolescents may need more knowledge regarding menstruation and menstrual hygiene. In Bangladesh, usually children get their first level education from parents at home. Adolescents can receive the information regarding menstruation from their parents who have the higher education. In the present study, parents' education level was high.

##### 3. ADOLESCENT GIRLS PRACTICE OF HYGIENE

The study showed that hygiene practice regarding menstruation statistically significantly differed by the adolescents age, religion, and their family size. The possible reason may be older adolescent may have better knowledge because of their level of education. In the present study most of the adolescents' (70%) education level was nine to ten (grade 9-10). As Muslim adolescents had the better knowledge regarding menstruation and menstrual hygiene which may influence their in maintaining hygiene practice. Study of Anusree et al. (2014) reported effect of religion on menstrual hygiene practice with Muslims doing better than others religion.

In the present study, it was found that there was a positively and significantly associated with knowledge of menstruation and menstrual hygiene practices ( $r = .544$ ,  $p = <0.001$ ). It means adolescents who had more knowledge regarding menstruation had

more hygiene practice. Due to the fact that older girls who read class nine to ten might have high possibility for exposure to information regarding menstruation and its hygiene practice. In the present study most of the adolescents were 15 to 16 years and their education level was grade nine and ten. Similar to the study of Biruk (2017) the grade level of respondents was positively and significantly associated with knowledge menstruation and menstrual hygiene practice. The study of Ameade and Garti (2016) showed that there was a positive and significant association between knowledge of adolescent girls on menstruation and their good menstrual hygiene practice. Another reason may be the adolescent girls 'whose parents educational status higher more likely to had good knowledge. In the present study, a positive association was observed between knowledge and parents educational level.

#### 5. CONCLUSION

The study illustrated the number of adolescent girls had good knowledge of menstruation and menstrual hygiene practice. Knowledge of menstruation and practice of menstrual hygiene showed a significantly association with religion, parents education, living status, and family size.

The study indicated that parents who had bellow college education had lower knowledge and Hindus' adolescent girls had lower knowledge and less hygiene practice. Younger adolescent girls had lower knowledge. Adolescent girls who were lived in building they had lower knowledge and those adolescent girls live in extended family they had less practice regarding menstruation among adolescent girls. This study were useful in organizing and modifying health program activities for young girls with a view to improve adolescent girls reproductive health and also help to accurate and adequate information about menstruation and helpful for further policy making to recruited school health nurse.

The major limitation of this study was the period of data collection. Study was conducted in one urban school in Dhaka city. The data were collected for this study in January 2018 which was the time of SSC examination preparation, school sports week and also admission period in the schools. Another potential limitation of this study was the data was collected in the school campus which may influenced by the adolescent girls of the students.

## RECOMMENDATION

Therefore, future study and educational program may be necessary for this type of population. School health nurse, nursing students, peer groups can be mobilizing to conduct these educational programs. The curriculum of the schools also should include the topic on menstruation and menstrual hygiene.

Adolescent girls, their mothers, siblings and relatives, school teachers, can play a vital role should be educated and provide correct and proper information of menstruation and motivated to instruct their daughters to practice good menstrual hygiene practices.

Consult parents about the need to support their children with sanitary materials for hygiene practice of menstruation.

In addition further research is also demand for factors identifying the knowledge and practice of menstruation with diverse Hindu adolescents in other settings.

## ACKNOWLEDGEMENT

This is the Master Thesis. First of all, thanks to Allah for giving me the strength to complete my study. Then gratitude my PhD advisor Dr. Shanzida Khatun, Dept. of Child Health Nursing, NIANER for spending her valuable time, merit and skill behind me. I express my sincere gratitude to Happy Bandana Biswas Faculty, Department of Child Health Nursing, NIANER, for her sincere help, cooperation and support. I am grateful thank to all my participants who were kind enough to spend their time in providing data for the study.

## REFERENCES

1. Ameade, E. P. K., & Garti, H. A. (2016). Relationship between female university students' knowledge on menstruation and their menstrual hygiene practices: A study in Tamale, Ghana. *Advances in preventive medicine*, 2016.
2. Akpenpuun, J. R., & Azende, P. M. (2014). Menstrual knowledge and practices among adolescent females in Makurdi metropolis. *GJISS*, 3(3), 113-121.
3. Anusree, P. C., Ardra, R., Aswathy, B. S., Faseela, V. C. M., Gincy, P. B., & Anupama, T. (2014). Knowledge regarding menstrual hygiene among adolescent girls in selected schools, Mangalore with a view to develop an information booklet. *Journal of Nursing and Health Science*, 3(1), 55-60.
4. Barathalakshmi, J., Govindarajan, P. K., Ethirajan, N., & Felix, A. W. A. (2014). Knowledge and practice of menstrual hygiene among school going adolescent girls. *National journal of Research in Community MEDICINE*, 3(2), 138-42.
5. Chin, L. (2014). Period of shame-The effects of menstrual hygiene management on rural women and girls' quality of life in Savannakhet, Laos.
6. Das, P., Baker, K. K., Dutta, A., Swain, T., Sahoo, S., Das, B. S., ... & Mishra, P. R. (2015). Menstrual hygiene practices, WASH access and the risk of urogenital infection in women from Odisha, India. *PloS one*, 10(6), e0130777.
7. El-Lassy, R. B., & Madian, A. A. E. (2013). Impact of health educational program on menstrual beliefs and practices of adolescent Egyptian girls at secondary technical nursing school. *Life Science Journal*, 10(2), 1-5.
8. Haque, S. E., Rahman, M., Itsuko, K., Mutahara, M., & Sakisaka, K. (2014). The effect of a school-based educational intervention on menstrual health: an intervention study among adolescent girls in Bangladesh. *BMJ open*, 4(7), e004607.
9. House, S., Mahon, T., & Cavill, S. (2012). A resource for improving menstrual hygiene around the world. *Menstrual Hygiene Matters*, Water Aid, London, UK.
10. Kapoor, G., & Kumar, D. (2017). Menstrual hygiene: knowledge and practice among adolescent school girls in rural settings. *International Journal of Reproduction, Contraception, Obstetrics and Gynecology*, 6(3), 959-962.
11. Mutunda, A. N. N. E. (2013). Factors impacting on the menstrual hygiene among school going adolescent girls in Mongu district, Zambia. *School of Public Health. University of the Western Cape*, 1-81.
12. Parajuli, P., Paudel, N., & Shrestha, S. (2016). Knowledge and practices regarding menstrual hygiene among adolescent girls of rural Nepal. *Journal of Kathmandu Medical College*, 5(1), 23-27.
13. Sarkar, I., Dobe, M., Dasgupta, A., Basu, R., & Shahbabu, B. (2017). Determinants of menstrual hygiene among school going adolescent girls in a rural area of West Bengal. *Journal of family medicine and primary care*, 6(3), 583.
14. Shakya, D., & Shakya, F.U.D. (2017). Menstrual Hygiene and Health: Knowledge, Practice and Aspirations among Adolescent Girls of Kathmandu Valley.
15. Sharma, I., & Moktan, E. (2016). Assessing the level of Knowledge and Practice of Menstrual Hygiene among Adolescent School girls in Siraha district of Nepal: A cross sectional study, *Asian Journal of Multidisciplinary Studies* volume 5, Issue 10.
16. Tarhane, S., & Kasulkar, A. (2015). Awareness of adolescent girls regarding menstruation and practices during menstrual cycle. *Panacea Journal of Medical Sciences*, 5(1), 29-32.
17. Terri, K. (2008). *Essentials of Pediatric Nursing*, India: Wolter Kluwer Publication,
18. Upashe, S. P., Tekelab, T., & Mekonnen, J. (2015). Assessment of knowledge and practice of menstrual hygiene among high school girls in Western Ethiopia. *BMC women's health*, 15(1), 84.
19. World Health Organization. (2014). *Child and Adolescent Health*. Continuum of Care throughout the Life Course.

