

# Title: Menstruation and Menstrual Hygiene Practices in Rural Haryana, India: A Population based KAP Study

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## Abstract

**Background:** Menarche, which marks the start of the reproductive stage of life, is the most important biological event in a girl's life. Menstruation is still stigmatised upon especially in developing countries including India despite being a normal cycle for women. Women are at risk for developing genital infections due to poor menstrual hygiene due to lack of knowledge on menstrual hygiene. **Objective:** The present study aimed to assess knowledge, attitudes, and practices on menstruation and menstrual hygiene in rural Haryana, India. **Materials and Methods:** A cross-sectional study was carried out among students attending schools and colleges in Budhera and adjoining villages of Haryana, India. Predesigned questionnaire for data collection included information on demographic variables, knowledge, attitudes and practices (KAP) regarding menstruation and menstrual practices. **Results:** A total of 500 female and 250 male students were included in the present study. The female participants' KAP about menstruation and menstrual hygiene varied by age. One third used sanitary pads during menstruation and majority of them used old clothes. More than one third revealed that they changed the absorbent once a day. Among the male study participants, more than half of them had brief knowledge about menstruation. However, 98% had still adamant that women should not enter a religious place or should not touch a cow during menstruation. **Conclusion:** Inadequate menstrual hygiene practice and existence of menstrual taboos should be prevented by sensitising the public on menstruation and promote public health knowledge among female students.

**Keywords:** Menstruation, menstrual hygiene, rural, KAP

## 1. Introduction

Adolescence in girls has been recognized as one of the important stages signifying the transition from childhood to womanhood. According to the World Health Organization, adolescence occur in girls aged 10-19 years, during which hormonal, physical, psychological and social changes occur [1,2]. The first menstrual period, or menarche, which generally occurs between the ages of 12 and 13 and indicates the beginning of the reproductive stage of life, is the most significant biological event in the life of an adolescent girl [3]. Despite the fact that menstruation is a natural cycle for women, it is still considered a taboo worldwide. There are beliefs that sustain period's stigma which affect daily lives of menstruating individuals back from school/college, access to jobs, and many more [4]. According to a report, more than 1,37,700 girls in England missed school in 2017 as a result of the non-affordability of menstrual products. Additionally, girls lose their education due to stigma and embarrassment that still exist, and using menstruation products longer than recommended has a negative impact on their health [4]. Unhygienic menstrual practices among the females situate their health at risk of developing reproductive tract infections, pelvic inflammatory diseases and other complications [5]. Approximately 10% of women across the globe are exposed to genital infections and 75% of women have a history of genital infection, with poor menstrual hygiene being one of the risk factors [5,6].

In Indian society, this normal physiological process of menstruation is generally considered unclean or dirty, thus inadequately acknowledged or rarely talked about especially in rural area and often imposed restriction on women's religious and social norms [2,3]. Some of the myths related to menstruation are restriction in entering holy places and daily activities during their menstrual cycle such as not being allowed to take bath, if they do so they will become infertile, not allowed to touch a cow (or it will become infertile), look in a mirror (or it will lose its brightness), or touch a plant (or it will die) or touch pickle pot (or it will get spoiled). In addition to these still-practiced beliefs in India, several other Asian nations have distinct menstruation-related myths [7]. Due to such taboos in the society, the emotional state, lifestyle, mental health and physical health are worst affected especially among women in rural areas which do not have adequate knowledge regarding menstruation and do not reach to menstrual hygiene facilities due to which it is often encountered with fear, apprehension, panic and suffering [7]. In young girls of developing countries including 23% of Indian girls, it has been reported that they drop out of school when they begin menstruating [7,8]. The present study aimed to assess knowledge, attitude and practice regarding menstruation and menstrual practices among women of rural Haryana. Additionally, knowledge on menstruation among males of rural Haryana was assessed.

## 2. Material and methods

This cross-sectional study was conducted over a period of two months (August and September 2021) among male and female population (>10 years old) attending school and colleges in Budhera and adjoining villages of Haryana, India. Ethical approval for the study was obtained from the Institutional Ethics Committee prior to the study (SEC/FMHS/UG/14/07/21-17). Written informed consent was obtained from all the study participants.

### *Sampling strategy*

For selection of study participants from each village, proportional number of participants was selected by simple random sampling technique. A total of 500 female and 250 male population were included in the study as group 1 and group 2 study participants, respectively. Consent was taken from all the study participants or from their parents (for study participant age <18 years) and detailed about the objectives of the present study.

### *Data collection tool*

For collection of data, two sets of pre-designed questionnaire for male and female study participants prepared in both English and Hindi was provided to each participant as per their gender and choice of language. They were given a brief training to familiarize them with the study objectives, importance of the study, confidentiality of information and study participants' rights. The predesigned questionnaire for female study participants includes information on demographic variables, knowledge, attitude and practice regarding menstruation and menstrual practices. For male study participants, the predesigned questionnaire included information on demographic variables and knowledge regarding menstrual practices.

### *Statistical Analysis*

The data collected using the questionnaire were entered in MS excel and were analysed and interpreted as number, percentages, mean and standard deviation.

## 3. RESULTS

This study assessed the knowledge, attitudes, and practices of menstruation and menstrual hygiene among female students (group 1, n=500) attending schools and colleges in Budhera and the adjoining villages. In addition to the female respondents, a total of 250 male students participated in the evaluation of menstruation knowledge.

### *Socio-demographic characteristics*

Majority of the study participants in both groups, group 1 (female students, n= 500) and group 2 (male students, n= 250), belonged to the age group of 14-17 years. A total of 218 (43.6%) of female study participants of group 1 were in 8th-10th grade when their educational status was evaluated, whereas majority of male study participants of group 2 (n= 128, 51.2%) were in 10th-12th grade. Approximately, one-tenth of study participants in each group were college students pursuing either a bachelor's degree or a master's degree. Since the study was conducted in rural areas of Haryana, tradition of joint family is still reflected in the study as majority of the respondents in both the groups were from such families. The approximate analysis of the financial status of the parents revealed that

majority of the families of group 1 and group 2 (65% and 59.6%, respectively) had income of >Rs 15,000/- per month while remaining 35% and 40.4%, respectively had income of <Rs 15,000/- per month. As mother are considered as first source of information regarding menstruation for girls, the education status of the study participants' mother was analysed. Majority of them had received education up to secondary level (34%), 32% had been educated up to elementary level, few were college graduates (9.6%) and 24.4% were illiterate. Furthermore, when the maternal occupation was analysed, majority of them were found to be home makers (83%) while 17% were in service (Table 1).

**Table 1. Socio-demographic characteristics of the study population**

Demographic variables		Study population, No. (%)	
		Female (n= 500)	Male (n= 250)
Age (years)	10-13	156 (31)	25 (10)
	14-17	190 (38)	103 (41.2)
	18-22	44 (9)	62 (24.8)
	>22	110 (22)	60 (24)
Education level	Below 8 <sup>th</sup> grade	128 (25.6)	20 (8)
	8 <sup>th</sup> -10 <sup>th</sup> grade	218 (43.6)	72 (28.3)
	10 <sup>th</sup> – 12 <sup>th</sup> grade	108 (21.6)	128 (51.2)
	College level	46 (9.2)	30 (12)
Type of family	Joint	322 (64.4)	153 (61.2)
	Nuclear	178 (35.6)	97 (38.8)
Socio-economic status (income in Rs)	>Rs 15,000/ month	325 (65)	149 (59.6)
	<Rs 15,000/ month	175 (35)	101 (40.4)
Educational status of mother	Illiterate	122 (24.4)	61 (24.4)
	Elementary	160 (32)	84 (33.6)
	Secondary	170 (34)	66 (26.4)
	Senior secondary	48 (9.6)	39 (15.6)
Occupational status of mother	Working	85 (17)	50 (20)
	Homemaker	415 (83)	200 (80)

### ***Knowledge and attitude of female students about menstruation and menstrual hygiene***

As the female study participants belonged to different age groups, their perception, knowledge and attitude about menstruation and menstrual hygiene also differs. Thus, their knowledge and attitude had been assessed and depicted in table 2. All the respondents except 58 young girls belonging to age group 10-13 years had prior knowledge about menstruation and its process i.e., shedding of blood and tissues from vagina. Compared to individuals in other age groups, significantly higher proportion of this young girls' group (60.3%) stated that they had prior idea about menstruation before menarche. As in schools, menstruation has been included in the Science syllabus, it can be considered as one of the important sources of information regarding menstruation. This is reflected by the response from the students of all age groups (14-17 years, 18-22 years and >22 years) who revealed that menstrual cycle knowledge has been received from teachers. While only 57.1% of young girls belonging to 10-13 years revealed information about menstrual cycle received from teachers. This could be due to the fact that these girls may not have been reached to upper standard where menstrual cycle is been taught.

Family members such as mother, sister, aunt or grandmother have also found to be source of knowledge regarding menstrual cycle (38.6% to 47.9%). Among the study participants, majority of them revealed that menstrual discharge is bad (86.5 to 100%). Furthermore, the knowledge of the relationship between menstrual cycle and pregnancy was assessed, all the respondents of age group >22 years were aware about the relationship while less than half of the young girls belonging to age group 10-13 years were unaware about this fact. When the association between the menstrual cycle and pregnancy was analysed, it was found that all respondents older than 22 years knew about it, while less than half of young girls in the 10-13 years age range were unaware about the fact.

When knowledge and attitude on menstrual hygiene was assessed, more than half of the participants in all the subgroups (51.6-61.8%) revealed that special hygiene is required during menstruation. Approximately <20% of the female respondents in each group answered that menstrual hygiene has been discussed in class. Family members have been the major source of information regarding the same (38.2-47.5%), other sources were media (16-30.9%), teacher (10-19.2%) and friends (0-11.3%). Menstrual hygiene has been discussed more among older age groups and similarly more than half of them had knowledge regarding infections that can be developed when poor menstrual hygiene is practiced (Table 2).

**Table 2. Distribution (%) of female study participants with appropriate knowledge about menstruation and menstrual hygiene**

Variables		Age group of study population, No. (%)			
		10-13 years (n= 156)	14-17 years (n= 190)	18-22 years (n= 44)	>22 years (n= 110)
<b>Menstruation</b>					
What is menstruation?		98 (62.8)	190 (100)	44 (100)	110 (100)
Do blood and tissues discharge through vagina during menstruation?		98 (62.8)	190 (100)	44 (100)	110 (100)
Any knowledge about it before it started?		94 (60.3)	104 (54.7)	22 (50)	57 (51.8)
Who provided the knowledge about menstrual cycle?	Teacher	89 (57.1)	190 (100)	44 (100)	110 (100)
	Family	72 (46.2)	91 (47.9)	17 (38.6)	46 (41.8)
	Friend	5 (3.2)	12 (6.3)	2 (4.5)	0 (0.0)
	Media	4 (2.6)	4 (2.1)	2 (4.5)	26 (23.6)
Is discharge in menstrual is bad?		135 (86.5)	190 (100)	42 (100)	59 (53.6)
Is the menstrual cycle is related to pregnancy?		65 (41.7)	169 (88.9)	41 (93.2)	110 (100)
<b>Menstrual hygiene</b>					
Any special hygiene required during menstruation?		74 (52.2)	98 (51.6)	25 (56.8)	68 (61.8)
Is menstrual hygiene learnt in class?		30 (19.2)	25 (13.2)	7 (15.9)	11 (10)
Source of information about Menstrual hygiene	Family	65 (41.7)	82 (47.5)	20 (45.5)	42 (38.2)
	Teacher	30 (19.2)	25 (13.2)	7 (15.9)	11 (10)
	Friend	0 (0)	12 (6.3)	5 (11.3)	6 (5.5)
	Media	25 (16)	50 (26.3)	11 (25)	34 (30.9)
Have you ever discussed about menstrual hygiene?		21 (13.5)	48 (30.8)	13 (29.5)	28 (25.4)
Poor menstrual hygiene predisposes to infection		25 (16)	91 (47.9)	24 (54.5)	62 (56.4)

#### *Menstrual practice among menstruating female study population*

Out of 500 female study participants, 425 (85%) have already attended menarche. About three-fourth of the menstruating women felt scared when they menstruate for the first time. When the symptoms during menstruation were analysed, abdominal cramp was the most common symptom (60%), followed by tiredness (58%) and backache (29%). Majority of them still practice use of old clothes (59.3%), while sanitary pads were used only by 38% of the individuals. Two of them revealed use of newspaper as absorbents during menstruation. The frequency of changing menstruation products varies from person to person depending on the amount of blood flow. One menstrual product change per day is made by about 36% of them, two changes per day by 40%, and three changes per day by 16%, and more than three times per day by 8%. A total of 332 (78%) study respondents had toilet facility at home. About one fifth of them increased frequency of bathing during menstruation, 20% of the young respondents who had just attended menarche do not take bath during menstruation. The average number of days of bleeding during menstruation was found to be  $4\pm 2$ . When the reason for absenteeism during menstruation was evaluated, none of them revealed about their restriction to attend school, instead they skip school due to pain and discomfort (19%), excessive bleeding (35%) and no private place to manage period at school (29%). Expectedly some of the girls still skip school out of shame (28%) (Table 3). In rural India, there is still restriction in visiting religious place or touching cow during menstruation which is fairly reflected in our findings also.

**Table 3. Assessment of menstrual practice among menstruating female study population**

Variables		Menstruating study participant (n= 425) No. (%)
Scared when menstruate for the first time		319 (75)
Symptoms experienced during menstruations	Cramps	255 (60)
	Backache	123 (29)
	Tiredness	247 (58)
	Diarrhoea	43 (10)
	Others	39 (9)
Menstrual product used	Sanitary pads	162 (38.1)
	Old clothes	252 (59.3)
	Newspaper	2 (0.5)
	Hand towels	9 (2.1)
	Others	0
Frequency of change of pads/clothes/others	Once daily	153 (36)
	Twice daily	170 (40)
	Thrice daily	68 (16)
	More than thrice daily	34 (8)
Toilet facility available at home		332 (78)
Increased frequency of bathing during menstruation		77 (18)
No bathing during menstruation		85 (20)
Average no. of days during menstruation		$4\pm 2$
Reason of absenteeism	Not permitted to attend school	0 (0)
	Pain or discomfort	81(19)

	Excessive bleeding	149(35)
	Out of shame	119 (28)
	No private place to manage period at school	124 (29)

#### ***Knowledge and attitude towards menstruation and menstrual hygiene among female and male study population***

To evaluate knowledge and attitudes towards menstruation and menstrual hygiene, the information collected from female and male study participants was compared. Majority of the study participants in both the groups had knowledge on menstruation (88.4% and 64.8% females and males, respectively). Half of the females had prior knowledge on menarche. Due to the inclusion of menstrual cycle in the syllabus of school children, majority of the females as well as males had knowledge regarding the same. All the males consider discharge in menstruation bad, even majority of the females also consider the same (85.2%). Females had higher knowledge about relationship between menstruation and pregnancy (77%) compared to males (50%). Low proportion of both the groups revealed menstrual hygiene learnt in school. Among the male respondents, 20.8% of them had the firm answer not to allow menstruating girls at school. Additionally, majority of them (98%) responded that menstruating girls/ women should not be allow visiting temple or touching a cow. While one third of the female study participants consider girls to be allowed in visiting religious places and also allowed to touch cow during menstruation (Table 4).

**Table 4. Comparison of knowledge and attitude towards menstruation and menstrual hygiene among female and male study population**

Variables		Study participants, No. (%)	
		Females (n= 500)	Males, (n= 250)
What is menstruation?		442 (88.4)	162 (64.8)
Do blood and tissues discharges through vagina during menstruation?		442 (88.4)	152 (60.8)
Any knowledge about it before it started?		277 (55.4)	NA
Who provided the knowledge about menstrual cycle?	Teacher	433 (86.6)	142 (56.8)
	Family	226 (45.2)	0 (0)
	Friend	19 (3.8)	30 (12)
	Media	36 (7.2)	25 (10)
Is menstrual discharge bad?		426 (85.2)	250 (100)
Is the menstrual cycle is related to pregnancy?		385 (77)	125 (50)
Is menstrual hygiene learnt in class?		73 (14.6)	32 (12.8)
Not to permit attending school during menstruation		0 (0.0)	52 (20.8)
Should be allow to visit religious place		152 (30.4)	5 (2)
Should be allowed to touch a cow		152 (30.4)	5 (2)

#### **4. Discussion**

The present study has been conducted among the girls and young women belonging to rural villages of Haryana. In this study, majority of the females had the knowledge of menstruation and its process. As menstruation and menstrual hygiene have not been openly discussed in Indian society, mother plays an important role in providing information on such topics. Thus, maternal education level is important as the more knowledgeable the mother is, the better will be to support their daughters during the critical stage of puberty. In the present study, half of the students had received knowledge on menstruation from their mother. A study from Iran observed that more than half of the teenager girls (56%) consider their mother as current source of information on puberty, menarche and menstruation. This finding is comparable to our study.<sup>[9]</sup> Furthermore, the present study observed that teachers



were the most important/ common source of information regarding menstrual cycle. Similar findings have been revealed by a study from Mumbai, India [10]. More than half of the female study participants in the present study had knowledge about menstruation prior to menarche. This finding is in accordance with a study from Mumbai, India which reported 58.3% of young women having knowledge about menstruation before menarche [10]. Contrary to the findings of the present study, much higher proportion of study participants in a study from Ethiopia were already aware about menstruation before menarche has been reported (92%) [11].

Adolescent girls have been reported to suffer from various reproductive health problems associated with menstruation. Globally 10% women are exposed to genital infections every year including urinary tract infections and bacterial vaginosis while 75 % of women have a history of a genital infection. Specifically, the common risk factors for vaginal infections in women of reproductive age group include pregnancy and poor hygiene which included both peri-anal and menstrual hygiene [12]. About 40.4% of the study participants in the present study revealed that they were aware of infection in females resulting from poor menstrual hygiene. This emphasises the requirement for menstrual hygiene education among females of all age groups in order to prevent episodes of genital tract infections caused on by the avoidable risk of poor menstrual hygiene.

In the present study, 75% of the females experienced fear/scared when they got their first menstruation. A study revealed due to lack of knowledge on menstruation in many young girls before their first menstruation, they were very scared when it happened [10]. Among young women in India, lack of prior knowledge and misconceptions about menstruation leads to undue fear, anxiety and undesirable practices such as young girls trying to block their genital opening using unhygienic items [13]. Report on lack of awareness regarding menstruation in young girls have been reported in studies from Delhi [14,15]. Similar findings are also reported from other parts of India [16-19]. The most common symptoms experienced by majority of the study participants were abdominal cramp, tiredness and backache. This finding was comparable with findings of a study from Mumbai, India which reported pain in abdomen (dysmenorrhea) being the most common symptom, followed by backache and bodyache [10]. In the present study, 59.3% of the menstruating females used old clothes, sanitary napkins have been reported to be used by 38.1% of them. As old clothes are easily available and being the cheapest item that can be used during menstruation, use of this item has been used by girls of low-income families or those who cannot afford sanitary napkins. A study from Ethiopia also reported use of sanitary napkins during menstruation (37%) by the women respondents and 62.4% were using rags and pieces of cloth [20]. Studies from different parts of India reported majority of young girls using and reusing old clothes during their period days [14,16]. In the present study, 36% and 40% of the menstruation women admitted to changing their sanitary napkins or old clothes once daily or twice daily, respectively. While a study from Ethiopia reported 11% girls changing their menstrual clothes once a day [21]. Menstruating women in rural India are forbidden from going to religious places or petting cows while they are having their periods. This practice is reflected in the present study as all the females revealed that they were being prohibited from visiting religious sites or petting cows. A study from Delhi, India reported 92% of menstruating women being restricted in religious and social activities [16].

In our study, majority of the young males were aware about menstruation while some of them have already learnt about menstrual cycle in schools. Similarly, a study from India reported that some boys were already aware about menstruation as they had learnt about puberty and menstruation as part of the school curriculum. Many had the awareness about the same from informal sources such as overhearing conversations or observing cultural rituals or when girls are seen restricted from religious activities [22]. When asked about the opinion from males whether menstruating females should be allowed to enter a religious place or touch a cow, 98% of them expressed their unwillingness. This highlights the need for giving education on menstruation among males also so that age old menstrual practice can be abolished. Similar findings have been observed in a study from India where few boys openly displayed a negative attitude, and a minority voiced the idea that menstruation is a 'disease'. Some of the young males were sympathetic to their menstruating sisters and wanted to support them [22].

## 5. Conclusion

The present study highlights poor menstrual hygiene practice among the female study participants, this could be due to lack of knowledge on infections that may result from such subpar practice. Social stigmas and taboos associated with menstruation still exists as observed in the study. Educating children of both the sexes about menstruation, the normal physiological process in females at school level could be a key strategy for eradicating

such taboos in our society. Furthermore, educating girls about the importance of menstrual hygiene practices in order to protect themselves against genital tract infections.

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