

Menstrual Hygiene Practices in Context of Schooling: A Community Study Among Rural Adolescent Girls in Varanasi

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ABSTRACT

Introduction: Up until now, poor menstrual hygiene in developing countries has been an insufficiently acknowledged problem. The lack of attention to this issue is striking as we cannot achieve several Millennium Development Goals (MDGs), that is, 2, 3 4,5, and5B. This study aimed to assess the level of awareness about menarche and hygienic practices during menstruation in context of schooling. **Materials and Methods:** Community-based cross-sectional study using a mix method approach (qualitative and quantitative). It was conducted among 650 adolescent girls in the field practice area of Rural Health and Training Centre, Chiragaon block of district Varanasi between January and June2011. Pretested, semistructured interview schedule was used. Data were analyzed statistically by using Statistical Package for Social Sciences (SPSS) software. **Results:** Out of the total 650 respondents, 590 (90.78%) had attained menarche at the time of interview and only one-third of the respondents (29.4%) were aware of menstruation before menarche and sisters (55%) played the key role in providing information to them. Only 31% respondents were using sanitary pads during menstruation. Self-reported reproductive tract infection (RTI) was observed more in respondents not maintaining hygienic practices (6.6%) as compared to those maintaining hygiene (2.6%). **Conclusion and Recommendations:** From the Focus Group Discussions (FGDs) as well as quantitative survey it was observed that the awareness about menarche before its onset was still poor in rural areas. Significant association ($P < 0.05$) was observed between respondent education and their awareness about menarche before its onset. Therefore, it is recommended that teachers can play an influential role in informing them about changes during adolescence, especially about menarche and other issues related to menstruation. As per the present study, sisters and mothers were the major source of information. Therefore, there is a need for the provision of comprehensive family life education for the parents also.

Keywords: Hygienic practices, Menarche, MDG, reproductive tract infections, sanitary pads

Introduction

According to United Nations Children's Fund (UNICEF),⁽¹⁾ there are 243 million adolescents comprising 20% of the total population of India which clearly shows

that India is truly "young". This sheer number itself is a big challenge in itself;15-19 years constitute 10% and majority lives in rural areas. Menarche marks the beginning of a multitude of physical, physiological, and psychological changes in the lives of the adolescent girls. Although the menarche is one part of the maturation process, but it is often, culturally defined as the indicator of girl's maturity and readiness for marriage and sexual activity. Menstruation is still regarded as something unclean or dirty in Indian society and it is strongly related with misconceptions and cultural restrictions.⁽²⁾ Till now, the poor menstrual hygiene in developing countries has been an insufficiently acknowledged problem. Researches confirm that with safe menstrual

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hygienic practices adolescents were less vulnerable to reproductive tract infections (RTIs).⁽³⁾ The lack of attention to this issue is striking as still we cannot achieve several Millennium Development Goals (MDGs), that is, 2,3, 4,5, and 5B. The MDG 2, achieving universal primary education and MDG 3 on promoting gender equality and empowering women are vital for achieving almost all the other MDGs. The best place to translate the plans concerning menstrual hygiene is in the context of educational institutions.⁽⁴⁾ Therefore, this study was planned with following aims and objectives.

The specific objectives of the study are:

- To assess the awareness about menarche and their sources of information before its onset.
- To find out the prevailing practices for menstrual hygiene among adolescent girls.
- To ascertain the association of awareness of menstruation before menarche and practices for menstruation hygiene with educational status of respondents and their mothers.
- To assess the relative contribution of educational status of respondents and their mother son the likelihood of using unhygienic practices during menstruation.

Materials and Methods

Research design

The present study was a community-based cross-sectional study using a mixed method approach (both quantitative and qualitative), conducted among 650 adolescent girls in the field practice area of Rural Health and Training Centre, Chiraigaon block of district Varanasi during January-June 2011.

Target population

All adolescent girls in the age group of 15-19 years residing in rural Varanasi.

The following criteria were kept in mind while selecting the participants: Inclusion criteria

All 15-19 years girls irrespective of their educational and marital status. Those who gave their consent were interviewed.

Exclusion criteria

If there are two girls of the same age group (15-19 years) in a household, only one is selected by lottery method. Physically or mentally handicapped adolescent girls were also excluded from the analyses.

Sample size

Present research paper is a part of larger study (PhD Thesis entitled: "A study on reproductive and sexual health behavior of adolescent girls in rural areas of Varanasi"). This research had many objectives including assessment

of menstrual hygiene and awareness of RTI/sexually transmitted infection (STI). To determine the sample size, the pilot study has been conducted and the awareness regarding RTI/STI is recorded lowest in the study area and it was about 5%. This proportion is considered as the key variable in sample size determination.

Thus, as an approximation, suppose that about 5% of the adolescent girls in 15-19 years age group having the awareness about RTI/STI, then required sample size would be

$$n = P(1 - P) \left(\frac{z^2}{e^2} \right) \times f = 292 \times 2.0 = 584$$

The sample is further increased by 15% to account for contingencies such as nonresponse or recording error.

Thus, the required minimum sample size will be: $584 \times 1.15 = 671.6 = 672$ (approx.)

As per government reports (National Sample Survey Organization (NSSO) and National Family Health Survey (NFHS)), from six households in a village of eastern Uttar Pradesh (UP), one can get at least one adolescent girl in the age group of 15-19 years. Thus, 4,032 households were chosen from the rural areas to get the required number of adolescent girls in the sample. For getting the required adolescents, the complete enumeration of households has been done, after considering the average number of households in a village to be 500.

For qualitative analysis, a total of 40 participants were recruited for Focus Group Discussions (FGDs) by random selection from the list of 15-19-year-old adolescent girls from selected villages. To maintain homogeneity, equal number was ensured from all categories, that is, school going and school dropout and married and unmarried.

Sampling procedure

A multistage cluster sampling method was used to select the sample for the study. The following steps were taken.

- Stage 1:** One community development block (i.e., Chiraigaon) was selected purposely out of total eight blocks of the district.
- Stage 2:** Eight villages were selected randomly from the total 84 villages in a selected block, that is, Bariasanpur, Umraha, Rustampur, Sandaha, Ledhupur, Tilmapur, Barai, and Narayanpur.
- Stage 3:** From each selected village (cluster), the required sample was selected according to probability proportional to size (PPS) sampling technique.

Due to inaccuracy and/or unreliability of information, 22 cases were excluded from the analysis. Thus, this study deals with 650 adolescent girls only. A survey

with semistructured and pretested questionnaire was conducted to collect the information on educational status, socioeconomic and demographic characteristics, awareness about menarche, and practices for menstrual hygiene.

Following criterion for menstrual hygiene was adopted in the study:

- Practices considered hygienic: When sanitary napkin is used during menstruation.
- Practices considered not hygienic: When cloth is used as absorbent.
- Independent variable: Socioeconomic and demographic variable and hygienic practices [for Table 1]
- Dependent variable: Awareness of menarche, hygienic practices, and RTI.

Chi-square test was used to find out the association of schooling with awareness about menstruation before menarche and practices for menstrual hygiene. Logistic regression was also performed to find out the likelihood of maintaining hygienic practices.

The focus group discussions were conducted according to the respondent's educational and marital status, to get an idea about menarche and hygiene practices during menstruation. Out of the total four FGDs, it was decided to have two with school going (unmarried and married) and remaining two with school dropout (unmarried and married) respondents. There were eight to twelve participants in each group. Following characteristics were considered for respondents, that is, same age group, comparable education and marital status, speaking same language, and from similar socioeconomic background. All discussions were digitally recorded (after taking permission from respondents) and backed up by field notes. Data from FGDs was transcribed verbatim from the audio record in Hindi and translated later into English. The data was then analyzed manually based on recurrent themes.

Table 1: Awareness and sources of information about menarche before its onset

Variables	N	%
Awareness about menarche before its onset		
Yes	174	29.4
No	416	70.6
Total	590	100.0
Source of information		
Sister	96	55.1
Friend	33	18.9
Mother	27	15.5
Relative	16	9.1
Teacher	2	1.4
Total	174	100.0

Results

Qualitative analysis

Focus group discussions were conducted among selected respondents to find out their awareness about menarche, hygienic practices during menstruation and symptoms of RTI.

Group discussion with school going respondents (12) reveals that about one-fifth of the respondents were aware about menarche before its onset and for them mothers was the main source of information. One respondent who was not aware about menarche stated that, "Even after starting off period my mother was not ready to discuss about it that is why I asked to my sister and friend". Only half of the respondents were using sanitary pads, while rest of them were using clothes. The method of disposal of the used pads/clothes is in regular dustbin and none of them were reusing it. They informed us that they were not very comfortable in buying the napkins from the market.

While school dropout respondents' (eight) findings shows that one-fourth of the total were aware about menarche before its onset and for them also mother was the main source of information. All school dropout respondents were using clothes during menstruation and out of the eight only one was reusing the old cloth; whereas, rest of them disposed the clothes either in the regular dustbin or by burring in the ground. One respondent stated that "Reuse of same cloth leads to infection" (ek hi kapda bar-bar lewe se usme kitanu ho jala).

When same question was asked from unmarried respondents (nine), about half of them were aware about menarche before its onset but for them mothers were not the main source of information. One respondent stated that, "During my first period I was in school and I was terrified. Knowing the reason, my friend consoled me that it happens to every girl every month". Only one-fifth of the girls were using sanitary pads, while rest of them were using clothes because they were not comfortable in buying the napkins from the market. All the respondents disposed off their used cloth.

About one-third of the married respondents were aware about menarche before its onset and for them mothers were the main source of information. All married respondents were using clothes during menstruation. Half of the girls wash and reuse the old cloth; whereas, rest of them disposed the clothes either in regular dustbin or by burying it in the ground. One respondent stated that, "Nowadays due to the scarcity of cotton clothes we are reusing it" (ajkl suti kapda mil be na krela yehi se ek hi kapda k dhoke sukhaile ja).

Quantitative analysis

Out of the 650 respondents, more than half of them belonged to the age group 15-17 years and majority were Hindus. Only 23% were found married and the majority were below 18 years among married adolescents. More than half of the respondents belonged to other backward classes (OBC) category and more than three-fourth of the respondents were of first to third birth order. In our study, majority (95%) of the respondents were educated at the time of survey, about 25% completed high schools, 18% in intermediate, and 11% were pursuing graduation. Only about 5% never went to school and 31% were school dropouts. Regarding the educational status of respondent's mothers, about two-third of respondent's mothers were illiterate and remaining educated up to primary level. About one-third of the total respondents faced restrictions during menstruation and among them the majority stated that they were not allowed to perform religious activities, entering into the kitchen, and attending schools.

Awareness and source of information about menarche is given in Table 1. In the present study, only 590 respondents attained menarche at the time of survey, out of which only one-third of the adolescents were aware before its onset. Regarding the sources of information sisters (55%) played the vital role. Role of teachers was observed negligible in imparting education about various aspects of menstruation.

Table 2 reveals that only one-third (31%) of the respondents were using sanitary pad, whereas, rest of them were still using clothes. Among those respondents who were using clothes, 17.6% were washing and reusing it.

Table 3 shows that the respondents who were educated up to high school and above were more aware about menarche before its onset as compared to those who were educated up to primary and middle level, and this difference was found to be statistically significant ($P < 0.05$). So far as the awareness about menarche according to the educational status of the respondent's mother is concerned, percentage of respondents whose mothers were literate was higher as compared to illiterate mothers.

Table 4 shows the association of RTIs and hygienic practices during menstruation. The respondents who were following hygienic practices reported less infection than their counterparts, although the difference was not found statistically significant.

During group discussions, none of the respondents either school-going & school dropouts or unmarried & married reported any symptoms of RTI/STI during last six months.

It can be noted from the Table 5 that respondents who were in higher age group were maintaining more (33%)

Table 2: Respondents hygienic practices during menstruation

Variables	N	%
Material used (N = 590)		
Sanitary napkins	183	31.0
Cloth	407	69.0
Total	590	100
Method of disposal of cloth (N = 407)		
Disposed	335	82.4
Wash and reuse	72	17.6
Total	407	100.0

Table 3: Awareness about menarche before its onset according to respondents and their mother's educational status

Educational status	Awareness menarche before its onset		Group difference
	Yes N (%)	No N (%)	
Educational level of respondents (N)			
Up to primary (98)	19 (19.4)	79 (80.6)	$\chi^2 = 7.04$, df = 2 $P < 0.05$
Middle school (150)	42 (28.0)	108 (72.0)	
High school and above (342)	113 (33.0)	229 (67.0)	
Educational status of mothers (N)			
Illiterate (371)	104 (28.0)	267 (72.0)	$\chi^2 = 1.02$, df = 1 NS
Literate (219)	70 (32.0)	149 (68.0)	

NS: Not significant

Table 4: Reproductive tract infection (RTI) and hygienic practices during menstruation

Hygienic Practices	Problem of RTI		Group difference
	Yes N (%)	No N (%)	
Followed (183)	5 (2.7)	178 (97.3)	$\chi^2 = 3.75$, df = 1 NS
Not followed (407)	27 (6.6)	380 (93.4)	

NS: Not significant

hygienic practices in comparison to respondents having lower age - group, but the association was not found to be significant. Significant difference was observed between unmarried respondents (34%) and married respondents (22%) for following hygienic practices during menstruation. It is interesting to know that the respondents who were in lower birth order (first) were maintaining more (39%) hygienic practices in comparison to higher birth order (second to third -32% and above third -19%) and the association was found to be significant also.

Respondents who were educated up to high school and above were maintaining more hygiene (using sanitary pad) during menstruation as compared to middle school and up to primary educated respondents, and the difference was found to be highly significant ($P < 0.001$). Respondents who were Hindu (34%) and belong to general caste (60%) were following more hygienic practices in comparison to their counterparts and the

Table 5: Association of hygienic practices during menstruation and respondent's socioeconomic and demographic characteristics

Variables	Hygienic practices		Group difference
	Maintained (sanitary pad) (N = 183)	Not maintained (cloth) (N = 407)	
Age in years			
15-17 (313)	91 (29.1)	222 (70.9)	$\chi^2 = 1.18$, df = 1
18-19 (277)	92 (33.2)	185 (66.8)	NS
Marital status			
Unmarried (441)	151 (34.2)	290 (65.8)	$\chi^2 = 8.48$, df = 1
Married (149)	32 (21.5)	117 (78.5)	$P < 0.01$
Birth order			
1 st (135)	53 (39.3)	82 (60.7)	$\chi^2 = 12.94$, df = 2
2 nd -3 rd (329)	106 (32.2)	223 (67.8)	$P < 0.01$
Above 3 rd (126)	24 (19.0)	102 (81.0)	
Educational status of respondents			
Up to primary (98)	3 (3.1)	95 (96.9)	$\chi^2 = 62.46$, df = 2
Middle school (150)	35 (23.3)	115 (76.6)	$P < 0.001$
High school and above (342)	145 (42.3)	197 (57.6)	
Religion			
Hindu (542)	182 (33.6)	360 (66.4)	$\chi^2 = 20.44$, df = 1
Others (48)	1 (2.1)	47 (97.9)	$P < 0.001$
Caste			
General (161)	97 (60.2)	64 (39.8)	$\chi^2 = 90.79$, df = 2
OBC (348)	64 (18.4)	284 (81.6)	$P < 0.001$
SC (81)	22 (27.2)	59 (72.8)	
Educational status of mothers			
Illiterate (371)	47 (12.6)	324 (87.3)	$\chi^2 = 157.3$, df = 1
Literate (219)	136 (62.1)	83 (37.8)	$P < 0.001$
Economic status			
Class I (18)	15 (83.3)	3 (16.7)	$\chi^2 = 184.5$, df = 4
Class II (57)	49 (86.0)	8 (14.0)	$P < 0.001$
Class III (91)	48 (52.7)	43 (47.3)	
Class IV (194)	54 (27.8)	140 (72.2)	
Class V (230)	17 (7.4)	213 (92.6)	
Total	183 (31.0)	407 (69.0)	

Economic status according to BG Prasad modified classification 2010. NS: Not significant, OBC: Other backward classes, SC: Scheduled caste

difference was found to be statistically significant. Education of mothers is very crucial for children particularly of girl child and this saying is proved in our findings. Respondents whose mothers were literate (62%) were maintaining more hygienic practices in comparison to those whose mothers were illiterate (13%) and the difference was found to be statistically significant also.

While assessing the hygienic practices during menstruation, the economic status of respondents cannot be ignored; and in our study, it was observed that respondents who were in higher economic classes (Class I and Class II) maintaining more hygienic practices in comparison to middle (Class III) and lower class (Class IV and Class V) and the association was also significant.

Logistic regression analysis also shows that respondents educated up to high school and above were less likely to maintain unhygienic practices during menstruation. Similar findings were observed with the mother's educational status, that is, respondents of illiterate mothers were more likely to use cloths as absorbent during menstruation [Table 6].

Discussion

In the present study, majority of the respondents attain menarche between 10 and 14 years and the mean age was found to be 13.26 years, it is consistent with the findings of other studies (Subhash *et al.*,⁽⁵⁾ Khanna *et al.*,⁽³⁾ El-Gilany *et al.*⁽⁶⁾). Awareness regarding menarche before its onset among respondents is generally low in most of the cultures.⁽⁷⁾ In our study, only 29.4% of respondents were aware of menarche before its onset which was coherent with the findings of Indian Council of Medical Research (ICMR) report,⁽⁸⁾ Jogdand and Yerpude,⁽⁹⁾ Prateek *et al.*,⁽¹⁰⁾ and Subhash *et al.*⁽⁵⁾ However, Dasgupta and Sarkar⁽¹¹⁾ reported a higher percentage (67.5).

Findings from group discussions further suggest the survey findings, which is supported by the quote of

Table 6: Regression analysis of likelihood of maintaining unhygienic practices during menstruation vs respondents and their mothers education

Variables	Likelihood of maintaining unhygienic practices during menstruation			
	Unadjusted		Adjusted*	
	B (standard error)	Odds ratio (95% CI)	B (standard error)	Odds ratio (95% CI)
Education of respondents				
Up to primary		RE		RE
Middle school	-1.93 (0.64)	0.15**(0.04-0.51)	-1.98 (0.85)	0.14*(0.03-0.73)
High school and above	-2.47 (0.61)	0.08*** (0.03-0.28)	-2.18 (0.82)	0.11** (0.03-0.56)
Educational status of respondent's mother				
Illiterate		RE		RE
Literate	-2.15 (0.22)	0.12*** (0.08-0.18)	-0.88 (0.29)	0.41** (0.23-0.74)

*Adjusted for respondent's age, birth order, caste, religion, marital status, type of family and father's education, and per capita income of the household, * $P < 0.05$, ** $P < 0.01$, *** $P < 0.001$. RE: Reference category, CI: confidence interval

one respondent that “During my first period I was in school and I was terrified. knowing the reason my friend consoled me that it happens to every girl every month”. It is evident that menarche is a crucial event in adolescent girl’s life and ideally mothers should be the main informant. However, in our study, sisters (55%) played the key role and only 15.5% were mothers, which was similar to the findings of ICMR⁽⁸⁾ study. While in a study conducted by Subhash *et al.*,⁽⁵⁾ mothers were the first informant.

When they were enquired about the hygienic practices during menstruation, three-fourth of the respondents were not following hygienic practices. 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 (Subhash *et al.*).⁽⁵⁾ Our study revealed that most of the respondents used old clothes as absorbent and they reused the clothes after washing it, which is consistent with the findings of ICMR⁽⁸⁾ study. Only one-third respondents were using sanitary pad, this may be due to their low socioeconomic status, inadequate knowledge about hygiene during menstruation, and lesser availability of the pads in their villages. A study conducted by Khanna *et al.*,⁽³⁾ reported almost the same findings. While other studies, that is, Prateek *et al.*,⁽¹⁰⁾ Jogdandand Yerpude,⁽⁹⁾ and Dasgupta and Sarkar⁽¹¹⁾ reported higher use of sanitary pads. Logistic regression findings were coherent with the study conducted by Khanna *et al.*⁽³⁾ They also identified education as one of the major predictors of following hygienic practices during menstruation.

Group discussions also reveals the similar observations on the use of sanitary pads as in quantitative survey. On being asked about the availability of sanitary pads and other services which are important for their reproductive health, majority were not aware of the services for them. In our study, significant association was found between RTI and hygienic practices during menstruation, RTI was less (2.7%) among respondents who were using sanitary pads than those using clothes (6.6%), which was consistent with the findings of Khanna *et al.*⁽³⁾

Conclusion and recommendations

From FGDs as well as quantitative survey, it was found that the awareness about menarche was still poor, more than two-third of the respondents was not aware about menarche before its onset. Sisters played the vital role in informing them about menarche before its onset. In the present study, the role of teacher was found negligible in imparting awareness on various issues related to menstruation. More than two-third were still using old clothes and about one-fifth of them were reusing it. Logistic regression analysis also shows that respondents

with less education and with illiterate mothers were more likely to do unhygienic practices. It has been observed that respondents doing hygienic practices during menstruation were less prone to RTIs.

Study pointed towards the need for information on menstruation, especially about menarche before its onset and encouragement for the use of sanitary napkins as an absorbent. In the present study, majority of the respondents were school going and adolescent spends major time in their school. So teachers can play an influential role in informing them about changes during adolescence, especially about menarche and other issues related to menstruation. Sisters and mothers were the major source of information. Therefore, there is a strong need for the provision of comprehensive family life education for the parents also.

References

1. UNICEF State of Worlds Children-2011 Adolescence: An age of opportunity, p1 Available from: <http://www.unicef.org/sowc2011/pdfs/India.pdf> [Last accessed on 2011 Aug 23].
2. Dhingra R, Kumar A. Knowledge and practices related to menstruation among tribal (Gujjar) adolescent girls. *Etho-Med* 2009;3:43-8.
3. Khanna A, Goyal RS, Bhawsar R. Menstrual practices and reproductive problems: A study of adolescent girls in Rajasthan. *J Health Manage* 2005;7:91-7.
4. Varina Tjon A Ten. Menstrual Hygiene: A neglected condition for the achievement of several Millenium Development goals. Produced by Europe External Policy Advisors, Zoetermeer 10 2007.
5. Thakre SB, Sushama S, Thakre, Reddy M, Rathi N, Pathak K, *et al.* Menstrual hygiene: Knowledge and practice among adolescent school girls of Saoner, Nagpur District. *J Clin Diagn Res* 2011;5:1027-33.
6. El-Gilany AH, Badwi K, El-Fedawy S. Menstrual hygiene among adolescent school girls in Mansoura, Egypt. *Reprod Health Matters* 2005;13:147-52.
7. Mission document. National Rural Health Mission. 2005-2012. Ministry of Health and Family welfare, Govt. of India: Nirman Bhavan, New Delhi.
8. ICMR funded research project. Knowledge and practices of adolescent girls reproductive health with special emphasis on hygiene during menstruation; National Institute of public cooperation and child development; No. NI/CD/II/142/NT/2005 2006.
9. Jogdand K, Yerpude P. A community based study on menstrual hygiene among adolescent girls. *Indian J Matern Child Health* 2011;13:1-6.
10. Bobhate PS, Shrivastava SR. A cross sectional study of knowledge and practices about reproductive health among female adolescents in an Urban Slum of Mumbai. *J Fam Reprod Health* 2011;5:117-24.
11. Dasgupta A, Sarkar M. Menstrual hygiene: How hygienic is the adolescent girl? *Indian J Community Med* 2008;33:77-80.

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