

ORIGINAL RESEARCH ARTICLE

KNOWLEDGE ON MENSTRUATION AND MENSTRUAL HYGIENE PRACTICES AMONG ADOLESCENTS GIRLS  
OF SELECTED SCHOOLS, CHITWAN

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**ABSTRACT**

**Background:** Menstrual hygiene is very important aspect for adolescent girls and proper menstrual hygiene has not been sufficiently addressed in developing countries including Nepal. This study aimed to assess the knowledge on menstruation and menstrual hygiene practices among adolescent girls.

**Methods:** Descriptive cross-sectional study was conducted among adolescent girls studying in selected schools of Chitwan district. A total 193 girls who had menstrual flow experience for at least three consecutive menstrual cycles were selected as sample using the consecutive sampling technique. Data were analyzed in Statistical Package for Social Sciences (SPSS) version 16.0 using descriptive and inferential statistics.

**Results:** Most of the girls knew about menstruation as physiological process, normal age of menstruation, and causes of menstruation as hormonal change. Overall, 66.8% of girls had adequate level of knowledge on menstruation. Regarding practice, 94.8% cleaned their genitalia properly, 93.8% used the sanitary pads, and 97.4% wrapped and disposed the pads in dustbin after use. Overall, 72.5% of girls had good level of menstrual hygiene practices. Adolescent girl's age and grade, and occupation status of their father were significantly associated ( $p < 0.05$ ) with menstrual hygiene practice. Further, significant positive relationship found between knowledge on menstruation and menstrual hygiene practice.

**Conclusions:** One third of adolescent girls have inadequate knowledge on menstruation and one fourth have poor menstrual hygiene practice. Therefore, an awareness and advocacy programs on menstruation and menstrual hygiene practices are needed for the adolescent girls to safeguard themselves against reproductive tract infections.

**INTRODUCTION**

Adolescence is a phase of transition from girlhood to womanhood and marks the onset of female puberty. This period of attaining reproductive maturity between the ages of 10-19 years is marked by a number of physiological, behavioral and psychological changes, the most notable being the onset of menstruation. Menstruation is a part of normal reproductive cycle in female and girls menstrual hygienic practices in the adolescent period can have effect on health and wellbeing.<sup>1</sup>

Studies have shown that most of the adolescent girls had inadequate information about the menstrual physiology and hygiene.<sup>2-4</sup> It is crucial for adolescent girls to learn about their menstruation and menstrual hygiene practice to safeguard themselves against reproductive tract infections and maintain their health. Family and cultural practices also play significant role on adolescent girls overall health and well being. Literatures showed that mothers, television, friends, teachers and relatives were the main sources of information on menstruation in the adolescent girls.<sup>5,6</sup> Various factors such as adolescent age, duration of menstrual flow, knowledge towards menstruation, and mothers education are associated with the

menstruation hygiene practice.<sup>4,7</sup>

Menstruation is still considered a socio-cultural stigma in many rural as well as urban areas of Nepal and women are restricted from enjoying a normal life during their cycle.<sup>2,8</sup> Limited studies were conducted in Nepal and showed varied findings.

Hence, this study aimed to assess the knowledge on menstruation and menstrual hygiene practices among adolescent girls studying in schools of Chitwan district.

**METHODS**

A descriptive cross-sectional study was conducted in the three schools of Chitwan district namely Iris English Academy, Pre-rana Secondary English Boarding School, and Himalayan Secondary English Boarding School. Population of the study were adolescent girls who were of the age 10 to 18 years and studying in grade 8, 9 and 10 of the selected schools. Those girls who had menstrual flow experience and having at least three consecutive menstrual cycles within the last 3 months were included in the study to minimize recall bias. Consecutive sampling technique was used and all the girls who met the inclu-

sion criteria and were available during data collection period in the selected schools were taken as study sample. A total of 193 girls were selected from different schools viz. from Iris English Academy-90, Prerana Secondary English Boarding School-68, and Himalayan Secondary English Boarding School-35.

Data was collected within a month from 23<sup>rd</sup> June 2019 AD to 22<sup>nd</sup> July 2019 AD using the structured self-administered questionnaire. The questionnaire had four sections consisting of socio-demographic and menstrual related characteristics, knowledge regarding menstruation, practice on menstrual hygiene and cultural restrictions practices during menstruation. Response of each items of knowledge on menstruation and menstrual hygienic practices was scored as "1" for correct answers and "0" for incorrect answers. Afterwards, total knowledge and practice scores were calculated. Knowledge score was further classified into adequate level ( $\geq$ median value) and inadequate level ( $<$ median value) of knowledge based on median value 5.0. Likewise, score on menstrual hygiene practice was classified into good ( $\geq$ median value) and poor ( $<$ median value) categories according to median value 6.0. Data was collected in schools during school hours after getting data collection permission from the respective school principals. Eligible participants were explained about the purpose of the study, and took verbal informed consent from them. Prior to data collection, ethical approval was obtained from Chitwan Medical College Institutional Review Committee (CMC-IRC) and written informed consent was obtained from respondents' guardians/parents.

Obtained data was entered into SPSS version 16.0 for window. Descriptive statistics (such as frequency, percentage, mean and standard deviation, median and interquartile range) was used to describe the socio-demographic, menstruation related characteristics, and knowledge and practice related variable. Inferential statistics test ( $\chi^2$ ) was used to measure the association between the level of menstruation hygiene practice and selected variables.

## RESULTS

More than half of the respondents were 15 years and above age. The median ( $\pm$ IQR) age of respondents was 15.0 (14.0-15.0) years with minimum and maximum age ranges from 10 years and 16 years. Almost all (94.8%) respondents followed Hindu religions. Majority (79.8%) of the respondents belonged to Brahmin/Chhetri ethnicity (79.8%), and nuclear family (68.9%). Regarding parents education, most of the respondents mothers and fathers had completed secondary or above level of education. Likewise, majorities of respondents' mothers were engaged in household work (76.7%) whereas highest percentages of respondents' fathers were in service (47.7%) and business (39.4%) (Table 1).

Mean age of menarche of the respondents was 12.45 years. Mothers were the major source of information (81.9%) regarding menstruation and menstrual hygiene (Table 2).

**Table 1: Socio-demographic Characteristics of Respondents**  
n=193

Socio-demographic Characteristics	Number (%)
<b>Completed age in years</b>	
<15	90 (46.6)
$\geq$ 15	103 (53.3)
Median (IQR)= 15.0(14-15) years Min age:10 year Max age: 16 years	
<b>Religion</b>	
Hindu	183 (94.8)
Non-Hindu <sup>o</sup>	10 (5.1)
<b>Caste</b>	
Brahmin/Chhetri	154 (79.8)
Janajati	39 (20.2)
<b>Grade</b>	
8 class	42 (21.8)
9 class	53 (27.5)
10 class	98 (50.8)
<b>Family type</b>	
Nuclear	133 (68.9)
Joint	60 (31.1)
<b>Mothers education</b>	
Illiterate	4 (2.1)
Basic	5 (2.6)
Secondary	155 (80.3)
Bachelor and above	29 (15.0)
<b>Father education</b>	
Basic	6 (3.1)
Secondary	108 (56.0)
Bachelor and above	79 (40.9)
<b>Mothers' occupation</b>	
Household work	148 (76.7)
Business	19 (9.8)
Service	21 (10.9)
Foreign employee	5 (2.6)
<b>Fathers' occupation</b>	
Agriculture	7 (3.6)
Business	76 (39.4)
Service	92 (47.7)
Foreign employee	18 (9.3)

**Table 2: Menstruation Related Information among Respondents**  
n=193

Variables	Number (%)
Mean age (SD) of menarche : 12.45 ( $\pm$ 1.05), min:10 years max:15 year	
<b>Sharing of menarche information with</b>	
Mothers	174 (90.2)
Sisters	14 (7.3)
Friends	5 (2.6)
<b>Sources of information regarding menstruation and hygiene</b>	
Self	7 (2.7)
Mothers	158 (81.9)
Relatives/friends	12 (6.2)
Course book	16 (8.3)

**Table 3: Knowledge on Menstruation among Respondents**

n=193

Knowledge Items	Correct Response Number (%)
Menstruation is a physiological process	183 (94.8)
Normal age for the menstruation is 10-14 years	183 (94.8)
Hormones are the causes of menstruation	176 (91.2)
The interval between 2 normal menstrual cycle is 28 days	152 (78.8)
The normal flow of blood is usually 5 to 7 days	9 (4.7)
Bleeding occurs from uterus during menstruation	34 (17.6)
Menstruation is usually ceased at the age of 45-55 years	162 (83.9)

Most of the respondents knew about menstruation as physiological process (94.8%), normal age of menstruation (94.8), and causes of menstruation as hormonal change (91.2%).

However, very few respondents had knowledge about normal blood flow as 5-7 days (4.7%), and organ from which bleeding occur in menstruation (17.8%) (Table 3).

**Table 4: Menstrual Hygiene Practices among Respondents**

n=193

Practice Items	Correct Response Number (%)
Genitalia is usually cleaned in every toilet visit	146 (75.6)
Plain water is used to clean the genitalia	174 (90.2)
Genitalia is cleaned properly	183 (94.8)
Sanitary pads is used during period	181 (93.8)
Pad is changed in every 4-6 hours in a day	156 (80.8)
Soap and water is used to wash hand after pad change	185 (95.9)
Sanitary pads is wrapped and disposed in dustbin	188 (97.4)
Daily bath is taken during period	124 (64.2)

Regarding practices, most of the respondents disposed the pads in dustbin after wrapping (97.4), used soap and water to wash hand after pad change (95.9%), cleaned genitalia properly (94.8%), and used sanitary pads during periods (93.8%). However, just more than half (64.2%) respondents took bath daily during period (Table 4).

enter into the kitchen during menstruation whereas 16.1% respondents said that they avoided certain foods like dairy products, banana etc during menstruation (Table 5). Regarding impact of menstruation, 27.5% of respondents reported that they missed school due to period. Likewise, 50.8% and 58.5% of the respondents respectively reported that they become unable to continue daily activities and play sports due to pain during menstruation (Not shown in table).

Most of the respondents (92.7%) did not participate in religious activities or visit temple and 74.6% respondents did not

**Table 5: Cultural Restrictions Practiced during Menstruation among Respondents**

n=193

Restrictions	Number (%)
Not entering into the kitchen to cook food	144 (74.6)
Eat food outside the kitchen	124 (64.2)
Not sleeping in usual bed during period	39 (20.2)
Not allowed to touch others during menstruation	51 (26.4)
Not participate in religious activities or visiting temple	179 (92.7)
Avoided certain foods (i.e dairy products, banana ect) during menstruation	31 (16.1)

**Table 6: Level of Knowledge on Menstruation and Menstrual Hygiene Practices among Respondents**

n=193

Variable	Number (%)
<b>Level of knowledge regarding menstruation</b>	
Adequate (median $\geq 5.0$ )	129 (66.8)
Inadequate (median $< 5.0$ )	64 (33.2)
<b>Level of menstrual hygiene practice</b>	
Good (median $\geq 6.0$ )	140 (72.5)
Poor (median $< 6.0$ )	53 (27.5)

Two third (66.8%) of the respondents had adequate level of knowledge on menstruation and 72.5% of respondents had

good level of menstrual hygiene practice (Table 6).

**Table 7: Association between Level of Menstrual Hygiene Practice and Selected Variables of Respondents**

n=193

Variables	Level of Practice		χ <sup>2</sup>	p-value
	Poor No.(%)	Good No.(%)		
<b>Age group in years</b>				
<15	33 (36.7)	57 (63.3)	7.174	0.007
≥15	20 (19.4)	83 (80.6)		
<b>Caste</b>				
Brahmin/Chhetri	42 (27.3)	112 (72.7)	0.014	0.907
Janajati	11 (28.2)	28 (71.8)		
<b>Religion</b>				
Hindu	51 (27.9)	132 (72.1)	0.32	0.858
Non Hindu	2 (20.0)	8(80.0)		
<b>Grade</b>				
Grade 8	17 (40.5)	25 (59.5)	12.480	0.002
Grade 9	20 (37.7)	33 (62.3)		
Grade 10	16 (16.3)	82 (83.7)		
<b>Educational status of mother</b>				
Illiterate	1 (25.0)	3 (75.0)		
Secondary	44 (27.5)	116 (72.5)	0.13	0.994
Bachelor and above	8 (27.6)	21 (72.4)		
<b>Fathers' occupation</b>				
Agriculture	3 (42.9)	4 (57.1)	8.373	0.016
Service	33 (35.9)	59 (64.1)		
Business and foreign employment	17 (18.1)	77 (81.9)		
<b>Mothers' occupation</b>				
Household work	40 (27.0)	108 (73.0)	0.062	0.969
Service	6 (28.6)	15 (71.4)		
Business and foreign employment	7 (29.2)	17 (70.8)		

Table 7 shows the significant association between levels of menstrual hygiene practice with age, and grade of respondent, and occupation of their father.

**Table 8: Relationship between Respondents' Knowledge on Menstruation and Menstrual Hygiene Practices**

Variable	r*	p
Knowledge score vs.practice score	186	0.010

\*Pearson correlation

Table 8 reveals the significant positive relationship between respondents knowledge on menstruation and menstrual hygiene practice (p<0.05).

**DISCUSSION**

Our finding revealed that two third of the adolescent girls had adequate knowledge on menstruation and three fourth adolescent girls had good menstrual hygiene practices. In addition, multiple cultural restrictions were followed upon by most of the adolescent girls studying in schools and the commonest re-

strictions was related to visiting religious places, and entering kitchen for cooking and eating.

Regarding knowledge, we found that almost all (91% to 94%) of the adolescent girls had knowledge on different aspects of menstruation such as menstruation as a physiological process, normal age of menarche, and causes of menstruation. Similar findings were reported by other studies<sup>2,8</sup> in which 83.3% and 83.0% of adolescent girls respectively reported menstruation is a physiological process. However, only 52.0% of the respondents knew that the cause for the menstruation is hormone.<sup>2</sup> Further, our study showed that 66.8% of adolescent girls had adequate knowledge on menstruation whereas 33.2% had inadequate level of knowledge. This is similar to the finding from Boakye-Yiadom and colleagues<sup>7</sup> from Ghana but in contrast to the finding of study done by Belayneh and Mekuriaw<sup>4</sup> where 68.3% of adolescent school girls had poor knowledge of menstruation. The possible explanation for this discrepancy might be study setting and instruments used in the studies.

Regarding practices, we found that majorities of the adolescent girls cleaned genitalia properly (94.8%), used plain water to clean genitalia (90.2%), used sanitary pads (93.4%), used soap

and water to wash hand after pad change (95.7%), disposed the used pads in dustbin after wrapping (97.4%), cleaned the external genitalia in every toilet visit (75.6%), changed their pads in every 4-6 hours (80.8%) and took bath daily (64.2%). This finding is almost similar to other studies<sup>2,8</sup> where majorities of respondents properly managed used pads during menstruation, took bath daily, used soap and water to wash hands after pad change and cleaned the genitalia after every toilet visit during menstruation. In contrast, studies<sup>2,7,8</sup> reported lower practices on sanitary pads use during menstruation, frequency of pads change and hand washing after pad change. This discrepancies might be due to different in geographical variations of the adolescent schools.

This study revealed that 72.5% of the adolescent girls had good practice on menstrual hygiene which is higher than the findings from the other studies.<sup>3,4,7,8</sup> This might be due to the difference in the study area. Almost all adolescent girls of our study were from urban areas where health information and communication related menstrual hygiene are easily accessible.

Our study revealed mother as the main source of information regarding menstruation and menstrual hygiene (81.9%) for the adolescent girls. Similar findings were also reported by other studies<sup>3,7,9</sup> in which mother was the main sources of information.

Socio-cultural restriction was prevalent in every adolescent girls. Restrictions was found in the area of entering in the kitchen, eating food in kitchen, participating in religious activities, sleeping in the usual own bed, taking all types of food, and touching anyone in family. This is inline with other similar studies.<sup>2,4,10</sup>

We also found that the level of menstrual hygiene practice was significantly associated with adolescent girl's age, and grade, and occupation of their fathers. Further, knowledge on menstruation and menstrual hygiene practices were positively correlated. This is supported by other studies in which age, and knowledge on menstruation were significantly associated with level of practice on menstrual hygiene.<sup>4,7</sup> Taklemariam (2014) also revealed the significant association between knowledge on menstruation and menstrual hygiene practice.<sup>11</sup>

## CONCLUSION

Menstruation and menstrual hygiene are important for the adolescent girls to maintain healthy life. One third of adolescent girls have inadequate knowledge on menstruation and one in four girls have poor practice on menstrual hygiene. Cultural restriction is also prevalent among the girls such as not entering into kitchen and not participating in religious activities. Further, adolescent girl's age, and grade, and occupation of their father are significantly associated with their menstrual hygiene practice. Knowledge on menstruation is positively correlated with the menstrual hygiene practice. Hence, there is need of awareness and advocacy programs for the adolescent girls to enhance their knowledge as well as for encouraging safe hygienic practices during menstruation. In our study, mothers are the main source of information regarding menstruation and menstrual hygiene, therefore proper education of mothers and adolescent girls is very important.

**CONFLICT OF INTEREST:** None

**FINANCIAL DISCLOSURE:** None

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