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Original Research Article

Menstrual hygiene practice between rural and urban high school adolescent girls in Bangladesh

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ABSTRACT

Background: Menstruation is a natural, normal biological process experienced by all adolescent girls and women. Urinary tract infection, reproductive tract infection and complication during pregnancy are the impact of poor menstrual hygiene practices. The aim of this study is to compare the menstrual hygiene practice between rural and urban high school adolescent girls in Bangladesh.

Methods: A descriptive comparative study design was used. Cluster sampling technique was used to select 120 study participants. The data were collected through self-reported questionnaire by structured questionnaires. In descriptive statistics; frequency, percentage, mean, standard deviation and in inferential statistics; chi-square-test, t-test was used to compare the menstrual hygiene practice between rural and urban. Data was analyzed using SPSS version 23.

Results: There was significant difference between rural and urban girls regarding mean age at menarche (5.50, $p = 0.000$). There was a statistically significant difference between rural and urban girls using of sanitary pad (30.54, $p = 0.000$) and reusable cloth (38.92, $p = 0.000$).

Conclusions: This study found that menstrual hygiene practice (MHP) was more among the urban high school adolescent girls than in the rural high school adolescent girls. The result provides baseline information regarding menstrual hygiene practice (MHP) among rural participants that's why need more emphasize on health promotion and counseling program regarding menstrual hygiene practice (MHP) among rural and primary level health sectors in Bangladesh.

Keywords: Adolescent girls, High school, Hygiene practice, Menstruation

INTRODUCTION

Menstruation is a natural and biological process experienced by all adolescent girls and women.¹ The onset of menstruation is one of the most important changes occurring in girls during adolescent years. In the developing countries average age of menarche 12-13 years and in urban areas menarche was 12.5 years and more earlier.² Hygienic practices during menstruation are the use of sanitary pads and adequate washing of genital

area.³ Good menstrual hygiene practices (MHP) are essential during menstruation; they include 1) regular change of clothing and underwear; 2) change of hygienic pads every three to four hours; 3) daily showering, 4) adequate washing of genitalia after each voiding of urine and feces.⁴

In Iran near half of the girls are unaware about menstruation and hygiene practice.⁵ In India, there are some 113 million adolescent girls who are vulnerable at the onset of menarche and face significant barriers to a

comfortable and dignified experience with MHP, 1 and one out of 164 girls used sanitary pads and 10 percent of girls are unaware about menstruation.⁶ In South Asia 1 out of 3 girls are vulnerable at MHP.⁵ In Bangladesh, ninety percent girls in the rural area used old cloths and stored their menstrual cloth in a hidden place.⁷

Reproductive and sexual ill health with its complications is the burden for women. Urinary tract infection, abdominal pain, scabies in the vaginal area, absence from school, and complication during pregnancy are the impact of poor MHP.^{8,9} Near half of the students are in the lower level of practice for the uncomfortable school environment.³ MHP is an important issue affecting the health, dignity, self-esteem and privacy of millions of adolescent girls and women across the globe. There was a huge gap exists in MHP between rural and urban adolescent girls.¹ In addition there was not found any comparative study between rural and urban MHP in Bangladesh.

Thus, the investigator would like to compare the MHP between urban and rural adolescent girls in Bangladesh. This study will serve an important purpose for contextualizing the current MHP of adolescent girls. The findings of the study will provide important information for the women's health nurse, school health nurse, and public health nurse to conduct a health education program in schools and community that can improve MHP of adolescent girls.

METHODS

The descriptive comparative study design was used. The study was carried out between July 2018 to June 2019. Syedpur Keramotia B. L. High School, Pargacha, Rangpur was selected for data collection among rural adolescent girls, and Barnamala Ideal School and College, Jatrabari, Dhaka was selected for data collection among urban adolescent girls. Cluster sampling technique was used to select study participants. Power analysis was used to estimate the number of the subject of the study.

The estimated sample size was calculated for an acceptable minimum level of significant alpha (α) of 0.05, an expected power of 0.80 1-beta ("1 β ", the power of the test), and an estimated population effect size of gamma 0.25 (γ) as the medium effect size used in the nursing studies. According to power analysis, the estimated sample size was 120. In addition, 12% attrition rate included to the estimated sample size. Adolescent girls who met the inclusion criteria, and present in the school during study period were recruited in the study.

Inclusion criteria

- Girls who were study in class eight to ten
- Those were physically and mentally fit.

Exclusion criteria

- Girls those were irregular menstrual cycle
- Girls those were married.

The investigator modified the questionnaire based on literature review in context of Bangladesh. Semi-structured and pre-validated questionnaire of Menstrual Hygiene Management were used.¹⁰ The instruments were constructed of two parts. Part I: Socio-demographic questionnaire: this part consisting of 13 items including age, religion, class of study, weight, height, mothers' educational level, fathers' educational level, family members, type of family, monthly family income, type of house, place of defecation, and source of drinking water. Part II: this part consisting of 13 items related to menstrual hygiene practice (MHP). The questionnaires were validated by panel of three experts of NIANER. The reliability of the instruments: Cronbach's Alpha was 0.47.

The study was approved by Institutional Review Board (IRB) of the National Institute of Advanced Nursing Education and Research (NIANER) and Bangabandhu Sheikh Mujib Medical University (BSMMU). IRB No: Exp.NIA-S-2018-13. Data collection was started after obtaining permission from the head teacher and class teacher of the school. The purpose of the study was explained to the participants, and written consent was obtained from them. Data was collected by structured self-reporting questionnaire. Questionnaire provided to them and they took about 30 minutes to complete the questionnaire.

Statistical analysis

Data were analyzed by using SPSS version 23. Descriptive and inferential statistics was used. In descriptive statistics; frequency, percentage, mean and standard deviation was used to describe the demographic characteristics, menstrual characteristics and menstrual hygiene practice of rural and urban. In inferential statistics; chi-square-test, t-test was used to compare the menstrual characteristics and MHP between rural and urban. A value of $p \leq 0.05$ was considered statistically significant.

RESULTS

The total subject consisted of 120 high school adolescent girls, 50% from rural and another 50% from urban participated in this study. The mean age of participants in rural school was 14.58 ± 0.94 and urban school was 14.08 ± 0.93 years.

The majority (87.5%) of rural participants' mothers' educations were primary and below and in urban majority (75%) of the mothers' education were secondary and above. The majority (91.7%) of rural participants' fathers' education were primary and below whereas in

urban majority (77.8%) were secondary and above. The Near about fifty percent (44.4%) of rural and more than fifty five percent (55.6%) of urban participants lived in nuclear family. The mean score of family income in rural was 11891.67±6735.36 BDT, whereas in urban is 43716.67±31286.0 BDT.

Among total participants, near about fifty percent (46.9%) of rural and more than fifty percent (53.1%) of urban participants used house toilet for defecation. The most (93.7%) of the rural girl's drunk tube well water whereas most (98.2%) of the urban girls drunk tap water (Table 1).

Table 1: Distribution of socio demographic characteristics of rural and urban participants (N = 120).

Items	Categories	Rural (n = 60)		Urban (n = 60)	
		n (%)	Mean±SD	n (%)	Mean±SD
Age			14.58±0.944		14.08±0.926
Religion	Islam	59 (50.0)		59 (50.0)	
	Hindu	1 (50.0)		1 (50.0)	
Class of study	Class eight	31 (60.8)		20 (39.2)	
	Class nine	10 (31.3)		22 (68.8)	
	Class ten	19 (51.4)		18 (48.6)	
BMI			17.60±2.9		18.79±3.03
Mothers' education	Primary and below	42 (87.5)		6 (12.5)	
	Secondary and above	18 (25)		54 (75)	
Fathers' education	Primary and below	44 (91.7)		4 (8.3)	
	Secondary and above	16 (22.2)		56 (77.8)	
Type of family	Nuclear family	44 (44.4)		55 (55.6)	
	Joint family	16 (76.2)		5 (23.8)	
Family members			4.68±1.097		5.00±1.974
Monthly income			11891.67±6735.36		43716.67±31286.04
Place of defecation	Open space	7 (100)		0	
	House toilet	53 (46.9)		60 (53.1)	
Drinking water	Tube well	59 (93.7)		4 (6.3)	
	Tap	1 (1.8)		56 (98.2)	

Table 2: Menstrual characteristics of rural and urban participants (N = 120).

Items	Categories	Rural(n=60)	Urban(n=60)	χ ^{2/t} (P)
		n %	n %	
Mean age at menarche		12.67±0.795	11.82±0.892	5.50 (0.000)
Regular interval	Yes	47 (49.5)	48 (50.5)	
	No	13 (52)	12 (48)	
Type of flow	Normal flow	37 (42.5)	50 (57.5)	7.06 (0.008)
	Abnormal flow	23 (69.7)	10 (30.3)	
Discomfort during menstruation (multiple response)	Pain in lower abdomen	44 (55.7)	35 (44.3)	
	Backache	12 (32.4)	25 (67.6)	8.33 (0.015)
	Weakness	9 (40.9)	13 (59.1)	
	Others discomfort		4 (100)	
Consult for menstrual problems	Parents	38 (47.5)	42 (52.5)	
	With others	15 (55.6)	12 (44.4)	
	Don't consult	7 (53.8)	6 (46.2)	

The mean age of menarche among rural girls was 12.67±0.795 years and urban girls were 11.82±0.892 years. There was significant difference between rural and urban regarding mean age of menarche (t = 5.50, p = 0.000). Seventy percent (69.7%) of rural girls and 30.3% of urban girls had abnormal flow of menstruation. There

was a significant difference between rural and urban participants about flow of menstruation (χ² = 7.06, p = 0.008). Near about seventy percent (67.6%) of urban girls and in rural only 32.4% of girls were feeling backache during menstruation. There was significant difference

between rural and urban regarding discomforts of backache ($\chi^2 = 8.33$, $p = 0.015$) (Table 2).

The majority (81.5%) of rural girls and only 18.5% of urban girls used reusable cloth. There was significant difference between rural and urban about use of reusable cloth ($\chi^2 = 38.92$, $p = 0.000$). The majority (72.1%) of urban girls and only twenty eight percent (27.9%) of rural girls used sanitary pad. There was significant difference between rural and urban about use of sanitary pad ($\chi^2 = 30.54$, $p = 0.000$). The majority (85.7%) of urban girls used tissue paper and only forty percent (14.3%) of rural girls used tissue paper. The participants in both groups

who were used reusable cloth; all of them washed cloth with water and soap. The majority (76.9%) of rural girls and 23.1% of urban girls dried reusable cloth in the open space under the sunlight. The majority (88.6%) of rural girls dispose absorbent in toilet and the majority (82.1%) of urban girls dispose absorbent in dustbin. Statistically significant difference between rural and urban disposal methods of sanitary absorbent ($\chi^2 = 62.64$, $p = 0.000$). The less than fifty percent (43.8%) of rural girls and more than fifty percent (56.2%) of urban girls change absorbent twice or thrice daily. There was significant difference between rural and urban frequency of change of absorbent ($\chi^2 = 5.26$, $p = 0.022$) (Table 3).

Table 3: Comparison of menstrual hygiene practices between rural and urban participants (N = 120).

Items	Categories	Rural (n = 60)	Urban (n = 6)	χ^2 (P)
		n (%)	n (%)	
Daily bath during menstruation	Yes	56 (50)	56 (50)	
	No	4 (50)	4 (50)	
Washing private parts daily	With water only	22 (52.4)	20 (47.6)	
	With water and soap	38 (48.7)	40 (51.3)	
Type of absorbent used (multiple response)	Reusable cloth	44 (81.5)	10 (18.5)	38.92 (0.000)
	Sanitary pad	19 (27.9)	49 (72.1)	30.54 (0.000)
	One-time cloth	5 (50)	5 (50)	
	Tissue paper	1 (14.3)	6 (85.7)	3.79 (0.051)
Washing reusable cloth	Wash with water and soap both	44 (81.5)	10 (18.5)	38.92 (0.000)
Drying reusable cloth	At home in dark space	34 (82.9)	7 (17.1)	
	In the open space under the sunlight	10 (76.9)	3 (23.1)	
Disposal methods of sanitary absorbent	Dustbin	12 (17.9)	55 (82.1)	62.64 (0.000)
	Toilet	31 (88.6)	4 (11.4)	
	Others	17 (94.4)	1 (5.6)	
Frequency of change of absorbent	Twice or thrice daily	39 (43.8)	50 (56.2)	5.26 (0.022)
	Once a day	21 (67.7)	10 (32.3)	

DISCUSSION

In this study mean age of participants were 14.58 ± 0.944 years among rural and 14.08 ± 0.926 years among urban girls. Similarly, previous studies found that participants were adolescent groups.^{1,11,12} In this study the majority of the rural participants' mothers had primary level education and in urban more than fifty percent had secondary level education. In consistently previous study found that more than fifty percent of the participants mothers were illiterate in rural and near about fifty percent among urban were secondary level education.¹³ Another study found that more than fifty percent girls' mothers were illiterate in rural and in urban majority were literate.¹⁴

The previous study found that whose mother had higher level of education they had higher level of hygiene practice.³

The majority of girls in rural and most of the girls in urban lived in nuclear family. In contrast previous study found that more than fifty percent in both groups lived in joint family.¹³ The mean of family members were 4.68 ± 1.09 in rural and 5.0 ± 1.97 in urban. Previous studies found that the mean of family members in rural were 7.44 and in urban were 7.38.^{13,10} The present study found that the mean age of menarche in rural participants were 12.67 ± 0.795 years, and in urban participants were 11.82 ± 0.892 years. Similarly, another study found that mean age of menarche was 11.9 ± 0.9 years.¹⁵ In Belgaum the mean age of menarche was 12.8 ± 1.73 and South Africa was 13 years.^{16,17}

In present study, found that the majority of girls in both groups were regular interval in menstruation. Consistently another study found that participants had regular interval of menstruation.¹ In this study the majority of girls had dysmenorrhea among rural and

urban participants respectively. One study found similar result among Bangladeshi rural girls about experienced of dysmenorrhea.⁸ In present study parents were the main source of information, and consultation about menstruation among both rural and urban girls. Participants specified that especially mothers were the main source of information. Several studies found that the similar results.^{1,11,13,14,18}

In present study found that most of the participants took daily bath during menstruation in both groups. Previous studies found the similar results.^{10,13} More than fifty percent of rural and urban girls wash their private parts with water and soap both. The Similarly previous study found that the girls washed their private parts with water and soap both.¹³ In contrast previous study found that majority of the girls wash with water and only twenty seven percent girls wash their private parts with water and soap both.¹⁰ Several studies found that the poor cleaning of private parts, irregular bathing, and poor washing reusable cloth among girls were the cause of lack of separate toilet facilities in the home and school.^{12,19}

This study found that the majority of the rural girls used reusable cloth and only few percent used sanitary pad, and in urban majority of the girls used sanitary pad and only few percent of the girls used reusable cloth. Several studies found the similar result that majority of the urban girls used sanitary pad and only few percent of rural girls used sanitary pad.^{1,11-13,18} The previous study found that there were relationship between use of sanitary pad and age, monthly income, and higher mothers education of participants.¹⁶ High costs of sanitary pads were the cause of using reused cloth among rural girls.¹⁹

The participants who used reusable cloth; all of them wash cloth with water and soap both. Consistently previous study found that the majority of participants wash reusable cloth with water and soap both.¹⁴ Another study found different result that only few percent in rural and more than fifty percent of urban girls wash reusable cloth with water and soap both.¹⁸ Majority of rural girls dried their reused cloth at home in dark space that was similarly to the study.¹¹ Only few percent in both group dried cloth under sunlight. Another study found different result that thirty three percent in rural and near fifty percent among urban girls drying reusable cloth under sunlight.¹³

In present study, more than fifty percent of rural girls dispose their sanitary absorbent mostly in toilet and in urban near hundred percent dispose in dustbin. Majority in both groups dispose their pads in dustbin.¹ More than fifty percent rural girls and most of the urban girls change their absorbent twice or thrice daily. Another study found that less than fifty percent girls change absorbent once daily.^{12,14} In contrast with the another study found that the school environment including water, soap, disposal, security and privacy were the factors of frequency of

changing pad.^{3,19} The results of present study comparable with others study that urban girls use of sanitary pad and good hygienic practices than rural girls were the reason of good washing and toilet facilities at home and school, mothers higher level of education and higher family income.^{3,12,19}

CONCLUSION

This study found that menstrual hygiene practice (MHP) was more among the urban high school adolescent girls than in the rural high school adolescent girls. Significantly a greater number of girls in the urban school was using sanitary pads than the rural school girls. Mothers had been a main source of information and consultation among both groups. Unsatisfactory hygienic practices among rural girls depend on education status of mother, socio economic status, standard of living, toilet facility and water source at home and school and various other factors. The results of this study will be helpful for women's health nursing, and others health care provider to provide more emphasize on health promotion and counselling program regarding menstrual hygiene practice among rural high school adolescent girls in Bangladesh.

Recommendations

This study recommended that menstrual hygiene, health and sex education program could be conducted at rural schools and also at primary care level among adolescent girls in Bangladesh. Government and NGOs need to focus activities related to dissemination of low-cost sanitary napkin among rural girls. Health education program will be conducted for mothers to increase awareness among mothers through health personnel. Furthermore, intervention research could be developed from these findings. Further study could be conducted to find the relationship between discomforts of backache and regularity of menstruation among urban girls in Bangladesh.

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