

Menstrual hygiene practices among women aged 15-49 years attending a medical college hospital in Kolkata: A cross-sectional study

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ABSTRACT

Background and Aims: Menstruation is a normal physiological process and a key sign of reproductive health in women in the reproductive age group. Poor menstrual hygiene affects the educational activities as well as the day to day activities of women. The objective of this study is to assess the practices of menstrual hygiene among women aged 15-49 years attending a tertiary care hospital in Kolkata and to assess their knowledge regarding menstrual hygiene. **Materials and Methods:** This was a hospital-based cross-sectional study conducted among the women belonging to the age group of 15-49 years attending the outpatient department of Gynaecology. Predesigned, pretested, semi-structured questionnaire was used as a study tool. Interview method was used for data collection after obtaining informed consent from the participants. Data were analysed by SPSS 20v software. Association between variables was checked by Chi-square test & $P < 0.05$ was considered as significant. **Results:** Mean age of respondents was 28.03 ± 7.01 years. The cause of menstruation as a normal body function constituted maximum response (43.5%) whereas the reason was unknown to many (37%). Regarding restrictions during menstruation, it was mentioned that avoiding worshipping was the commonest restriction (90.2%), followed by restriction in diet (32.6%). Use of readymade absorbents was found in most of the subjects (91%) followed by homemade reusable (6.5%) and homemade disposable (2.2%). Around 77.2% of them packed the napkins and disposed in garbage. Those who were aware about menstrual hygiene were found to be practicing satisfactory perineal cleaning ($p < 0.05$). **Conclusion:** Health education and awareness programme focusing on menstrual hygiene must be intensified. School curriculum can play a vital role in implementing health education.

Keywords: Awareness, menstrual hygiene, reproductive women

Introduction

Menstruation is a normal physiological process and a key sign of reproductive health in women in the reproductive age group. The term 'menstruation' has been coined from the Latin word "menses" meaning moon which signifies a 28 days' lunar month.^[1] Several practices and misconceptions are often linked with menstruation, which may lead to adverse health outcomes.

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In India too, this time is considered dirty and associated with taboos, especially in rural areas – which has a negative implication for women's health.^[2] Many taboos like avoiding bath and restricted consumption of certain foods are widely prevalent.^[3] Reproductive tract infections are around 70% more common among reproductive woman who had poor menstrual hygiene practices. This infection often might lead to foetal wastage. Moreover there is increased chance for developing cervical cancer, infertility, ectopic pregnancy etc.^[4] Sexually transmitted infection (STI) and reproductive tract infection (RTI) affect health and social well-being of the reproductive aged women.^[5] Good menstrual hygiene, such as adequate washing of the genital

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area and use of sanitary pads is essential during menstruation.^[2] Poor menstrual hygiene affects the educational activities as well as the day-to-day activities of women. In India, especially in rural culture, women lack the knowledge about menstrual hygiene practices due to social prohibition and not allowed to discuss about this phenomenon.^[6] Menstrual hygiene also has an environmental impact. Improper disposal like keeping inside toilets and indiscriminate throwing in ponds/drains poses a threat to the environment which indirectly affects health.^[7] Menstrual hygiene is a matter of concern globally including India as it is not properly addressed in the reproductive health sector.^[8] In developing countries, these aspects have been ignored by the leaders, policy makers as well as researchers.^[9] With this background, the present study was conducted to assess the practices related to menstrual hygiene among the reproductive aged women.

Objectives

1. To assess the practices of menstrual hygiene among women aged 15-49 years attending a tertiary care hospital in Kolkata.
2. To assess the knowledge regarding menstruation and menstrual hygiene among them

Methods

This was a hospital based cross-sectional study conducted in a tertiary care hospital of Kolkata among the women belonging to the age group of 15-49 years attending the outpatient department of Gynaecology. The study duration consisted of 3 months. Those participants who did not give consent, who were critically ill, pregnant & lactating mother, who did not attain menarche were excluded from the study.

Sample size was calculated using the prevalence of menstrual hygiene practice i.e., use of sanitary napkins either alone or along with reusable cloth of 74.5%.^[10] Taking 95% confidence limit and allowable error of 12%, sample size was calculated using the formula of $n = z_{\alpha}^2 pq/d^2$ ($z_{\alpha} = 1.96$, $P =$ prevalence, $q = 100-p$, $d =$ error). Since $P = 74.5$; $q = (100-p) = 25.5$; $d = 12\%$ of $P = 8.94$, $n = (1.96)^2 \times 74.5 \times 25.5/8.94^2 = 91.27$, sample size of 92 was taken. Convenience sampling method was used for this study.

Pre-designed, pre-tested, semi-structured questionnaire was prepared after exhaustive literature review and was used as a study tool consisting of five sections as socio-demographic characteristics, menstrual history, knowledge about menstruation and menstrual hygiene practices during menstruation, and complaints suggestive of RTI/STI. For this study, satisfactory napkin use was defined as the use of disposable readymade sanitary napkin or homemade disposable napkins made from new cloth.^[11] Satisfactory menstrual hygiene was defined by using 3 or more absorbents in a day^[11] and satisfactory perineal hygiene was defined as washing of perineum 3 or more times in a day.^[12] Interview method was used for data collection after obtaining informed consent from the participants. The study was

approved by Institutional Ethics Committee Date of approval: 16/05/2019. Data were entered in a Microsoft Excel sheet and then analysed by SPSS 20v software. Frequencies were expressed as percentage and distribution of variables were displayed using bar charts and pie diagram. Continuous variables were expressed in mean & SD. Association between variables was checked by Chi-square test & $P < 0.05$ was considered as significant.

Results

Out of the total 92 respondents, majority (60%) belonged to urban areas. Mean age of respondents was 28.03 ± 7.01 years and average number of family members was 5.31 ± 2.85 . Around 9 in 10 women were married. Majority of them had an education level above class ten that is 67.6%. Families belonged to upper middle class was 27.2% and middle was 29.3%. Majority of the respondents (94.6%) had own sanitary toilet and 65.2% of them had piped water supply in their household [Tables 1a and 1b].

Awareness of study participants about menstrual hygiene was found to be good, as 96.7% of the participants knew about the type of napkin to be used and 97.8% of them were aware of cleaning perineum while changing pads or after urination. Around 91.3% of them were aware about the problems likely to arise

Table 1a: Socio-demographic parameters (n=92)

Socio-demographic parameters	Mean	Median	SD	Min, Max
Age in years	28.03	27	7.01	15, 46
Number of family members	5.32	4	2.85	2, 20

Table 1b: Socio-demographic parameters (n=92)

Socio-demographic profile (n=92)	Number (n)	Percentage (%)
Place of residence		
Urban	55	59.8
Rural	37	40.2
Marital status		
Married	81	88
Unmarried	11	12
Educational status		
Class 10	28	30.4
Above Class 10	64	67.6
Socio-economic status (Modified BG Prasad scale - updated Jan' 2018)		
Class I (Upper)	9	9.8
Class II (Upper middle)	25	27.2
Class III (Middle)	27	29.3
Class IV (Lower middle)	24	26.1
Class V (Lower)	7	7.6
Toilet facility		
Own sanitary	87	94.6
Shared sanitary	3	3.3
Open space outside	2	2.2
Household water supply		
Piped supply at home	60	65.2
Stored water	23	25
No supply	9	9.8

due to unhygienic practice whereas awareness about the use of sanitary napkin before menarche was poor (54.34%) [Table 2].

Figure 1 shows that perception about the cause of menstruation as a normal body function constituted maximum response (43.5%) whereas the reason was unknown to many (37%). Around 6.5% of them mentioned it as god's curse and 12% of them considered it as an impure blood. Around half of the respondents did not know about the source of menstrual bleeding. Around 3 in 10 participants mentioned the source as uterus, whereas 19% mentioned abdomen as the source of menstrual bleeding. Majority of them mentioned mother as the source of knowledge about menstrual cycle (65.2%), followed by friends (13.1%), sibling (8.7%), social media (8.7%) and health worker (5.4%).

Regarding restrictions during menstruation, it was mentioned that avoiding worshipping was the commonest restriction (90.2%), followed by restriction in diet (32.6%). Avoiding games and staying at home was mentioned by 2%. Around 1% of them avoided social function. There were no restrictions in bathing, entry in kitchen, and attending school.

Figure 2a shows about the restrictions during menstruation across urban and rural areas. Avoiding worship and restriction in diet were similar in both areas. Avoiding games was more common in rural areas (2.7% vs 1.8%), whereas staying at home (0% vs 3.6%) and avoiding social function (0% vs 3.6%) were more common in urban areas.

Table 2: Awareness of study participants about menstrual hygiene (n=92)

Questions	Number	Percentage
Aware of using sanitary napkin before menarche	50	54.3
Type of napkin ideally to be used	89	96.7
Aware of cleaning perineum while changing pads	90	97.8
Aware of cleaning perineum after urination	90	97.8
Aware about problems likely to arise due to unhygienic practice	84	91.3

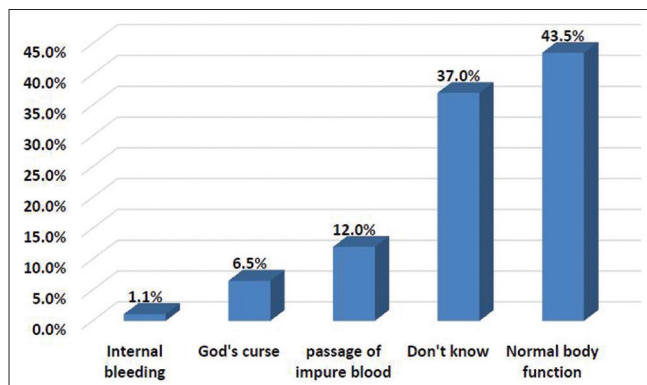


Figure 1: Perception about the cause of menstruation

In our study, 67.4% were found to have restrictions in diet. Around 28% mentioned that they avoid sour food and 3.3% avoid spicy food. Around 1% avoided non-veg food. Figure 2b illustrates the restrictions in diet during menstruation according to place of residence, and it was observed that in rural areas there was more avoidance of sour food compared to urban areas (32.4% vs 25.4%).

The use of readymade absorbents was found in most of the subjects (91%) followed by homemade reusable (6.5%) and homemade disposable (2.2%). Figure 3 shows that use of readymade absorbents was more among the urban women (94.5% vs 86.5%), whereas homemade reusable absorbents were used more by rural participants (13.5% vs 1.8%). Use of homemade disposable absorbents were not observed among rural subjects but used by 3.6% of urban participants.

Table 3 describes the practice of menstrual hygiene which shows majority of the participants used three or more pads (71.7%). Frequency of perineal washing for 3 or more times in a day was mentioned by 87% of the participants. Around 39.1% of them used water with antiseptics whereas 35.9% used only water. Soap water was used by only 25% of the respondents.

Figure 4 shows the disposal of napkins where 77.2% of them packed the napkins and disposed in garbage. Still, 11.9% disposed them in drain/ponds. Reuse of napkins and flushing in toilet was found in around 2%, whereas about 3% either threw napkins outside their houses or burned them.

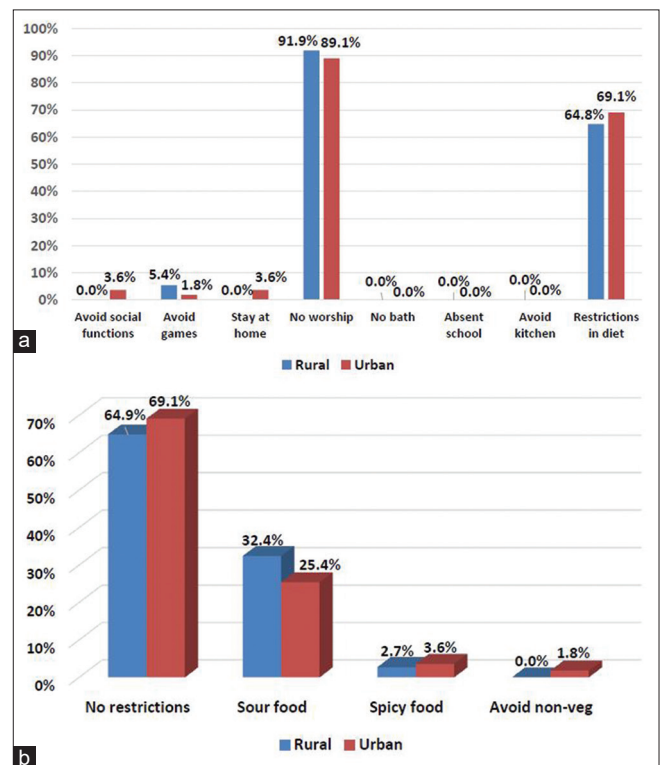


Figure 2: (a) Restrictions during menstruation as per residence. (b) Restrictions in diet during menstruation as per residence

Table 4 shows the self-reported RTI/UTI symptoms for last 6 months. Excessive vaginal discharge was reported by 26.1%, burning sensation during urination was reported by around 12% of the participants and perineal itching was reported by 20.7%.

Table 5 shows that more urban residents disposed absorbents properly than the rural residents which was statistically significant ($p < 0.001$).

Those who were aware about menstrual hygiene were practicing satisfactory perineal cleaning ($p < 0.05$) [Table 6].

Table 7 illustrates that participants who were aware about proper absorbent to be used were actually using more disposable sanitary napkin compared to those who were not aware and it was found to be statistically significant ($p < 0.001$).

In this study, women using less than 3 absorbents in a day had higher prevalence (self-reported symptoms) of excessive vaginal white discharge, and it was found that girls who used less than 3 napkins in a day had 1.38 times higher odds of having vaginal white discharge than those who used three or more pads in a day [Table 8].

Discussion

This study intended to explore the practice of menstrual hygiene among women of reproductive age group. Mean age of the respondents was found to be 28.03 ± 7.01 and majority of them were married which was similar to the study findings suggested by Balamurugan *et al.* where majority of the study population belonged to the age-group of 21-30 years and around 75% of them were married.^[13] Similar findings were also reported by Mishra *et al.* where the mean age of the respondents was $28.2 (\pm 7.5)$ and most of them were married. Women having middle school education (X^{th} Std) was about 30% in our study and it was higher than Thakre *et al.* where it was only about 15%.^[12]

Regarding awareness about menstrual hygiene, 96.7% of our study participants knew about the type of napkin to be used.

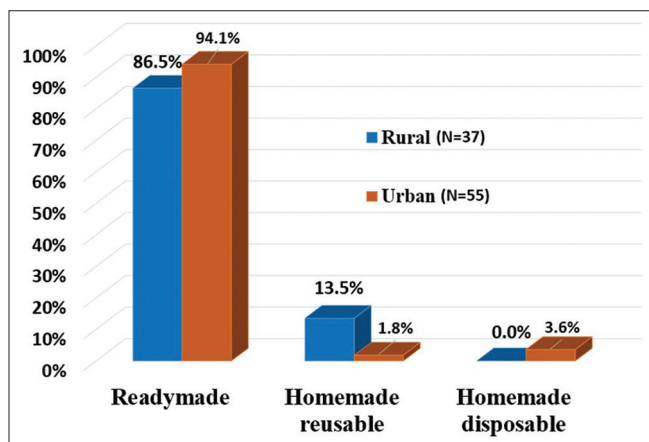


Figure 3: Absorbents used during menstruation

Our findings are better than a study conducted by Thakre *et al.*, where 75% of the participants were aware about the use of sanitary pad and 25% of them were ignorant about the use of it.^[12] Similar findings were noticed by Santra S *et al.* where 97%

Table 3: Practice of menstrual hygiene (n=92)

Practice	Description	Number	Percentage
Number of absorbents used in a day	3 or more pads	66	71.7
	<3 pads	26	28.3
Frequency of washing of perineal area in a day	3 or more times	80	87.0
	<3 times	12	13.0
Material used for cleaning perineal area	Water only	33	35.9
	Soap and water	23	25.0
	Water and antiseptics	36	39.1

Table 4: Participants treated for RTI/UTI in last six months (n=54)

Symptoms of RTI/UTI	Frequency	Percentage
Excessive vaginal discharge	24	26.1
Burning sensation during urination	11	11.9
Perineal itching	19	20.7

Table 5: Area of residence and practice of proper disposal of absorbents

Area of residence	Proper disposal of absorbents	
	Yes [n (%)]	No [n (%)]
Rural	23 (62.16)	14 (37.84)
Urban	51 (92.73)	4 (7.27)

Chi-squared test: $\chi^2=13.13$; $p<0.001$

Table 6: Association of awareness about menstrual hygiene and satisfactory perineal cleaning

Aware that unhygienic menstrual practices can lead to health problems	Satisfactory perineal cleaning	
	Yes [n (%)]	No [n (%)]
Yes	75 (89.3)	9 (10.7)
No	05 (62.5)	3 (37.5)

Chi-squared test: $\chi^2=4.62$; $p=0.03$; [Fischer exact: $p=.06$]

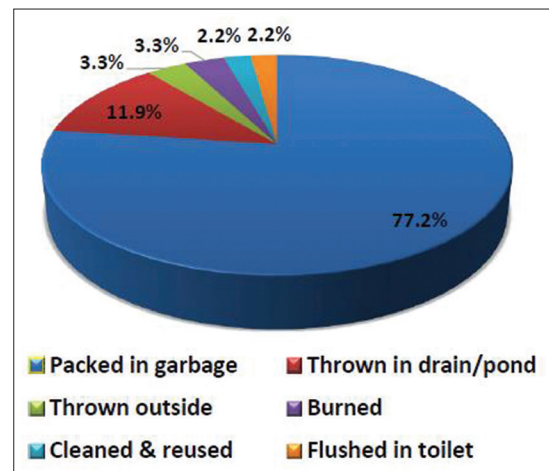


Figure 4: Disposal of absorbents

of the participants were aware that sanitary napkin was an ideal absorbent.^[14]

The cause of the menstruation was unknown to many of the study participants (37%) in this study, which was similar to the study findings by Langer B *et al.* where around 40% of the participants were unaware about menstruation.^[6] In this study, around 6.5% of them mentioned it as god's curse and 12% of them considered it as an impure blood, which was similar to findings by Mishra *et al.* where 13% mentioned it as dirty blood. Around 30% of the participants mentioned that uterus was the source of blood but higher percentages (58%) had been reported by Mishra *et al.*^[3] Majority of the study participants mentioned mother as their source of knowledge about menstruation. Similar findings have been noticed by Johnson *et al.*^[11]

While mentioning about the restriction during menstruation, the participants of the present study mentioned avoiding worshipping was the commonest restriction (90.2%) and it was similar (90.4%) to the study by Yasmin *et al.*,^[2] but Langer B *et al.*^[6] reported a lower (71.4%) finding. Restriction in diet was reported 32.6% in our study and it was lower than that by Yasmin *et al.*^[2] (48%) and Shanbhag *et al.* (42%). Avoiding spicy food was similar (3.3% vs 3.9%) to the study by Shanbhag *et al.*^[7]

In our study, 91% subjects used readymade absorbents and it was higher than that reported by Johnson *et al.*^[11] (67%) and Thakre *et al.*^[12] (49%). A Study conducted by Balamurgan found that 35% of the study participants used sanitary pad.^[13] Only 6.5% participants reused the cloth in our study which was much lower than the findings by Balamurgan *et al.* (45%).^[13]

Frequency of perineal washing for 3 or more times in a day was mentioned by 87% of the participants and 35.9% used only water which was in contrast with the findings of Yasmina *et al.*, where 76.9% washed the perineum, but 74.1% used only water. Availability of water, soap, and antiseptics might had ensured this hygienic behaviour among our study participants.^[15]

Improper disposal of sanitary napkins is a threat to the environment as well as to the health of people. In this study

it was observed that proper disposal of sanitary napkins by packing and putting in garbage bins was practiced by about 77% of study participants. This practice was found to 23% in a study by B. Arumugam *et al.* in Chennai.^[16] The other modes of disposal reported in this study were indiscriminate throwing in drains/ponds (12%), throwing outside in open space (3%) and flushing in toilet (2%). The study by B. Arumugam *et al.* found that indiscriminate throwing outside the house was 9% and flushing it in the toilet was 7%.^[16] In a study by Ray and Dasgupta done in West Bengal it was reported that most of the girls threw napkins and reusable cloth indiscriminately in a pond (53%) or in the nearby bamboo garden (45%). In this present study, 3% mentioned burning as a method of disposal and it was in contrast with the finding by Johnson *et al.* where 48% of the respondents disposed the sanitary pads by burning.^[11] In another study, in the findings of Thakre *et al.*, 60.9% of the respondents disposed pads by burning which was in line with the recommendation suggested by National Rural Health Mission after due environmental clearances.^[12]

Excessive vaginal discharge was reported by 26.1%, burning sensation during urination was reported by around 12% of the participants whereas perineal itching was reported by 20.7% in the present study. Findings were in contrast with Jayul R, where 18.8% reported excessive vaginal discharge and burning micturition was reported by only 2% whereas 7.9% of them had history of itching genitalia. These findings showed lower percentages than our study.^[9] This could be because of the self-reported symptoms which might had given lower response compared to other findings.

Poor personal hygiene and unsafe sanitary practices have been reported to result in gynecological problems among women in many studies. In this study, women using less than 3 napkins in a day had higher prevalence (self-reported symptoms) of excessive vaginal white discharge. Findings were very similar to that of Khanna *et al.* who observed that the prevalence of RTIs was more than 3 times higher among girls having poor menstrual hygiene.^[17] We also found that girls who used less than 3 napkins in a day had 1.38 times higher odds of having vaginal white discharge than those who used three or more pads in a day. E. Anand *et al.* also reported that women who used unhygienic method during menstruation were more likely to have any symptom of vaginal discharge (OR = 1.303, $P < 0.001$).^[18]

Conclusion

Menstrual hygiene is an important aspect of reproductive women's health. The present study demonstrated awareness

Table 7: Association of awareness about use of sanitary absorbent and use of disposable sanitary absorbent

Aware about proper absorbent use	Use of disposable sanitary absorbent	
	Yes [n (%)]	No [n (%)]
Yes	85 (95.5)	4 (4.5)
No	1 (33.3)	2 (66.7)

Chi-squared test: $\chi^2=18.4$; $p<0.001$; [Fischer exact: $p = .01$]

Table 8: Association of use of absorbent and vaginal white discharge

Number of absorbents used daily	Excessive vaginal white discharge	
	Yes [n (%)]	No [n (%)]
≥ 3	16 (24.24)	50 (75.76)
< 3	8 (30.77)	18 (69.23)

Chi-squared test: $\chi^2=0.41$; $p<0.05$; OR=1.38

about menstrual hygiene was good, though knowledge prior to menarche was not satisfactory. Many taboos and restrictions are still imposed upon women related to menstruation. Menstrual hygiene practice specially disposal needs special reconsideration. Sanitary napkin use and perineal washing were satisfactory among the participants. This study is limited by its single setting as well as self-reported responses. Moreover, in-depth exploration regarding menstrual behaviour was beyond the scope of this study. Further studies with more qualitative nature are recommended to explore the in-depth factors responsible for poor menstrual hygiene practices.

Recommendation

Health education and awareness programme focusing on menstrual hygiene must be intensified. School curriculum can play a vital role in implementing health education. Only active involvement of teachers, parents and health care workers can successfully implement this programme. Awareness camps in urban as well as rural community should be encouraged. Universalised use of sanitary pads must be promoted intensively by ensuring availability in school as well as all accessible places. Primary care physicians can play a vital role to educate rural people about menstruation, menstrual hygiene management, importance of toilets at homes, diseases related to reproductive tract due to poor hygiene, and so forth. Social marketing is also very important in this aspect. Comprehensive Policy about menstrual hygiene should be promoted at every level.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form, the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity.

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Conflicts of interest

There are no conflicts of interest.

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