

Original Research Article

Perception and practices on menstrual hygiene among urban adolescent girls: a cross-sectional study

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ABSTRACT

Background: Adolescence is a period of transition from childhood to adulthood. It is a unique stage of human development and an important time for laying the foundation. The World Health Organization defines adolescents as "young people between the ages of 10 and 19 years, a transition period from childhood to adult life". This study aimed to assess the perception of menstrual hygiene among adolescent girls. To find out the prevailing practices of menstrual hygiene among adolescent girls in the field practice area of UHTC, VIMSAR, Burla. To assess other factors associated with menstrual hygiene practices.

Methods: This study was conducted as a community-based cross-sectional study. This study was conducted from September 2022 to July 2024. The study was designed and planned in the Department of Community Medicine, VIMSAR, Burla, Sambalpur, Odisha, India. VIMSAR is one of the oldest Medical Colleges in the state of Odisha.

Results: Mean age of menarche was 12.5 ± 1.22 years. Around 33% were aware of menstruation before menarche, and mothers were the main source of information. Around 58% were aware of the subsidy on sanitary napkins. All of the participants used sanitary napkins. Around 60% girls changed menstrual materials 4-6 hourly. The majority of the participant were disposing of their materials by burning or burying, or throwing in a dustbin. Good menstrual hygiene management was followed by only 27.7% of the participants.

Conclusions: Even though sanitary pad users were high, unhygienic practices were noticed, so more emphasis needs to be given on awareness of menstrual hygiene practices among adolescent girls.

Keywords: Adolescent health, Menarche, Menstrual hygiene, Menstrual perception, Sanitary napkin

INTRODUCTION

Adolescence is a period of transition from childhood to adulthood. The World Health Organization defines adolescents as "people between the ages of 10 and 19 years".¹ For a girl, adolescence is a period of rapid transition to womanhood, which starts with the onset of menarche, a milestone that denotes the beginning of her reproductive capacity.²

Menstrual hygiene management is defined as "Women and adolescent girls using a clean menstrual hygiene management material to absorb or collect menstrual blood, that can be changed in privacy as often as necessary for the duration of a menstrual period, using soap and water for washing the body as required and having access to facilities to dispose of menstrual management material" according to WHO and UNICEF Joint Monitoring Programme (JMP).³

According to NFHS-5, 91.7% of women in the age group 15-24 years in urban areas of Odisha use hygiene methods of protection for menstrual hygiene compared to 79.5% of women in rural areas.⁴

Adolescent girls have little or no knowledge regarding menstruation before menarche. Social prohibitions and negative attitudes of parents in discussing menstruation-related issues openly have blocked the access of adolescent girls to the right kind of information. Discrimination in society, cultural taboos, and lack of basic knowledge and services often cause menstrual hygiene and health needs to go unmet for a girl.

Even though menstruation is a physiological process and many initiatives like Menstrual hygiene Scheme, RMNCAH+N, etc, were there to address menstrual hygiene by our government, a major section of adolescent girls has knowledge gaps and pessimistic perceptions towards menstrual hygiene in our society.

Hence, this study was conducted in the field practice area of VIMSAR, Burla, to know about the prevailing perceptions and practices among adolescent girls, as there is a paucity of data in our area.

METHODS

The community-based cross-sectional study was conducted in the field practice area of Urban Health Training Centre (UHTC), VIMSAR, Burla, from September 2022 to July 2024.

Study population

The study comprised adolescent girls who were registered in all AWCs in the field practice area of Urban Health Training Centre (UHTC), Burla.

Inclusion criteria

All adolescent girls aged 10-19 years who have given consent will be interviewed.

Exclusion criteria

Physically and mentally handicapped adolescent girls, girls with serious illnesses or genetic disorders, and girls who have not attained menarche.

Sampling method

A simple random sampling method was used to select the study sample. A list of all the adolescent girls (1095) was collected from updated MSPY (THR) registers present at 27AWCs functioning under U.H.T.C VIMSAR, Burla. A master list containing the total registered adolescent girls was prepared and coded as the sampling frame. Study samples were selected from the sampling frame randomly using a random number table.

Sample size

The sample size is calculated based on the prevalence of use of sanitary napkins in urban slums, i.e., 60% as per the study by Thakre et al.⁵ Considering a confidence interval of 95%, absolute precision of 6% with 10% excess sampling to account for non-response. Sample size is calculated using the formula:

$$N = Z(1-\alpha)^2 pq/d^2$$

$$N = 1.96 * 60*40/ 62 = 256$$

Allowing a 10% non-response rate, the sample size comes to around 283. This can be rounded up to 300.

Data collection

The data was collected from those who satisfied the inclusion criteria and had given consent. If they were not in their house during the first visit, a subsequent visit was made, and the data was collected. The selected study participants who were not available during three consecutive visits were excluded from the study.

The data collection was done using a pre-designed, pre-tested, and structured questionnaire in the local language by the interview method. The questions were put forward pertaining to the socio-demographic profile, age of menarche, knowledge about menstruation, perception, and cultural restrictions and practices of menstrual hygiene among the study participants during menstruation. A short talk regarding menstrual health education and proper menstrual hygiene practices was given after collecting data.

Menstrual hygiene management (MHM) practices were assessed using five parameters based on the WHO/UNICEF Joint Monitoring Programme (JMP) definition: type of absorbent material used (satisfactory: disposable sanitary napkins; unsatisfactory: other materials), method of disposal (satisfactory or unsatisfactory), frequency of changing absorbents (satisfactory: ≥ 3 times/day; unsatisfactory: < 3 times/day), washing of genitalia with soap and water (satisfactory or unsatisfactory), and availability of a private place for changing menstrual materials (Yes/No).

Each of the parameters was dichotomized into satisfactory (1 point) and unsatisfactory (0 point) or Yes (1 point) or No (0 Point). The score ranges from 0 - 5; the Higher the score better the menstrual hygiene practice. Good MHM should be satisfactory in all five parameters, and poor MHM was considered when the score was ≤ 4 .

Data analysis

The collected data was entered into Microsoft Excel. This data was exported to Jamovi version. 2.3.28 for analysis. Descriptive statistics (mean, standard deviations, and

range) were employed to describe continuous variables, while frequency distributions were obtained for categorical variables. Association of socio-demographic details with MHM practices was done using chi-square tests and Fisher's exact test. A p value of less than or equal to 0.05 had been considered.

RESULTS

A total of 300 adolescent girls in the age group of 10-19 years were interviewed for the study. The mean age of participants was 16.0 ± 2.18 years. The mean age of menarche among participants was 12.5 ± 1.22 years. All the participants were literate, with 54.6% studying in secondary school. Most of the participants had a nuclear family (63%). The majority of the adolescent girls belonged to the middle class (39%) and lower middle class (37%). Only 36.6% of the mothers of the adolescent girls have studied beyond matriculation. Similarly, 43.3% of the heads of the family have studied beyond class 10th. Almost all (98%) had a toilet at home and in educational institutions.

Table 1: Knowledge on menstruation (n=300).

Variables		Frequency (%)
Aware of menstruation before menarche	Yes	100 (33.3)
	No	200 (66.7)
Source of information	Mother	188 (62.7)
	Sister	45 (15)
	Relative/friends	49 (16.3)
	Others	18 (6)
Menstrual blood arises from	Uterus or vagina	164 (54.7)
	Others (bladder, stomach)	63 (21)
	Don't know	73 (24.3)
Ideal menstrual material	Sanitary napkins	275 (91.7)
	Don't know	25 (8.3)

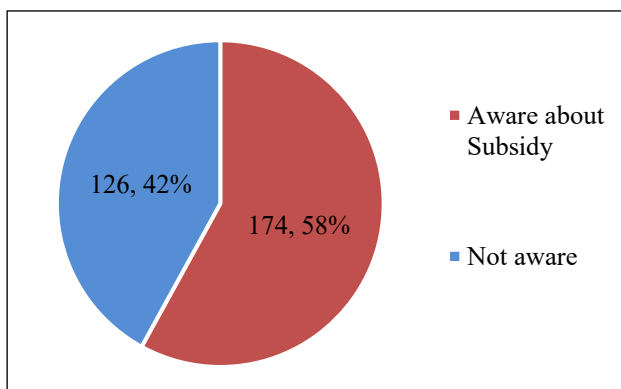


Figure 1: Awareness of subsidy on sanitary napkins.

Only 33.3% of the girls were aware of menstruation before menarche. The majority of girls' source of

information regarding menstruation was their mothers (62.7%). Only 6% got the information from either teachers, AWWs, ANMs, or ASHAs. Almost 91.7% knew that disposable sanitary napkins were used as an ideal menstrual material. Only 58% of the adolescent girls were aware of the subsidy on sanitary napkins given by the government, as shown in Figure 1.

The majority of them (78.3%) perceived menstruation as a physiological process. Various kinds of restrictions were practised by 81.3% of the respondents, as seen in Table 2. Out of those, most practised religious restrictions (80.7%) like restricted to going to the temple or any religious function, or to enter into the pooja space of the home, or to read religious books.

Table 2: Perception on menstruation (n=300).

Variables	Frequency (%)
Belief about menstruation	
Physiological	235 (78.3)
Curse by God	47 (15.7)
Disease	1 (0.3)
Don't know	17 (5.7)
Feelings regarding menstruation	
Normal	167 (55.7)
Depressive/shocking	91 (30.3)
Embarrassed	42 (14)
Restrictions practiced at home?	
Yes	244 (81.3)
No	56 (18.7)
If yes, what restrictions?	
Religious	242 (80.7)
Diet	104 (34.7)
Kitchen entrance	32 (10.7)
Attendance at school or a social function	9 (3)
Menstruation makes you impure?	
Yes	108 (36)
No	192 (64)
Observed/heard any advertisements	
Yes	298 (99.3)
No	2 (0.7)
Reaction to it	
Feel shy in front of male members	85 (28.3)
No reaction	107 (35.7)
Essential and regular	106 (35.3)
Such advertisements should be banned	0 (0)

All of them used sanitary napkins as their menstrual material. Out of them, 7.3% used clothes along with sanitary napkins due to various reasons. Only 3 % of the girls were procuring their sanitary napkins at a subsidized rate from government facilities, as shown in Table 3.

The frequency of changing menstrual materials was found to be three times or more in 59.6% of adolescent girls. Only 83 girls had followed good MHM practices as per the WHO/UNICEF JMP Definition, as shown in Figure 2.

Only girls living in a nuclear type of family, who studied higher education, their mothers, and the head of the family, who had studied beyond matriculation, had shown good MHM practices. This difference was found to be statistically significant with a p value of less than 0.05, as shown in Table 4.

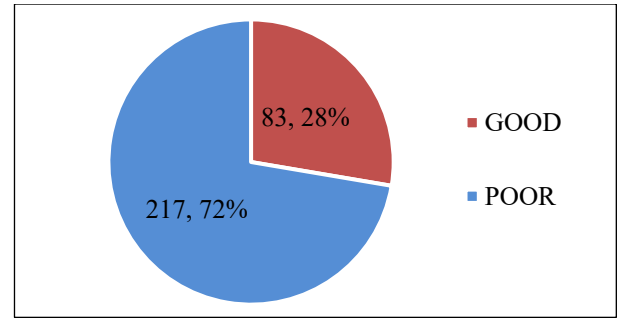


Figure 2: MHM practices as per the WHO/UNICEF Joint Monitoring Programme definition.

Table 3: Menstrual hygiene practices by adolescent girls.

Variables	Frequency (%)
Menstrual material used by the respondent*	
Sanitary napkins	300 (100)
Sanitary napkins and clothes	22 (7.3)
If more than 1, when do you use them	
Due to unavailability	17 (77.3)
Due to cost	3 (13.6)
Due to ease in different situations	2 (9.1)
Frequency of changing pads*	
3 or more	179 (59.6)
2 or fewer	121 (40.4)
Privacy of changing menstrual material*	
Yes	287 (95.7)
No	13 (4.3)
Wash your hands before/after changing menstrual material	
Sometimes	48 (16)
Every time	252 (84)
Frequency of washing your genitalia	
3 or more	127 (42.7)
<3	145 (48.4)
Every 2-3 days	14 (4.6)
End of the cycle	14 (4.6)
Use soap to wash the genitalia*	
Sometimes	149 (49.7)
Every time	151 (50.3)
Bath regularly during menstruation	
Yes	285 (95)
No	15 (5)
Dispose of your menstrual material*	
Burned/buried	117 (39)
Household dustbin	102 (34)
Flushing	11 (3.7)
Throwing in the backyard/water bodies	70 (23.3)
Where do you get menstrual material	
Medical/general shop	215 (71.7)
School/public health facility	9 (3)
Both	76 (25.3)
Do you attend an educational institution during menstruation?	
Yes	240 (80)
No	60 (20)

Table 4: Association of MHM practices with the socio-demographic variables.

Socio-demographic factors		Good MHM, N (%)	Poor MHM, N (%)	Chi-Square	P value
Age	Early adolescent (10-14)	26 (26.3)	73 (73.7)	0.146	0.703
	Late adolescent (15-19)	57 (28.4)	144 (71.6)		
Religion	Hindu	69 (29.1)	168 (70.9)	1.19	0.553
	Muslim	9 (22.5)	31 (77.5)		
	Others	5 (21.7)	18 (78.3)		
Type of family	Nuclear	63 (33.3)	126 (66.7)	8.20	0.004
	Joint	20 (18.0)	91 (82.0)		
Education of girls	Secondary school	35 (21.3)	129 (78.7)	10.4	0.006
	Higher secondary	43 (33.6)	85 (66.4)		
	Graduate	5 (62.5)	3 (37.5)		
Education of mother	Above 10 th	48 (43.6)	62 (56.4)	22.1	<0.001
	10 th and below	35 (18.4)	155 (81.5)		
Education of the head of family	Above 10 th	48 (36.9)	82 (63.1)	9.82	0.002
	10 th and below	35 (20.5)	135 (79.4)		
SES	Upper	2 (18.2)	9 (81.8)	1.90	0.753
	Upper middle	8 (25)	24 (75)		
	Middle	30 (25.4)	88 (74.6)		
	Lower middle	36 (31.9)	77 (68.1)		
	Lower	7 (26.9)	19 (73.1)		
Toilet facility at home	Yes	82 (27.9)	212 (72.1)	0.370	0.543
	No	1 (16.7)	5 (83.3)		

DISCUSSION

In the present study, we found that the mean age of menarche was 12.5±1.22 years. The mean age of menarche in our study is comparable with the study done by Hemapriya et al.⁶ Some of the studies also found the mean age of menarche was 14 years.^{7,8}

In the present study, we found that only 33.3% of the girls were aware of menstruation before menarche. Similar kinds of results were found in a study by Deshpande et al.⁹ In contrast, awareness was very low (12%) among rural school girls in a study conducted in Karnataka in 2022.¹⁰

In our study, the majority of patients (188, 62.7%) reported learning about menstruation from their mothers. This emphasizes the pivotal role of mothers in shaping menstrual knowledge and attitudes among adolescent girls. Similar trends have been reported in other studies. In a systematic review by Bhilwar et al, mothers were consistently identified as the leading source of menstrual awareness across diverse Indian settings.¹¹

In our state, a standalone programme named KHUSI is operated where there is provision of free sanitary napkins to all girls studying in government schools from 6th to 12th class and provision of subsidised sanitary napkins for all adolescent girls available with ASHA. In our present study, we found that only 58% of the girls in our area were aware of the subsidy on sanitary napkins. In

contrast, a study by ML Kusuma and Mansoor Ahmed in Mysore City observed that only 32% were aware of free or subsidised sanitary napkins by the government.¹² However, limited evidence was there to compare our findings, as the availability of subsidised or free napkins is a relatively new concept.

In this study, we found that 78.3% girls thought that menstruation is a physiological process. Similar findings were seen in a study by Boruah et al in Assam found that 91.76% knew menstruation as a normal process.¹³ Around 81.3% of girls practiced some kind of restrictions during menstruation in our study. In a study by van Eijk et al, which was a systematic review and meta-analysis, majorly religious restrictions were reported with a Pooled Prevalence of 77% (71% to 83%).

We found that all 300 respondents (100%) reported using sanitary napkins as their menstrual material. Studies by Chandra-Mouli et al also support this upward trend in hygienic practices.¹⁵ We found that 17 participants (7.3%) reported using more than one type of menstrual material due to unavailability or cost. This highlights the persistent issue of menstrual material insecurity despite increasing awareness. Similar findings were reported by Kaur et al, who noted that many women in low-income settings resort to mixing materials due to affordability concerns.¹⁶ We found that 179 participants (59.6%) reported changing their menstrual pads three or more times a day were reported by Yadav et al, who also observed a

significant improvement in pad-changing frequency after menstrual health education interventions.¹⁷

In our study, 252 participants (84%) reported washing their hands every time before or after changing their menstrual material. Similar rates of good hygiene behavior have been reported in recent studies. Bhilwar et al found that over 80% of adolescent girls practiced handwashing during menstruation, especially in areas with access to health education.¹¹ In the present study, 145 participants reported washing their genitalia fewer than three times a day during menstruation. Chauhan et al noted that structured school programs improved knowledge and practices regarding genital hygiene during menstruation.¹⁹

Proper disposal of used menstrual materials is an essential hygiene concern in our society. In our study, we found that only 39% were either burying or burning their menstrual materials, which is a good practice. Around 34% were disposing of it in a household dustbin by wrapping it in paper, 23% were throwing it in either the backyard or water bodies, which can lead to a polluted environment and water bodies. Dangerously, 4% were flushing it in the toilet, which can lead to issues like clogged toilets that can lead to operational and maintenance costs, and that could lead to a public health burden. Similar results were found in various studies by Choudhary et al and Hema et al.^{20,6} This could be managed by proper health education regarding menstrual hygiene management.

Our study showed that only 28% of girls were following good MHM practices as per the WHO/UNICEF JMP definition. In a study by Bali et al, only 13% girls were following good menstrual hygiene management.²¹ Previous literature failed to adequately report questions used to capture MHM practices, which limits comparison. Most of the studies enquired about the absorbents used. The use of disposable sanitary napkins was considered hygienic by most of the studies.

In our study, a significant association was found between good MHM practices with nuclear type of family, higher education of the adolescent girls, and education of the mother and head of family who have studied beyond matriculation. In a study by Borkar et al, a significant association was found between sanitary pad usage and age of the adolescent girls (early and late adolescence), mother's education (illiterate and literate), and higher socioeconomic status (class I, II, III).²² In another study by Kusuma et al, a significant association was found between mothers' literacy and socioeconomic status.¹²

The current study is being conducted in an urban setting, and the findings cannot be generalized to the rural or tribal population. Association of MHM practices with the type of school could have been looked into. Recall bias was possible in some questions, like age of menarche,

source of information on menstruation, mother's education, or head of family's education, etc.

CONCLUSION

Our study concluded with valuable insights about menstruation and menstrual hygiene among adolescent girls. Sanitary napkins were widely accepted and used method to contain their menstrual blood. However, there were still some obvious gaps, like a lack of understanding of reproductive anatomy, infrequent genital cleanliness and unawareness regarding proper method of disposal. Our study also highlighted the need to have an efficient management to provide subsidised sanitary napkins throughout the year to all adolescent girls in need. These results demonstrate the continued need for thorough education and assistance regarding menstrual hygiene management in middle schools and in Anganwadi centers.

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Conflict of interest: None declared

Ethical approval: The study was approved by the Institutional Ethics Committee, VIMSAR, Burla, Odisha, India (IEC no-095-2022/I-S-T/ 005/Dt.01.03.2023)

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