

Original Research Article

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Menstrual hygiene: knowledge and practices during menstruation among adolescent girls in urban slums of Jorhat district, Assam, India

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ABSTRACT

Background: Menstruation is still clouded by taboos and socio-cultural restrictions resulting in adolescent girls remaining ignorant of the facts of menstruation and hygienic practices, which sometimes results in adverse health outcomes. The present study was carried out to assess the knowledge and practices regarding menstrual hygiene, to find out the disorders during menstruation and to determine the factors associated with existing practices of menstrual hygiene among adolescent girls

Methods: A community-based cross-sectional study was conducted in two randomly selected urban slums of Jorhat district from March to August 2017 among 110 adolescent girls using predesigned pretested proforma. Data were analyzed using SPSS; association was determined using chi-square test with Yates correction or Fisher's exact test, as appropriate.

Results: 47.27% girls were aware about menstruation prior to menarche. Mother was the first informant in 65.38% of them. 69.09% were ignorant about the source of menstrual bleeding. Sanitary pads were used by 59.09% of girls. Majority (97.27%) practiced some form of restriction during menstruation. Dysmenorrhoea was the most common complaint (53.63%). Type of absorbent used was significantly associated with literacy status of girls and their mothers, socio-economic status, religion and prior knowledge about menstruation. Educational status of girls and their mothers were also significantly associated with satisfactory cleaning of external genitalia during menstruation.

Conclusions: Ignorance and unsafe practices regarding menstruation, menstruation related problems and traditional beliefs and restrictions are quite common among adolescent girls in urban slums. Literacy status and awareness are the most important factors affecting the menstrual behaviours.

Keywords: Menstrual hygiene, Sanitary pad, Adolescent girls, Urban slums, Assam

INTRODUCTION

Adolescence in girls has been recognized as a special period which signifies the transition from girlhood to womanhood. Menarche is a significant milestone in the transitory developmental journey of an adolescent. A normal menstrual cycle is an important determinant of reproductive development during adolescence.¹ However, menstruation is still regarded as something unclean or dirty in Indian society. The reaction to menstruation

depends upon awareness and knowledge about the subject. The manner in which a girl learns about menstruation and its associated changes may have an impact on her response to the event of menarche. In Indian culture, talking about sex is taboo. Consequently, little information is provided to adolescents about sexual health. So, although menstruation is a natural process, it is linked with several misconceptions and practices, which sometimes result into adverse health outcomes.²

Hygiene-related practices of women during menstruation are of considerable importance, as it has a health impact in terms of increased vulnerability to reproductive tract infections (RTI). The interplay of socio-economic status, menstrual hygiene practices and RTI are noticeable. Today millions of women are sufferers of RTI and its complications and often the infection is transmitted to the offspring of the pregnant mother.² A key priority for women and girls is to have the necessary knowledge, facilities and the cultural environment to manage menstruation hygienically and with dignity.³ Increased knowledge about menstruation right from childhood may escalate safe practices and may help in mitigating the suffering of millions of women.

Very few studies have included the detailed aspect of menstrual practices among adolescent girls in urban slums. It was therefore considered as relevant to investigate the knowledge and practices related to menstruation among the adolescent girls in urban slums. With the above background, this study was undertaken in the urban slums of Jorhat district of Assam to assess the knowledge and practices regarding menstrual hygiene among the adolescent girls, to find out the disorders during menstruation experienced by them and to determine the factors associated with the existing practices of menstrual hygiene.

METHODS

The present community based cross sectional study was carried out among adolescent girls aged 10-19 years residing in the urban slums of Jorhat district of Assam. The study was carried out over six months from March to August 2017. Considering 44.8% as the prevalence of hygienic practices during menstruation among adolescent girls in Assam according to the National Family Health Survey-IV, an absolute precision of 10% and a non response rate of 10%, the required sample size was calculated to be 110.⁴

Sampling technique and data collection

A simple random sampling technique was adopted for selection of the slums. Considering that Jorhat district has five registered urban slums, two were selected by simple random sampling technique. Equal number of participants from each slum was included in the study. In the selected slums, starting from one end, every consecutive house was visited and data were collected from the adolescent girls till the required sample size was achieved. However, those adolescent girls who had not attained puberty, who did not want to participate and not cooperating and guests visiting the slum at the time of data collection, were excluded from the study.

Ethical clearance was obtained from the Institutional Ethical Review committee of Jorhat Medical College and informed consent was obtained from the subjects who were above the age of majority and from parents below

that age. The participation was voluntary and purpose of the study was briefed to the study participants. Anonymity and confidentiality of information was ensured in order to encourage participation and elicit truthful response. Data were collected by personal interview using a pre designed, pre tested proforma. Information on socio demographic characteristics, knowledge and practices during menstrual period and morbidities during menstruation were collected. The socio-economic status of the family was assessed by using the modified Kuppuswamy's socio-economic status scale for 2017.⁵

Statistical analysis

Statistical analysis was done using SPSS for windows comprising of calculating proportion, mean and standard deviation. Association was determined using chi-square test with Yates correction or Fisher's exact test, as appropriate. P value <0.05 was considered significant for all tests.

Operational definition

Frequency of cleaning of external genitalia ≥ 2 /day- satisfactory.² Frequency of cleaning of external genitalia 0-1/day- unsatisfactory.²

RESULTS

Socio-demographic profile of the respondents

In present study, 20.9% of the adolescent girls belonged to the age group of 10–13 years, 39.1% belonged to 14–16 years and 40% of the girls belonged to the age group 17–19 years. Mean age of the study population was 14.5 ± 2.87 years. Most of the study participants belonged to the Hindu religion (69.1%) followed by Muslims (29.1%). 97.3% of them were unmarried and 1.82% was married while one girl (0.91%) was divorced. 13.64% of the adolescent girls were illiterate. 43.6% of them were in middle school, 34.5% were in high school and 8.2% studied below primary level. Majority of the mothers of the girls were illiterate (53.64%). 50.9% of the study population belonged to nuclear families and 49.1% belonged to joint families. 75.45% of the girls belonged to lower socioeconomic class according to Modified Kuppuswami Classification. 9.1% belonged to upper lower and lower middle class respectively and 6.36% belonged to upper middle class. However, none of the girls belonged to the upper socioeconomic class.

Knowledge of adolescent girls about menarche and their perception about Menstruation

Table 1 shows that majority of the adolescent girls (85.45%) were between 10-13 years of age at the time of menarche. The mean age at menarche was 12.38 ± 1.42 years. However, only 47.27% of respondents were aware about menstruation prior to attainment of menarche.

Mother was the first informant in 65.38% of them, which was followed by friends (17.30%). 46.36% of them did not know about the cause of menstruation; whereas 38.18% of them believed that it was natural process and 15.45% accepted it as curse of God. 69.09% of the adolescent girls were ignorant about the source of menstrual bleeding. 20.9% thought that it came from vagina and only one girl (0.09%) knew that the bleeding comes from the uterus.

Table 1: Knowledge of adolescent girls about menarche and their perception about menstruation.

	Number	Percentage (%)
Age at menarche of adolescent girls (in years)		
10–13	94	85.45
14–15	13	11.18
16–17	7	6.36
Total	110	100
Knowledge about menstruation before menarche		
Yes	52	47.27
No	58	52.72
Total	110	100
Knowledge of respondents on the cause of menstruation		
Do not know	51	46.36
Natural	42	38.18
Curse of god	17	15.45
Total	110	100
Informer		
Mother	34	65.38
Sister	6	11.53
Friend	9	17.30
Others	3	5.76
Total	52	100
Organ from which the menstrual blood comes		
Do not know	76	69.09
Urethra	7	6.36
Vagina	23	20.9
Uterus	1	0.09
Stomach	3	2.7
Total	110	100

Practice of menstrual hygiene of the adolescent girls

It was observed that 59.09% of adolescent girls were using Sanitary napkins at the time of menstruation while the remaining 40.90% girls were found to be using cloth during menstruation (Figure 1). On enquiring about the reason for not using sanitary pads, 44.44% of them responded that it was due to its high cost while 35.55% of the girls didn't opt for sanitary pads as it was uncomfortable to use and the remaining 20% found its availability difficult.

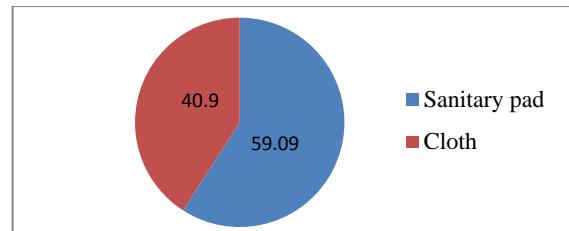


Figure 1: Absorbent used during menstruation (%).

Table 2: Practice of menstrual hygiene among the adolescent girls.

Practice	Number	Percentage (%)
Re-using of cloth		
Yes	27	60
No	18	40
Total	45	100
Methods to clean the re-used cloth		
With water	1	3.70
With water and soap	26	96.30
Total	27	100
Drying of the reused cloth		
In sunlight	21	77.78
Not in sunlight	6	22.22
Total	27	100
Method of disposal of sanitary pad		
Burn it	7	10.77
Throw it in with routine waste	53	81.53
Others	5	7.69
Total	65	100
Method of disposal of cloth		
Throw it in with routine waste	37	82.22
Others	8	17.78
Total	45	100
Frequency of change of sanitary pad		
Once a day	7	10.77
2-3 times	38	58.46
3-4 times	20	30.77
Total	65	100
Frequency of change of cloth		
Once a day	3	6.67
2-3 times	20	44.44
3-4 times	22	48.89
Total	45	100
Cleaning of external genitalia		
Satisfactory (≥ 2 times/day)	104	94.54
Unsatisfactory (< 2 times/day)	6	5.45
Total	110	100
Agents used to clean genitalia		
Only water	14	12.73
Soap and water	88	80
Water and antiseptic	8	7.27
Total	110	100

Table 2 shows that among the adolescent girls who used cloth, most of them (60%) preferred re-using the cloth. 96.30% of them preferred to clean the re-used clothes with soap and water while 3.70% of them washed the clothes with water only. 77.78% of the girls practiced drying of the washed cloth in sunlight whereas 22.22% of them dried the clothes in the shade like in the bathroom or beneath other clothes for the fear of being seen by others.

It was also seen that among the adolescent girls who used sanitary pads, 81.53% of them preferred to dispose them by throwing it in with routine waste and 10.77% used to burn it while 7.69% preferred other methods such as not

throwing it, flushing it or hiding it. Among the girls who used cloth but did not reuse it, majority (82.22%) chose to dispose the clothes by throwing it with routine waste.

Among the respondents who used sanitary napkins, majority (58.46%) changed it 2-3 times per day whereas among the girls who used cloth, majority (48.89%) changed it 3-4 times per day. In our study, frequency of cleaning the external genitalia was found to be satisfactory (≥ 2 times/day) in 94.54% of the adolescent girls. 80% of the girls used soap and water to clean the external genitalia during menstruation while 12.73% used only water and 7.27% used water and antiseptic for cleaning.

Table 3: Restrictions followed during menstruation (n=107).

Restrictions*	Number	Percentage (%)
Not allowed to attend religious practices	88	82.24
Not allowed to attend marriages	67	62.61
Not allowed to do household work	56	52.34
Prohibited from touching sour food	64	59.81
Not allowed to cook food/ enter kitchen	46	42.99
Using separate bed	57	53.27
Not allowed to go out of house	43	40.18
Not allowed to play	51	47.66
Not allowed to go school	49	45.79

*includes multiple responses.

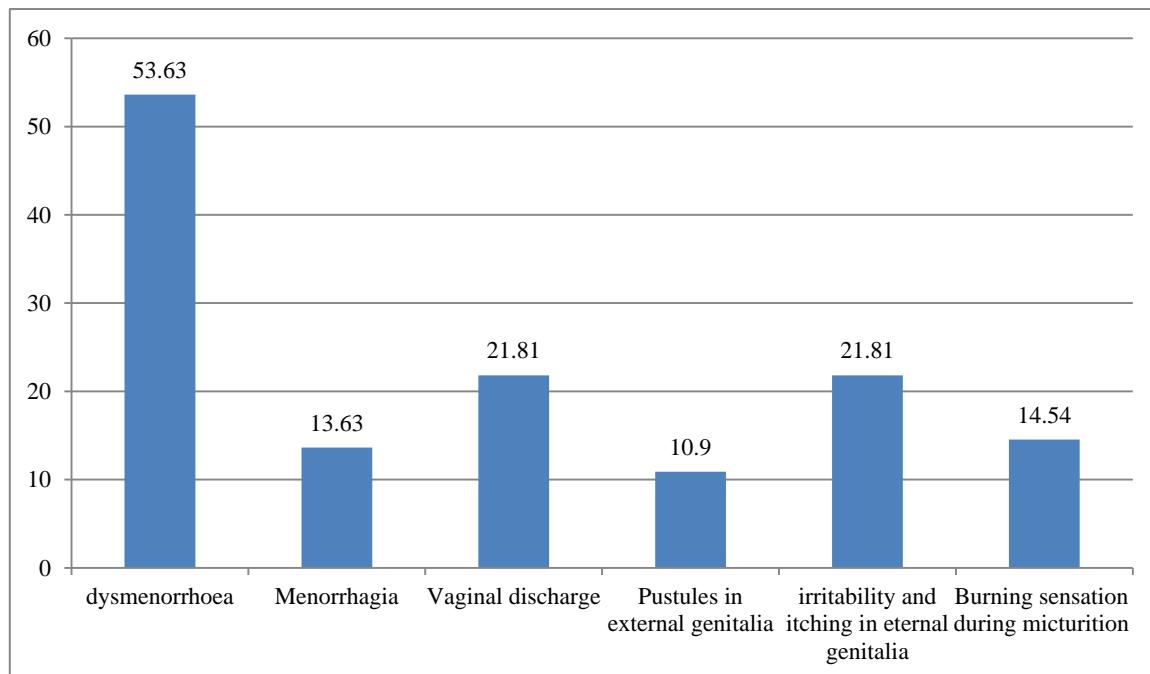


Figure 2: Menstrual disorders experienced by adolescent girls (%).

Practice of any form of restrictions during menstrual period

Regarding restrictions practiced during menstruation, 97.27% of the adolescent girls practiced some form of

restriction. 82.24% were prohibited from being involved in religious practices and 62.61% of the girls were not allowed to attend marriages. 52.34% were restricted from doing their regular household works. Touching sour food was restricted for 59.81% of the girls during menstruation

and 42.9% were not allowed to enter the kitchen or cook food. 53.27% of the girls were given separate beds, and 40.18% were restricted from going outside the house. 47.66% of the girls were prohibited from playing either inside or outside the house and 45.7% did not go to school during menstruation (Table 3).

On enquiring about the reason for not going to school during menstruation, majority of the girls (55.1%) replied that it was due to fear of leakage and lack of proper toilet facilities and privacy for changing the pads or cloth. For 36.7% of the girls, the reason was abdominal pain and physical discomfort which they experienced during those

days and the remaining 8.2% cited other reasons for not attending school during menstruation.

Menstrual disorders experienced by the adolescent girls

Regarding disorders during menstruation, it was observed that 70% of the girls were suffering from some problem during their menstruation. As shown in Figure 2, dysmenorrhoea was the most common complaint (53.63%) which was followed by irritability and itching in external genitalia (21.81%) and white vaginal discharge (21.81%).

Table 4: Factors associated with type of absorbent used.

Variables	Total (N=110)	Absorbent used		P value
		Sanitary pad (%) (n1=65)	Cloth (%) (n2=45)	
Age in years				
10-13	23	11 (47.82)	12 (52.18)	0.058
14-16	43	22 (51.16)	21 (48.84)	
17-19	44	32 (72.72)	12 (27.28)	
Educational status of adolescent girls				
Illiterate	15	4 (26.67)	11 (73.33)	0.006*
Literate	95	61 (64.21)	34 (35.79)	
Educational status of mothers				
Illiterate	59	26 (44.06)	33 (55.94)	0.001*
Literate	51	39 (76.47)	12 (23.53)	
Socio- economic status				
Upper middle	7	7 (100)	0 (0)	0.008*
Lower middle	10	7 (70)	3 (30)	
Upper lower	10	9 (90)	1 (10)	
Lower	83	42 (50.6)	41 (49.4)	
Religion				
Hindu	76	52 (68.42)	24 (31.57)	0.011*
Muslim	32	12 (37.5)	20 (62.5)	
Others	2	1 (50)	1 (50)	
Prior knowledge about menstruation				
Present	52	37 (71.15)	15 (28.84)	0.000*
Absent	58	28 (48.27)	30 (51.72)	

*statistically significant.

Factors associated with existing practices of menstrual hygiene

Table 4 shows that educational status of adolescent girls has a significant association with the type of absorbent used during menstruation ($p=0.006$). In our study, 64.21% of the literate girls were using sanitary napkins compared to only 26.67% of illiterate girls who were using sanitary pads during menstruation. Also, education of mothers of the girls was seen to be significantly associated with type of absorbent used ($p=0.001$). 76.47% of the mothers who were literate had their daughters use sanitary pads during menstruation as compared to 44.06% of the illiterate mothers. Socio-economic status and religion were also significantly associated with the type of absorbent used. Only 50% of the girls belonging to

lower socio-economic status were using sanitary pads compared to a higher proportion of girls belonging to the upper socio- economic classes ($p=0.008$). 68.42% of the Hindus were using sanitary napkins compared to 37.5% of Muslims and 50% of girls belonging to other religions. It was also seen that 71.15% of the girls with prior knowledge on menstruation were using sanitary pads as compared to only 48.27% of girls without prior knowledge and this difference was statistically significant ($p=0.000$).

Educational status of the study participants and their mothers were significantly associated with satisfactory cleaning of the external genitalia during menstruation (Table 5). 96.84% of the literate girls practiced satisfactory cleaning of external genitalia during

menstruation compared to 80% of illiterate girls ($p=0.032$). It was also seen that all of the girls of literate mothers satisfactorily cleaned the external genitalia

during menstruation whereas 89.83% girls of illiterate mothers cleaned the genitalia satisfactorily (≥ 2 times/day) during menstruation ($p=0.029$).

Table 5: Factors associated with cleaning of external genitalia.

Variables	Total (n=110)	Cleaning of external genitalia		P value
		Satisfactory (%) (n1=104)	Unsatisfactory (%) (n2=6)	
Age in years				
10-13	23	23 (100)	0 (0)	0.432
14-16	43	40 (93.02)	3 (6.98)	
17-19	44	41 (93.18)	3 (6.82)	
Educational status of adolescent girls				
Illiterate	15	12 (80)	3 (20)	0.032*
Literate	95	92 (96.84)	3 (3.16)	
Educational status of mothers				
Illiterate	59	53 (89.83)	6 (10.17)	0.029*
Literate	51	51 (100)	0 (0)	
Socio-economic status				
Upper middle	7	7 (100)	0 (0)	0.698
Lower middle	10	9 (90)	1 (10)	
Upper lower	10	10 (100)	0 (0)	
Lower	83	78 (93.97)	5 (6.03)	
Religion				
Hindu	76	72 (94.73)	4 (5.27)	0.92
Muslim	32	30 (93.75)	2 (6.25)	
Others	2	2 (100)	0 (0)	
Prior knowledge about menstruation				
Present	52	51 (98.08)	1 (1.92)	0.272
Absent	58	53 (91.38)	5 (8.62)	

*statistically significant.

DISCUSSION

Menstrual hygiene is a taboo, a topic that most women in India are uncomfortable discussing in public. This is compounded by gender inequality, which excludes women and girls from decision making process.⁶ So, this study planned to assess the knowledge and practices of adolescent girls regarding menstrual hygiene in urban slums of Jorhat.

This study shows that the mean age at menarche of the adolescent girls was 12.38 ± 1.42 years. Similar studies carried out in West Bengal and Rajasthan showed that the mean age at menarche of the adolescent girls was 12.8 years and 13.2 years respectively.^{2,7}

In our study, only 47.27% of the respondents were aware about menstruation before menarche. Similar finding was observed in another study; where 42.5% of urban and 55.4% of rural girls were aware about menstruation prior to attainment of menarche.⁸ However, other studies carried out in West Bengal and Uttarakhand showed that overall 67.5% and 64.5% (71% Rural and 57% Urban) of the adolescent girls respectively were aware about menstruation prior to menarche; which was much higher than our study.^{2,6} This shows the low level of awareness

of the girls about menstruation prior to menarche; while it is desirable that every girl should be made aware of it, which is an important event at the threshold of adolescence.

Mother was the first informant in majority (65.38%) of the girls which was followed by friends (17.30%). Other studies also revealed that mother was the first informant about menstruation for most of the adolescent girls.^{2,9} Another study reported that among urban girls, mother was the main source of information about menstruation (27.5%), whereas it was the teacher among the rural counterparts (27.01%).⁸ Other sources of information were friends, relatives and books. In yet another study it was observed that friends were the first informant in 31.8% girls who were followed by mother, sister and other relative.⁶ So it has been seen that mothers play a vital role in introducing the knowledge about menstruation to their daughters. However, many refrain from doing so; which may be due to existing taboos and inhibitions among them to talk to their daughters.

In our study, 46.36% of the girls had no idea about the cause of menstruation while 38.18% believed that it was natural process. In another study in West Bengal carried out among school girls, it was seen that 86.25% believed it to be a physiological process.² This finding was much

higher than the present study. However, in a similar study conducted in Rajasthan, nearly 70% believed that menstruation was not a natural process.⁷ It was also observed in our study that most of the adolescent girls did not know from which organ the menstrual blood comes and only 0.09% knew that it is uterine bleeding. A similar study found that 97.5% of adolescent girls did not know about the source of bleeding.² In another study, 17.9% knew that the source of bleeding was from the uterus.⁹ The above observation might be due to poor literacy level of mothers who play a key role in giving menstruation related information to their daughters. Also the taboos associated with menstruation and social inhibitions may also restrict such important information to be percolated to the girls. Schools should also focus on providing quality health education regarding menstrual hygiene to the adolescent girls.

The hygiene related practices of women during menstruation are of considerable importance, as they affect their health by increasing their vulnerability to infections, especially infections of the urinary tract and the perineum. The type of absorbent material which is used is of primary concern, since reuse of the material could be a cause for infection if it is improperly cleaned and poorly stored.¹⁰ In our study, 59.09% of the girls were using sanitary pad and the remaining 40.91% girls were using old pieces of cloth as menstrual pads during menstruation. Other studies showed that only 11.25% and 13.2% of the adolescent girls respectively were using sanitary pads.^{2,9} In our study, on enquiring about the reason for not using sanitary pads, it was observed that the most common reason was high cost of the commercially available pads (48.48%); while 36.36% of them didn't opt for sanitary pad as it was uncomfortable to use. In another study conducted in Nagpur district it was found that the apparent reasons for not using sanitary pad were lack of knowledge, high cost, unavailability and shyness.³ This shows that poverty, high cost of disposable sanitary pads and to some extent ignorance dissuaded the study population from using the commercially available menstrual absorbents.

This study also revealed that most of the adolescent girls (60%) preferred re-using of the clothes. Among them, 96.30% cleaned the re-used clothes with soap and water and 77.78% of them practiced drying of the cloth in sunlight. They discarded the clothes by burning them or throwing them with the routine waste after using it for a few months. In a similar study, it was seen that 73.75% of the girls re-used the cloth and the usual practice was to wash the cloth with soap and water after use and keep it at some secret place till the next menstrual period.² In another study it was observed that 30% were using cloth; among which only 27.8 % of the girls dried the washed cloth (for reuse) in direct sun.⁶ Further, when compared to another study undertaken in rural West Bengal it was seen that 97.5% girls used soap and water which was similar to the present study.¹¹ This shows that menstrual

hygiene practices were not satisfactory among the adolescent girls in the present study.

Regarding the method of disposal of the used material, majority (81.53%) of the girls preferred to dispose the sanitary pads by throwing it in with routine waste. Also 82.22% of them chose to dispose the clothes by the same method. This is in contrast to the study in West Bengal where only 57.5% girls properly disposed the cloth pieces or sanitary pads used, i.e. they wrap the used cloth piece or sanitary pad in a paper bag and disposed it in a place used for solid waste disposal.² In a similar study conducted among 664 schoolgirls aged 14-18 years in Mansoura, Egypt, the different aspects of personal hygiene were generally found to be poor, such as not changing pads regularly or at night, and not bathing during menstruation with lack of privacy being an important problem.¹⁰ In our study it was also observed that among the respondents who used sanitary pads, only 58.46% changed the pads 2-3 times during the day. The probable reason for the girls not changing the pads could be ignorance and lack of facilities. However, majority of the girls cleaned the external genitalia satisfactorily (94.54%) and 80% used soap and water for cleaning. Similarly, in a study in West Bengal, cleanliness of external genitalia was unsatisfactory (frequency of cleaning of external genitalia is 0-1/day) in case of 15% girls and 97.5% girls used both soap and water for cleaning the external genitalia.²

Different restrictions were practiced by most of the girls in the present study (97.27%) like not attending religious ceremonies and marriage functions, not doing household work, not touching sour food, not entering the kitchen and most importantly they were not allowed to go to school during those days. In the study in West Bengal, it was found that about 85% girls practiced different restrictions during menstruation. Among them 70.59% didn't attend any religious occasion, 50% girls didn't eat certain foods like sour foods, banana, radish and palm, 42.65% didn't play, 33.82% didn't do household work, 16.18% were not allowed to go to school and 10.29% didn't attend any marriage occasions during menstruation.² All these practices might be possibly due to their ignorance and false perceptions regarding menstruation. On enquiring about the reason for not attending school during those days in our study, it was observed that the most common causes were dysmenorrhoea, physical discomfort, fear of leakage and lack of proper toilet facilities and privacy for changing the pads or cloth.

Poor menstrual hygiene causes reproductive tract infections which is a morbidity that is suffered by many women with hushed silence. In our study, 70% of respondents were suffering from some form of morbidity during their menstruation. The most common were dysmenorrhoea (53.63%) followed by irritability and itching in external genitalia (21.81%) and vaginal discharge (21.81%). Other studies also showed that

dysmenorrhoea was the most common problem during menstruation among the adolescent girls.^{1,12} Another study found a significantly strong relationship between practices during menstruation and prevalence of reproductive tract infections like white discharge from vagina and burning micturition.⁹ In a study carried out in Rajasthan, it was also observed that the prevalence of reproductive tract infections was more than three times higher among girls having poor menstrual hygiene.⁷

It was also observed in our study that type of absorbent used during menstruation was significantly associated with literacy status of the adolescent girls and their mothers, their socio-economic status, religion and prior knowledge about menstruation among the adolescent girls. Educational status of the study participants and their mothers were also significantly associated with satisfactory cleaning of the external genitalia during menstruation. In a study conducted among school girls in Hooghly, West Bengal, it was found that the major determinants of good menstrual hygiene were literacy of the mothers, educational status of the adolescent girls, regular exposure to mass media in the form of advertisements promoting the use of sanitary pads, prior knowledge regarding menstruation and presence of proper sanitary latrine at home.⁹ In another study among adolescent girls in Rajasthan, schooling, residential status, occupation of father, caste and exposure to media were found to be the major predictors of safe menstrual practices among adolescent girls in Rajasthan.⁷ So the findings of these studies are comparable with the findings of the present study.

CONCLUSION

This study reveals that menstrual hygiene is far from satisfactory among a large proportion of the adolescent girls in urban slums of Jorhat. Ignorance and unsafe practices regarding menstruation, menstruation related problems and traditional beliefs and restrictions are also quite common among them. Literacy status and awareness are the most important factors affecting the menstrual behaviours.

Thus, the above findings reinforce the need for a continuous school education programme to educate the girls on menstruation and hygiene and bring them out of traditional beliefs, misconceptions and restrictions regarding menstruation. Also, there is a need to improve access to sanitary pads and encourage safe and hygienic practices among the adolescent girls.

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REFERENCES

1. Ade A, Patil R. Menstrual hygiene and practices of rural adolescent girls of Raichur. *Int J Biol Med Res*. 2013;4:3014-7.
2. Dasgupta A, Sarkar M. Menstrual hygiene: how hygienic is the adolescent girl? *Indian J Community Med*. 2008;33(2):77-80.
3. Thakre SB, Reddy M, Rathi N, Pathak K, Ughade S. Menstrual hygiene: Practice among adolescent school girls of Saoner, Nagpur District. *J Clin Diagn Res*. 2011;5(5):1027-33.
4. National family health survey (NFHS-4) 2015–16. State fact sheet, Assam. Available from: http://rchiips.org/nfhs/pdf/NFHS4/AS_FactSheet.pdf (accessed on 31st October 2017).
5. Singh T, Sharma S, Nagesh S. Socio-economic status scales updated for 2017. *Int J Res Med Sci*. 2017;5:3264-7.
6. Juyal R, Kandpal SD, Semwal J, Negi KS. Practices of menstrual hygiene among adolescent girls in a District of Uttarakhand. *Indian J. Community Med*. 2012;24(2):124-8.
7. Khanna A, Goyal RS, Bhawsar R. Menstrual practices and reproductive problems: a study of adolescent girls in Rajasthan. *J Health Manag*. 2005;7:91-107.
8. Deo DS, Ghattargi CH. Perceptions and practices regarding menstruation: a comparative study in urban and rural adolescent girls. *Indian J Community Med*. 2005;30:33-4.
9. Ray S, Dasgupta A. Determinants of menstrual hygiene among adolescent girls: a multivariate analysis. *National J Community Med*. 2012;3(2):294-30.
10. EL Gilany A, Badwi K, El. Fedawy S. Menstrual hygiene among adolescent school girls in Mansoura, Egypt. *Reprod Health Matters*. 2005;13(26):147-52.
11. Drakshayani DK, Venkata RP. A study on menstrual hygiene among rural adolescent girls. *Indian J of Med Sci*. 1994;48(6):139-43.
12. Agarwal AK, Agarwal A. A study of dysmenorrhoea during menstruation in adolescent girls. *Indian J Community Med*. 2010;35:159-64.

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