

## Original Research Article

# Menstrual hygiene awareness, management and challenges among adolescent girls in rural areas in Ambala, India

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## ABSTRACT

**Background:** The present study was undertaken to encourage articulation of needs and problems of adolescent school girls in rural areas in Ambala district, India, advancing good menstrual hygiene and generating evidence on menstrual hygiene awareness, management and challenges.

**Methods:** This study was an observational cross-sectional study, conducted from July to September 2018, in two rural schools (school 1 and school 2) in Ambala, Haryana, India. A structured pre validated questionnaire was administered to the group of participating girl subjects of 11- 17 years; the questionnaire was explained to them, followed by a short animated film 'Mythri' in Hindi of 20 minutes imparting knowledge on MHM. The data was analyzed and the report was presented to the schools with recommendations.

**Results:** We observed better MHM facilities in school 2 than school 1. Provision of good infrastructure and MHM facilities in schools, reduces the absenteeism of girls during menstruation. A statistically significant difference in girl students absenteeism for an average of 2.15 (66.66%) days/ month in school 1, and an average of 1.44 (21.05%) days/month in school 2 is reported. Sanitary pads usage of 50%-83% girls is reported; this may probably be because of percolation of information and knowledge about good hygienic ways. Disposal of absorbent material still poses a big issue. Social taboos were reported by 84.44% girls in school 1 and by only 32.89% girls in school 2.

**Conclusions:** The insights from our study suggests a better MHM education in schools to create more awareness, judicious allocation of resources in schools, providing better infrastructure and basic support to manage menses effectively and with dignity.

**Keywords:** Menstrual hygiene management, Adolescent girls, Social taboos, Sanitary pads

## INTRODUCTION

Menstrual hygiene management (MHM) is an integral part of swachh Bharat mission guidelines (SBM-G) in India.<sup>1</sup> Managing menses effectively with dignity can be challenging for adolescent girls at school. There are a number of social and hygiene taboos around menstruation in many countries, leaving girls with a sense of shame, stigma, lower confidence and confusion to deal with monthly menstrual management issues.<sup>2</sup>

Girls studying in government run primary schools commonly miss school during menses because of lack of accessibility to resources, facilities or information they need for good hygienic MHM.<sup>3</sup> In a peri-urban population in Uganda menstruation was strongly associated with missed school days.<sup>4</sup> A study in India showed that only 12% of menstruating women used sanitary pads and 70% of women cited cost as a major barrier for using them.<sup>5</sup> In June 2011, the Government of India launched a new scheme to make sanitary pads available in selected rural areas at a subsidized cost of Rs 6 per pack of six sanitary

pads by accredited social health activists (ASHAs) who are village-based frontline health workers.<sup>6</sup>

Researchers are advocating for strengthening the MHM program in India. There needs to be more knowledge and awareness as well as better access to hygienic sanitary material and disposal of the same needs to be addressed.<sup>7</sup> Menstrual hygiene management and its link to girl education, health and psychosocial well being need to be addressed. The present study is a pilot study to encourage articulation of needs and problems of adolescent girls in rural areas in Ambala, India, advancing good menstrual hygiene and generating evidence on menstrual hygiene awareness, management and challenges. The study will also equip girls with adequate information and orient teachers to take up educational sessions and address MHM issues in their schools.

## METHODS

### *Participants*

Total 200 adolescent girls of 11-17 years from two rural schools (100 girls from each school) were initially planned to be included in the study who had started menstruating. Two schools were selected after talking to the village Sarpanch, who helped us in organizing our meeting with the Principal and girl students of the school. The second school had better infrastructure and facilities. We talked to girls in batches. Out of these 90 had started menstruating and were thus included in the study. The first school did not have a good infrastructure. We also found it difficult to find 100 girls who had started menstruating. Even after subsequent visits we could find only 78 of these girls had reached menarche and they were thus included in the study. Informed consent was obtained from the students, before data collection. Anonymity and confidentiality of the participants was maintained, all findings were presented without prescribing names or identifiable personal description.

### *Study site*

Two rural schools in and around Maullana village of Ambala district in Haryana were selected for the study. Consent from the principal of the school was obtained. The village has a mixed population of Hindus, Muslims and Sikhs. The survey was conducted in the school premises itself.

### *Study design*

The observational cross-sectional study was conducted from July to September 2018. Current study was conducted and reported according to best practice guidelines in strengthening the reporting of observational studies in epidemiology.<sup>8</sup> A structured questionnaire was administered to the group of participating subjects; the questionnaire was explained to them, followed by a short film called "Mythri" dubbed in Hindi of 20 minutes

imparting knowledge on MHM. The data was analyzed at the medical institute later on and the report was presented to the schools with recommendations subsequently.

### *Survey design*

The questionnaire was formulated after consulting a number of previous studies on MHM, additional questions were developed according to the feasibility and acceptability and further validated. A total of thirty questions were designed and translated in Hindi language, which are relevant to MHM problems faced by adolescent girls in rural schools, with students from low and/or mid income families.

The purpose of the study and the nature of the information asked in the questionnaire were explained to the girls. The questionnaire included topics related to awareness of menstruation, social taboos, hygienic practices during menstruation as well as restrictive practices. The chronological age and age of menarche was also elucidated. Questionnaire also included queries on type of absorbent material used, frequency of changing and cleaning, personal hygiene like washing of hands and clothes and their disposal practices. Also questions on washing; water, soap and toilet facilities at school and home were asked. Girls were asked if they miss school during periods and for what reasons, also their knowledge regarding association of menstruation and fertility. Girls were asked to suggest what changes they want at school and at home for MHM.

### *Orientation of teachers to address MHM*

After analyzing the data, a report of the analysis was presented to the teachers of the school with recommendations so as the teachers come to know of the issues and problems faced by the girls of the school and the suggestions put forth by the girls. Teachers were implored to take up educational sessions as a routine in their school and try to be more empathic and improve situations in their school which come under their preview.

### *Statistical analysis*

The results were computed using descriptive and influential statistics based on the objectives of the study. Data collected was analyzed by using SPSS software version 22.0 and the valid conclusions were drawn,  $p < 0.05$  and  $p < 0.01$  were considered as significant and highly significant respectively.

## RESULTS

The data of 168 girl students who had started menstruating from two different schools were analyzed. 90 adolescent girls from one school and 76 girls from the second school participated in the study. We tabulated the data as given in (Table 1).

**Table 1: Depicts analysis of questionnaire in school 1 and school 2.**

Questions	School 1 (90 students)	School 2 (76 students)
<b>Age (years)</b>	Range: 13-16	Range: 15-17
	Mean: 14.13	Mean: 15.96
<b>Age of start of menses (years)</b>	Range: 12-15	Range: 12-16
	Mean: 13.4	Mean: 14.28
<b>Do you have menses (yes/no), if yes? For how many day After how many day</b>	Range: 3-6 days	Range: 3-6 days
	Mean: 4 days	Mean: 4.6
	Range: 20-30 days	Range: 22-31 days
<b>Do you miss school during the menses (yes/no) How many days in a month</b>	Mean: 28.9days	Mean: 27.84
	No = 30 (33.33%)	No = 60 (78.94%)
	Yes = 60 (66.66%)	Yes = 16 (21.05%)
<b>Do you have any physical symptoms/mental symptoms during menses (yes/no) If yes what type Headache Stomach pain Back pain Mood swing Anything else</b>	Range: 1-5 days	Range: 1-3 days
	Mean=2.15 days	Mean = 1.44
	Yes=72 (80%)	Yes=66 (86.84%)
	No=18 (20%)	No=10 (13.15%)
	Symptoms type	Symptoms type
<b>Have you ever stained your clothes during most recent 3-4 periods (yes/no)</b>	4 (4.44%)	3 (3.94%)
	68 (75.55%)	66 (86.84%)
<b>What absorbent material do you use during menses? Explain?</b>	20 (22.22%)	18 (23.68%)
	15 (16.66%)	12 (15.78%)
	Students felt angry, irritable or depressed during those days.	Students felt angry, irritable or depressed during those days.
<b>Do you feel uncomfortable at school during those days? (yes/no)</b>	Yes=68 (75.55%)	Yes=49 (64.47%)
	No=22 (24.44%)	No=27 (35.52%)
	Pad=75 (83.33%)	Pad=38 (50%)
<b>Do menstrual problems interfere with school performance (yes/no). Explain?</b>	Cloth=12 (13.33%)	Cloth=11 (14.47%)
	Pad & cloth=03 (3.33%)	Pad & cloth=27 (35.52%)
	Yes=80 (88.88%)	Yes=43 (56.57%)
<b>Were you informed prior to menarche about menses (yes/no) If yes; by whom</b>	No=10 (11.11%)	No=33 (43.43%)
	Yes=72 (80%)	Yes=63 (82.89%)
	No=18 (20%)	No=13 (17.10%)
<b>Are there any social taboos by your parents/teacher during menses e.g. Not allowed to Visit temple Work in kitchen Have a head bath Or other misconception</b>	Yes=33 (36.66%)	Yes=42 (55.26%)
	No=57 (63.33%)	No=34 (44.73%)
	By whom:	By whom:
	Mother=12 (13.33%) Teacher =21 (23.33%)	Teacher =42 (55.26%)
<b>Do you change pad during school facilities (yes/no)</b>	Yes=76 (84.44%)	Yes=25 (32.89%)
	No=14 (15.55%)	No=51 (67.10%)
	60 (66.66%)	10 (13.15%)
	03 (3.33%)	00 (0%)
<b>How many times do you change pads in 24h?</b>	18 (20%)	15 (19.73%)
	00 (0%)	02 (2.63%)
	Yes=6 (6.66%)	Yes=30 (39.47%)
	No=84 (93.33%)	No=46 (60.52%)
<b>Do you have Toilet at home (yes/no) Toilet at school (yes/no)</b>	Once=12 (13.33%)	Once=00
	Twice=57 (63.33%)	Twice=60 (78.94%)
	Thrice=18 (20%)	Thrice=16 (21.05%)
	Four times=3 (3.33%)	Four times=00
<b>Do you have Toilet at home (yes/no) Toilet at school (yes/no)</b>	Both at school & home yes=90 (100%)	Both at school and home yes=76 (100%)

Continued.

Questions	School 1 (90 students)	School 2 (76 students)
<b>Is there provision of safe water and sanitation facility in school?</b>	Yes=90	Yes=76
<b>Do you wash hands after taking care of your menstrual hygiene at school/home? (yes/no)</b>	Yes=84(93.33%) No=06 (6.66%)	Yes=73 (96.05%) No=03 (3.94%)
<b>Is there provision of hand washing soap in your school?</b>	Yes=90 (100%)	Yes=76(100%)
<b>Is there a provision of emergency sanitary pads in school? (yes/no), if yes where?</b>	No provision	Yes=76 (by teacher)
<b>Are there safe and discreet waste disposal to dispose of used menstrual hygiene products in school? (yes/no) Where are they located</b>	No=90	Yes=76, Dustbin in toilets.
<b>How do you dispose sanitary pads in school At home</b>	School (no disposal) At home: bury in mud=48 (53.33%) Dustbin=42(46.66%)	Only those who change dispose them in dustbin in toilet. Most of the girls avoid disposal in school. Bury in mud=36 (47.36%) Dustbin=40 (52.63%)
<b>Do you get support from your school during periods? What type?</b>	Yes =90 they get leave from school to go home.	Yes= 66 (86.84%), (teachers provide pad in school, leave from school)
<b>Have you ever got vaginal infection due to periods? (yes/no) Any itching during periods Any itching or vaginal discharge in between periods.</b>	Yes=24 (26.66%) No=66 (73.33%)	Yes=20 (26.31%) No=56 (73.68%)
<b>Do you have access to sanitary napkins near your home. (yes/no)</b>	Yes=90 (100%)	Yes=76 (100%)
<b>Do you use them? If no, why not? Unavailability Cost Better hygiene material available Or awkwardness in buying them</b>	Unavailability=00 Cost =09 (10%) Better hygiene material available= 03 (3.33%) Or awkwardness in buying them=36 (40%) (mother buy for them)	Unavailability= 00 Cost =06 (7.89%) Better hygiene material available= 09 (11.84%) Or awkwardness in buying them= 33 (43.42%) (mother buys for them)
<b>What brands of sanitary napkins are available near your home?</b>	Sofy=06 (6.66%) Stayfree=21 (23.33%) Whisper=45 (50%) ProEase=09 (10%) Many said they didn't know	All brands=76 (100%)
<b>Do you have private place to wash, dry and dispose sanitary clothes at home? (yes/no) Where do you dry your sanitary clothes? Do you use water/soap/antiseptic to wash absorbent material</b>	Most said yes. A few said they hid washed clothes in closets, or under washed clothes.	Yes=76 Sundry=02 (2.63%) No. of girls use water, soap, antiseptic = 6
<b>Do you have knowledge of association between menstrual cycle and fertility? (yes/no) What is the cause of menstruation? Which organ blood comes from</b>	No one had any knowledge about this	No one had any knowledge about this
<b>Have you been sensitized in the school regarding menses? (yes/no)</b>	Yes=66 (73.33%) No=24 (26.66%)	Yes=76 (100%)
<b>Please give any embarrassing self accounts during menstrual periods during school hours, if any?</b>	Most said they were mocked by friends. Stress of staining clothes. At home stress of staining clothes at night. If they get stained and boys see it.	Get insulted when friends mock. Stain on shirt Teachers sometimes get angry with us if there is stain.

Continued.

Questions	School 1 (90 students)	School 2 (76 students)
<b>What are your suggestions to improve menstrual hygiene management, both at school and home? Please elaborate.</b>	In school: Availability of napkins at school. Dustbin at school bathroom. At home: A few said there should be a separate place at home to dispose pads. But most said that their Mom keeps everything ready for them at home.	In school: Availability of soap, black polythene, dustbin and pad & panty. At home: A few said there should be a separate place at home to dispose pads. But most said that their Mom keeps everything ready for them at home.

Chi-Square=34.539, df =1, p=0.000 (highly significant).

**Table 2: Depicts the comparison of number of students taking leave during menstrual period between two schools.**

Schools	Attendance	
	Present	Absent
<b>1 (90 students)</b>	30	60
<b>2 (76 students) (better menstrual hygiene management facilities available)</b>	60	16

Analysis of the data revealed mean age of menarche to be 13.4 yrs and 14.28 years in school 1 and school 2 respectively. We found in school 1, no sanitary pads were available in case of need. Toilets were separate for girls and boys but did not have any dustbins. Water and soap was available. While in school 2, sanitary pads were available from the teachers in time of need. There was a dustbin inside the toilet. Water and soap was available. Interestingly the absenteeism amongst girls due to menstruation was much less in school 2 (21.05% of girls missed school for an average of 1.44 day every month), then in school 1 (66.66% of girls missed school for an average of 2.15 days in a month) and it was statistically significant.

Dysmenorrhea was the chief complaint in 75.55% and 86.84% of girls in school 1 and school 2 respectively. According to 80% girls in school 1 and 82.89% girls in school 2, their academic performance deteriorated during the menstrual period. Social taboos were reported by 84.44% girls in school 1 and by only 32.89% girls in school 2. 83.33% girls in school 1 used pads, 13.33% cloth and 3.33% used both cloth and pad. While in school 2, 50% of girls used pads, 14.7% used cloth, while 35.52% used both cloth and pad. In school 1, 53.33% girls buried the pads, while 46.66% disposed them in dustbin.

In school 2, 47.36% girls buried them, while 52.6% threw them in dustbin. Cost was the main reason of not buying the pads or infrequent change of the pads. 36.66% girls in school 1 and 55.26% girls of school 2 were prior informed about menstrual hygiene by their mother or teacher.

They were quite engrossed in watching the movie “Mythri”. What we felt that the theoretical knowledge imparted by the teachers about MHM to them was not absorbed by them, but a simple engrossing movie helped them to understand and comprehend the basic information and anatomical and physiological aspects about MHM. The results of analysis of the questionnaire have been presented to the respective schools, for further necessary actions from their end.

## DISCUSSION

Integration of MHM with WASH in schools (WinS) was advocated to empower all students especially girls, also providing alternatives to the stigma and marginalization to girls in schools.<sup>9</sup>

Analysis of the data revealed mean age of menarche to be 13.4 yrs and 14.28 years, average period of menstrual cycle was 28.9 days and 27.8 days in school 1 and school 2 respectively. A recent study in adolescent girls in Sikkim found the average age of menarche to be 12.52 years.<sup>10</sup> Another study by Pathak et al examined the mean age of menarche in Indian women to be 13.76 years.<sup>11</sup> Better infrastructure and provision of better MHM such as dustbins in the toilets in schools, is inversely linked to menstruation related absenteeism in our study. The similar findings were reported by Ejik et al.<sup>7</sup>

Dysmenorrhea was the chief complaint in 75.55% girls in school 1 and 86.84% of girls in school 2. Irritability, anger, depression, headache and back pain are other major complaints. A study in Egypt in 2015 shown dysmenorrhoea as most prevalent (93%) symptom while another study by Koeske in 1975 linked depression and irritability to menstruation.<sup>12,13</sup> According to 80% girls in school 1 and 82.89% girls in school 2, their academic performance deteriorated during the menstrual period. Almost same results were observed in study by Aggarwal et al.<sup>14</sup> Cloth staining observed by 75.55% girls in school 1 and 64.47% girls in school 2. In school 1 there was no provision of disposal of waste products in school premises while in school 2 there were dustbins in school toilet. Fewer girls (6.66%) in school 1 change pads during school hours while comparatively more number of girls (39.47%) do so in school 2. A study by Garg and Anand

established that unfriendly school infrastructure, lack of menstrual usage products, clean hygienic and private sanitation facilities compromise the right of girl privacy.<sup>15</sup>

In most societies menstruation is a hidden phenomenon which is seen as unclean, embarrassing and taboo to talk about in open. While 84.44% girls in school 1 experienced social taboos, only 32.89% girls in school 2 experienced them. Most of the girls were not allowed to visit the temple during those days (66.66% and 19.73%), as they are considered impure. It was interesting to note that these taboos were less prevalent in school 2 girls, may be because of a progressive thinking of certain communities in certain areas of Punjab. Garg and Anand in 2015 found that the taboos have been present since centuries and a few are still illogically followed even today.<sup>15</sup> 83.33% girls in school 1 used pads, 13.33% cloth and 3.33% used both cloth and pad, this number is 50%, 14.7% and 35.52% for school 2. A study by Garikipati and Boudot in 2017 on women in Indian slum, it was observed the usage of pads to be 56-64% suggesting development programs have percolated down to the urban poor.<sup>16</sup> Similar results have been reported from school 2 of our study. It is observed that knowledge and awareness about the use of hygienic sanitary pads has increased their usage among adolescent girls which is reported in study by Dongre. The trend showed that adolescent girls perceived a positive change in their behavior and awareness about MHM.<sup>17</sup>

Frequency of changing pads among school girls in school 1 and school 2 was once in 13.33% and 00% girls respectively, twice in 63.33% and 78.94% girls respectively, thrice 20% and 21.05% respectively. Similar to the observations by Anand and colleagues in 2015, we got 26.66% girls in school 1 and 26.31% of girls in school 2 reported of getting itching and vaginal discharge caused by infrequent usage and change of pads during the day.<sup>18</sup>

All girls had provision of toilets at home, with facility of safe water and sanitation in schools as well as home. Most of the girls also washed their hands taking care of menstrual hygiene. Most of the girls in school 1 did not dispose the pads in school. 53.33% buried the pads after digging in mud, while 46.66% disposed them in dustbin at home. In school 2, few girls disposed the used pads in dustbin of school toilet, while at home 47.36% girls buried them in mud while 52.6% threw them in dustbin. There is a lack of concern in our country about disposal of sanitary napkins. The segregation of them as biomedical waste hardly occurs; there is hardly any documentation of this. Some superstitions are that women believe that pads need to be buried because they can be used for witchcraft and may lead to infertility and blindness. This belief has been reported in both North and South India.<sup>19, 20</sup>

The only support girl in school 1 got was leave from school whenever they had menses. While in school 2, the support was in the form of leave from school as well as availability of pads from school in case the need arose. Many of the girls who did not use sanitary pads or even those who used them reported that cost was the main reason of not buying the pads or infrequent change of the pads. A recent study by Goyal examined that there is a high correlation of price and quantity demanded as far as sanitary napkins are concerned. There is a high scope of reduction in prices that will surely boost up the demand of the product.<sup>21</sup> 40% girls in school 1 and 43.42% girls in school 2 reported awkwardness in buying the pads from the market. Girls who used cloth replied that they washed the cloth but dried it in dress cabinets or nooks and corners of the house where nobody could see them. Girls were told that cloth can be a sustainable sanitary option, but it must be hygienically washed and dried in the sunlight. Reproductive health and menstrual hygiene information should become a part of school curriculum. Vending machines should be installed in schools along with disposable incinerators.<sup>22</sup> 36.66% girls in school 1 and 55.26% girls of school 2 were prior informed about menstrual hygiene by their mother and some by their teacher. No girl in both the schools knew about the association between menstrual cycles and fertility. Education and information inclusive of hygienic practices and sex education empowers girls and women with factual information about their bodies and how to take care of them.<sup>22, 23</sup>

Most of the present efforts to deal with MHM have come forth from efforts of the WASH community initiative lead by UNICEF. But this community alone cannot advance this cause. Various state actors, schools, teachers, NGOs have to work in unison to plan local research, so that various feedbacks can be integrated to plan for a better and area specific MHM programs. There is a need to integrate MHM into existing programs and policies.<sup>24</sup>

## CONCLUSION

In current study we observed that provision of good infrastructure and MHM facilities in school, reduces the absenteeism of girls in school during menstruation. 50% to 83% girls reported using sanitary pads; this may probably be because of percolation of information and knowledge about good hygienic ways. Disposal of absorbent material still poses a big issue, with 47.36% to 53.33% girls reporting burying them, while 46.66% to 52.6% threw them in dustbins. The insights from our study suggests a better MHM education in schools to create more awareness, inclusivity of more schools in providing better infrastructure and basic support to manage menses effectively and with dignity.

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