

# Sociodemographic factors and their association with menstrual hygiene practices among adolescent girls in Urban slums of Dibrugarh town, Assam

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## ABSTRACT

**Introduction:** For good physical and mental health in adolescent girls, menstrual hygiene practices play an important role. Adolescent girls are incredibly susceptible to various physical and mental issues during this period, and sociodemographic factors play a crucial function in menstrual hygiene practices; thus, it is very critical to preserve good menstrual hygiene practices. **Aim and Objectives:** 1) to assess the knowledge and menstrual hygiene practices among adolescent girls and 2) to assess the sociodemographic factors influencing knowledge and menstrual hygiene practices. **Materials and Methods:** A cross-sectional study was conducted in July–September 2019 among 150 adolescent girls. A predesigned, pretested questionnaire was used in the study. Descriptive statistics were applied in data analysis, and multivariate analysis was applied to find out the association. **Results:** Out of 150 adolescent girls, 78% belong to the Hindu religion and 76.7% are of nuclear family. In total, 28.7% mothers of adolescent girls are illiterate, and most of the adolescent girls (50%) belong to the 14–16-years age group; 38.7% adolescent girls belong to class V socioeconomic status. Multivariate analysis shows that Muslim religion has a significant association with knowledge regarding menstrual hygiene practices (OR: 2.846,  $P < 0.05$ ) and sanitary disposal of absorbent by adolescent girls (OR: 2.528,  $P < 0.05$ ). There is a significant association between joint family (type of family) and absorbent used by adolescent girls (OR: 0.253,  $P < 0.05$ ). **Conclusion:** It is usually essential to enhance information and practices of good menstrual hygiene among adolescent girls so that they can lead a healthy productive life. Improvement of mothers' knowledge is also a major area to be focused on.

**Keywords:** Adolescent girls, menstrual hygiene, sociodemographic factors

## Introduction

In between formative years and adulthood, adolescence (from Latin word “adolescere” meaning “to grow up”) is a transitional segment of growth and development. Any individual aged between 10 and 19 years is described as an adolescent, consistent with World Health Organization (WHO).<sup>[1]</sup>

Menarche, the first menstruation of a girl occurs at the age of 12–13 years; it can arise as early as 10 years or as late as 16 years. In India, the age of menarche is 10–16 years (average age: 13.5 years). Globally, approximately 52% of the female population is of reproductive age group and for adolescent girls, menstrual hygiene is a vital part of basic hygienic practices.<sup>[2]</sup>

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It is very essential to manage menstrual bleeding effectively and maintenance of proper menstrual hygiene, which if not treated accurately can cause infections of the urinary tract, pelvic inflammatory diseases, vaginal thrush, in addition to terrible odor,

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dirty clothes, and, in the long run, shame, leading to infringement of the girl's dignity.<sup>[3]</sup>

During menstrual cycles, the use of sanitary pads or clean and soft absorbents, adequate washing of the genital area, proper disposal of used absorbents, and other special healthcare needs of women are vital necessities for retaining menstrual hygiene.<sup>[4]</sup>

Distress, reproductive tract infection, genitourinary tract infections, smelling, guiltiness, cervical cancer, poor academic performance, and dropping out of school are the predominant problems faced if the menstrual period is not properly handled and secure hygiene is not practiced among adolescent girls.<sup>[5-7]</sup>

Poor menstrual practice is associated with many other complications, such as premature births, stillbirths, miscarriages, infertility problems, and carcinoma of the cervix.<sup>[8]</sup>

There are numerous issues regarding poor menstrual hygiene practices among adolescent girls in our society, and the realistic predominant demanding situations of menstrual hygiene exercise are made even more difficult by sociocultural elements and millions of girls continue to be denied their right to have sufficient information about menstrual hygiene, water and sanitary health, education, dignity, and gender equity. This may result in incorrect and unhealthy behavior during their menstrual period.<sup>[9,10]</sup>

Various myths and taboos are associated with menstruation in society, which prevents girls from getting proper knowledge and practices of menstrual hygiene management. In urban areas, various issues such as lack of time given by parents, lack of knowledge among mothers regarding good menstrual hygiene practices, and hesitation of instructors concerning menstrual hygiene teaching in schools are some critical elements for incomplete knowledge regarding menstruation among adolescent girls.

Numerous studies performed in various parts of the world and these shows that Socio-demographic elements such as kind of family, the mother's education, religion, and socioeconomic status play a critical role in menstrual hygiene practices among adolescent girls. Our study mainly focuses on the factors of menstrual hygiene practices in our settings. We conducted our study on menstrual hygiene practices among adolescent girls mainly to find out sociodemographic factors that influence menstrual hygiene practices in urban slum areas to assess the knowledge and menstrual hygiene practices among adolescent girls and to assess the sociodemographic factors influencing knowledge and menstrual hygiene practices.

## Material and Methods

A community-based cross-sectional study was conducted among 150 adolescent girls in the age group of 10–19 years in the urban slums of Dibrugarh town near Assam Medical

College, Dibrugarh. Using the sanitary pad use prevalence rate of 43.4% during menstruation from previous studies among late-adolescent girls,<sup>[11]</sup> the sample size was determined using a standard formula:  $Z^2 pq/d^2$  with a relative precision of 20% (d). The minimum sample size applying the above formula was found to be 130. However, to accommodate the refusals or non-response, a sample size of 150 adolescent girls was selected.

The study was conducted in July–September 2019 using a predesigned, pretested questionnaire, which included demographic information like the type of family, religion, parent's education, occupation, and water facility. Personal information was also documented, including chronological age, age at menarche, menstrual pattern, awareness before menarche, and source of information about menstruation. To assess the knowledge about menstruation, questions on awareness and physiology of menstruation were also documented. Questions like the use of sanitary pads, number of pads used per day, sanitary disposal of absorbent, and maintaining genital hygiene during menstruation were documented to assess the menstrual practice. House-to-house visit was done to collect the required data by interview method among the adolescent girls. Approval from Institutional ethics committee was obtained on 20/05/2019 and it was mentioned on the article.

## Statistical analysis

Data was entered in SPSS 25 (trial version) package and analyzed. Multivariate analysis was applied to assess the association between the sociodemographic profile and menstrual hygiene practices.

## Ethical approval

Ethical approval was obtained from the Institutional Ethics Committee of Assam Medical College and Hospital before commencing the study.

## Results

Out of 150 adolescent girls, 78% belong to the Hindu religion and 76.7% belong to nuclear families; 28.7% mothers of adolescent girls are illiterate, whereas 71.3% are literate. Most of the adolescent girls (50%) belong to the 14–16 years age group. Most of them (38.7%) belong to class V socioeconomic status, whereas 25.3% belong to class IV and III socioeconomic status [Table 1].

Multivariate analysis shows that Muslim religion has a significant association with knowledge regarding menstrual hygiene practices (OR: 2.846,  $P < 0.05$ ) whereas the type of family, education of mother, and socioeconomic status have no significant association with knowledge regarding menstrual hygiene practice [Table 2].

Among the adolescent girls, analysis was done to find out the association between sociodemographic profile and absorbent

used, and it was found that there is a significant association between joint family (type of family) and absorbent used by adolescent girls (OR: 0.253,  $P < 0.05$ ) [Table 3].

Analysis was done to find out the association between sociodemographic profile and sanitary disposal of absorbent among adolescent girls, and it shows that Muslim religion has a significant association with sanitary disposal of absorbent by adolescent girls (OR: 2.528,  $P < 0.05$ ) [Table 4].

### Discussion

This study was conducted among adolescent girls to assess their sociodemographic characteristics and their association with their menstrual hygiene practices.

In our study, out of 150 adolescent girls, 78% belong to the Hindu religion and 76.7% belong to nuclear families; 28.7% mothers

of adolescent girls are illiterate, whereas 71.3% are literate. Most of the adolescent girls (50%) belong to the 14–16 years age group. Most of them (38.7%) belong to class V socioeconomic status, whereas 25.3% belong to class IV and III socioeconomic status [Table 1].

In our study, it was shown that Muslim religion has a significant association with knowledge regarding menstrual hygiene practices (OR: 2.846,  $P < 0.05$ ), whereas the type of family, education of mother, and socioeconomic status have no significant association with knowledge regarding menstrual hygiene practice [Table 2].

Absar Ahmad *et al.*<sup>[12]</sup>, in their study on knowledge and practices associated with menstruation among Lucknow college students in north India in 2020, found that students whose fathers were graduates had significantly lower knowledge of menstruation than students whose fathers were school-educated (AOR 0.634, 95% CI: 0.426–0.944). Similarly, students whose fathers' occupations were "Other" had lower knowledge of menstruation than students whose fathers were farmers (AOR 0.671, 95% CI: 0.466–0.967). Students whose monthly family income was 50–100 thousand were more knowledgeable about menstruation than those whose monthly income was less than 25 thousand (AOR 1.804, 95% CI: 1.067–3.049). Students living in a joint family were more knowledgeable than those living in a nuclear family (AOR 0.765 95% CI: 0.600–0.975).

Yohannes Habtegiorgis *et al.*<sup>[13]</sup> performed a study on menstrual hygiene practices among high-school girls in Northeastern Ethiopia in 2020 and have found that during multivariable analysis, maternal education, age, knowledge, and discussing menstrual hygiene with friends were significantly associated with good menstrual hygiene practices. Girls 16–19 years old

**Table 1: Sociodemographic profile of adolescent girls**

Variable		Frequency	Percentage (n=150)
Religion	Hindu	117	78
	Muslim	33	22
Type of family	Nuclear	115	76.7
	Joint	35	23.3
Education of mother	Illiterate	43	28.7
	Literate	107	71.3
Age of participants	10-13 years	22	14.7
	14-16 years	75	50
	17-19 years	53	35.3
Socioeconomic status	Class II	16	10.7
	Class III	38	25.3
	Class IV	38	25.3
	Class V	58	38.7

**Table 2: Multivariate analysis about knowledge of menstrual hygiene practices and sociodemographic profile**

Sociodemographic profile	Knowledge regarding menstrual hygiene practice (n=150)		Odds ratio (95% CI)	P
	Yes	No		
Religion				$P < 0.05$
Hindu	65	52	1	
Muslim	9	24	2.846 (1.153-7.024)	
Type of family				$P > 0.05$
Nuclear	57	58	1	
Joint	17	18	0.886 (0.386-2.036)	
Education of mother				$P > 0.05$
Illiterate	13	30	1	
Literate	61	46	0.450 (0.196-1.038)	
Age of participants				$P > 0.05$
10-13 years	12	10	1	
14-16 years	37	38	0.848 (0.216-1.828)	
17-19 years	25	28	1.107 (0.836-4.214)	
Socioeconomic status				$P > 0.05$
Class II	9	7	0.548 (0.216-1.538)	
Class III	21	17	0.582 (0.304-1.678)	
Class IV	21	17	0.549 (0.226-1.486)	
Class V	23	35	1	

**Table 3: Multivariate analysis about absorbent used and sociodemographic profile**

Sociodemographic profile	Absorbent used (n=150)		Odds ratio (95% CI)	P
	Yes	No		
Religion				
Hindu	88	29	1	P>0.05
Muslim	27	6	0.533 (0.178-1.595)	
Type of family				
Nuclear	84	31	1	P<0.05
Joint	31	4	0.253 (0.079-0.817)	
Education of mother				
Illiterate	29	14	1	P>0.05
Literate	86	21	0.611 (0.242-1.540)	
Age of participants				
10-13 years	17	5	1	P>0.05
14-16 years	56	19	0.464 (0.203-1.228)	
17-19 years	42	11	0.528 (0.138-1.424)	
Socioeconomic status				
Class II	15	1	0.136 (0.064-0.648)	P>0.05
Class III	33	5	0.313 (0.086-0.956)	
Class IV	26	12	1.071 (0.436-2.226)	
Class V	41	17	1	

**Table 4: Multivariate analysis about sanitary disposal of absorbent and sociodemographic profile**

Sociodemographic profile	Sanitary disposal of Absorbent (n=150)		Odds ratio (95% CI)	P
	Yes	No		
Religion				
Hindu	68	49	1	P<0.05
Muslim	11	22	2.528 (1.075-5.945)	
Type of family				
Nuclear	61	54	1	P>0.05
Joint	18	17	0.999 (0.445-2.244)	
Education of mother				
Illiterate	18	25	1	P>0.05
Literate	61	46	0.711 (0.318-1.589)	
Age of participants				
10-13 years	13	9	1	P>0.05
14-16 years	37	38	1.513 (0.956-3.124)	
17-19 years	29	24	1.315 (0.768-2.876)	
Socioeconomic status				
Class II	10	6	0.637 (0.094-1.212)	P>0.05
Class III	21	17	0.871 (0.128-1.646)	
Class IV	19	19	1.109 (0.448-3.286)	
Class V	29	29	1	

were 1.9 times more likely to have good menstrual hygiene practices than girls in the 13–15-years age group (AOR = 1.93, 95% CI: 1.22–3.06). Mothers of high-school girls who had primary, secondary, or college education were 3.72, 8.54, and 6.78 times more likely to have good menstrual hygiene practices (AOR = 3.72, 95% CI: 1.81–7.63; AOR = 8.54, 95% CI: 4.18–17.44; AOR = 6.78, 95% CI: 3.28–14.02, respectively).

Shamsudeen Mohammed *et al.*<sup>[14]</sup> conducted a study on menstrual hygiene management in Ghana in 2020 among adolescent boys and girls and found that adolescents in their late age group were less likely to have poor menstrual knowledge compared to those aged 10–14 years (aOR 0.20, 95% CI: 0.08–0.48). Maternal education was found to be protective against poor menstrual knowledge. Adolescents whose mothers had basic education (aOR 0.62, 95% CI: 0.28–1.40) and those whose mothers had secondary or higher education (AOR 0.22, 95% CI: 0.06–0.76) were less likely to have poor knowledge about menstruation.

Shekhar Chauhan *et al.*<sup>[15]</sup>, in their study in U.P and Bihar (India), found that the use of sanitary napkins was 3.85 times higher among late-adolescent girls than early adolescents (OR: 3.85; CI: 3.06–4.86). The chance of sanitary napkin use was 1.48, 3.12, and 6.65 times higher among girls with 1–7 (OR: 1.48; CI: 1.25–1.76), 8–9 (OR: 3.12; CI: 2.57–3.78), and 10 or more (OR: 6.65; CI: 5.19–8.51) years of schooling compared to adolescents with no education. Those mothers who had 10 or more years of schooling (OR = 2.29) had a higher propensity to use sanitary napkins than their counterparts.

Zelalem Belayneh *et al.*<sup>[5]</sup>, in their study in 2019 on menstrual hygiene practices among adolescent girls in Southern Ethiopia, found that poor menstrual hygiene practice had a statistically significant association with lower age of girls, longer duration of menses flow, and poor knowledge toward menstruation.

Haile Anchebi *et al.*<sup>[16]</sup>, in their study on the practice of menstrual hygiene and associated factors among female high-school students in Adama town in 2016, mentioned that 57% of adolescent girls had good menstrual hygiene practice. Mothers' education [AOR = 0.608; 95% CI = 0.374–0.990], was significantly associated with the level of knowledge about menstrual hygienic practice among adolescent girls.

Shivaleela P. Upashe *et al.*<sup>[17]</sup>, in their study on assessment of knowledge and practice of menstrual hygiene among high-school girls in Western Ethiopia, found that 504 (60.9%) and 330 (39.9%) high-school girls had good knowledge and practice of menstrual hygiene, respectively. There was an association between good knowledge of menstruation and the educational status of mothers (AOR = 1.51, 95% CI = 1.02–2.22), which is statistically significant.

Among the adolescent girls, multivariate analysis was done to find out the association between sociodemographic profile and absorbent used and it was found that there is a significant association between joint family (type of family) and absorbent used by adolescent girls (OR: 0.253, P < 0.05). However, there is no such significant association between religion, education of mother, and socioeconomic status with absorbent used by adolescent girls [Table 3].

Chet Kant Bhusal *et al.*<sup>[18]</sup>, in their study among adolescent school girls in the Dang district, Nepal in 2020, found

that a total of 272 (67.0%) adolescent girls have good menstrual hygiene practices. Mothers and fathers with good educational background (adjusted odds ratio = 0.52, CI: 0.30–0.89 and AOR 2.55, CI: 1.26–5.15, respectively), family size of  $\geq 5$  (AOR = 0.61, CI: 0.37–0.98), and staying with relatives (AOR = 0.45, CI: 0.24–0.85) were significantly associated with good menstrual hygiene practice.

Absar Ahmad *et al.*<sup>[12]</sup>, in their study in Lucknow, North India in 2020, found that religion, mother occupation, and family type were associated with good hygiene practice of menstruation among students. Students of other religions (Sikhism and Christianity) were 88% less likely to had good menstrual hygiene practices than Hindu students (AOR = 0.11, 95% CI: 0.048–0.273). Students belonging to nuclear families were 34% less likely to have good menstrual hygiene practices than students from joint families (AOR = 0.659, 95% CI: 0.508–0.855).

Avinash Surana *et al.*<sup>[19]</sup>, in their study in 2019 among school-going girls in a rural area of southern Haryana, India, mentioned that the education of the mother and the family's socioeconomic status showed a trend with poor menstrual hygiene practices. Adolescent girls with illiterate mothers and lower SES class families had 3.1 and 9 times more odds of poor menstrual hygiene practice, respectively, than mothers having higher education and upper SES class family (aOR: 3.13, 95% CI: 1.71–5.7,  $P = 0.031$ , and aOR: 9.00, 95% CI: 2.27–35.64,  $P = 0.000$ ), respectively.

Nikita Sharma *et al.*<sup>[20]</sup> in their study among school-going adolescent girls of Jaipur city in 2019 mentioned that there was a statistically significant association between different types of absorbent used by adolescent girls and their socioeconomic status and education of mothers.

Abhijit V Boratne *et al.*<sup>[21]</sup> in their study on sociodemographic aspects of selected menstrual hygienic practices among adolescent school girls in Pondicherry found that the use of sanitary pads is not associated with the mother's education status and their occupation as well as caste and religion. There was not much difference between forward caste and backward caste girls regarding the use of pads during menstruation (OR: 1.12; 95% CI: 0.30–3.77). The girls belonging to APL families were more likely to use sanitary pads during menses as compared to girls belonging to below-poverty-line families (OR: 0.86; 95% CI: 0.41–1.84).

Multivariate analysis was conducted to find out the association between sociodemographic profile and sanitary disposal of absorbent among adolescent girls, and it shows that Muslim religion has a significant association with sanitary disposal of absorbent by adolescent girls (OR: 2.528,  $P < 0.05$ ), whereas there is no such significant association between type of family, education of mother, and socioeconomic status of adolescent girls with sanitary disposal of absorbent [Table 4].

Usha Ram *et al.*<sup>[22]</sup> in their study on factors associated with disposable menstrual absorbent use in 2020 in India observed

that the ones from scheduled castes, scheduled tribes, and other backward classes had decreased odds of specific disposable absorbent use (odds ratios: 0.8–0.9) compared with women from general castes. Disposable absorbent use was negatively associated with lower levels of education and household wealth.

### Implications for primary care physicians

Good menstrual hygiene practices among adolescent girls can prevent many diseases such as reproductive tract infection, genitourinary tract infection, and distress. For maintaining good hygiene practices, sociodemographic factors such as maternal education, socioeconomic status, family, and religion play a vital position in our society. So, it is the responsibility of primary care physicians who always deal with the health problems of adolescent girls to sensitize them concerning good menstrual hygiene practices and to create focus among them and their mothers so that they can overcome the hurdles of their own circle of relatives and live a higher healthful existence.

### Conclusion and Summary

The present study has highlighted the position of sociodemographic factors in retaining good menstrual hygiene practices as religion and type of family play a great role in our observation. So, it is vital to educate adolescent girls about good menstrual hygiene practices so that they can keep a healthy lifestyle and move for a better future, starting from the family and also from primary school levels. It is likewise essential to create focus among mothers concerning good menstrual hygiene practices. Therefore, menstrual hygiene practices must be integrated into routine health education and health promotion programs and policies to provide essential information to adolescents as well as mothers.

### Key messages

Sociodemographic factors always play an important role in maintaining good menstrual hygiene practices among adolescent girls. Proper education and knowledge regarding good hygiene practices are always essential both for adolescent girls and for their mothers.

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### Conflicts of interest

There are no conflicts of interest.

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