

## Original Research Article

# Awareness, perceptions and practices regarding menstruation and menstrual hygiene among students of a college in Bengaluru Urban district, South India: a cross sectional study

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## ABSTRACT

**Background:** Millions of women face significant barriers in menstrual hygiene management due to inadequate awareness, misconceptions and erroneous practices. The objectives of the study were to assess the awareness, perceptions and practices regarding menstruation and their associated factors among youth of a peri-urban college in Bangalore Urban district.

**Methods:** A cross-sectional study was conducted among both male and female students studying in a degree college. A pre-designed, face-validated structured questionnaire was administered to all students present on the day of the study.

**Results:** Of the 758 students, 372 (49.1%) were male and 386 (50.9%) were female. The mean age was  $19.35 \pm 1.40$  years. A consolidated score above 50% i.e. 07/14 was considered adequate for knowledge. The mean knowledge score was  $7.51 \pm 2.52$ . Overall 389 (51.3%) students had adequate knowledge. Awareness levels were significantly better among females (72.3%) than males (29.6%). Among the female students, 384 (99.5%) were aware of sanitary napkins, 165 (42.7%) of menstrual cup, 12 (3.1%) of tampon and 254 (65.8%) of reusable cloth, however majority (96.9%) preferred use of sanitary napkins. Among the female students, 42.6% were expected to follow some social and cultural restrictions during menstruation. Main source of information regarding menstruation and various menstrual products was internet. Misconceptions documented regarding menstruation included the belief that menstrual blood is poisonous (75.2%). Positive attitude towards menstruation was low both among male students (21.5%) and female students (48.4%).

**Conclusions:** Awareness levels were poor among males than females. Practices regarding menstrual hygiene were adequate. However, misconceptions were widely prevalent among both genders indicating the need for health education among college-going childhood.

**Keywords:** Awareness of menstruation, Menstrual hygiene, College youth, Men

## INTRODUCTION

Menstruation is a normal physiological process which begins at 11 to 15 years of age.<sup>1</sup> Menstrual hygiene plays an important role in the health of young women. Healthy young women today will be the healthy mothers of

tomorrow.<sup>2</sup> Socio-culturally, menstruation is associated with myths and misconceptions which is different in different cultures.<sup>3</sup> There is a need for creating the right awareness in communities, especially among girls and women, to reinforce the understanding that menstruation is a normal physiological process. The incidence of

reproductive tract infections reduces with hygienic practices like use of hygienic sanitary protection.<sup>4</sup> Therefore knowledge regarding menstruation and menstrual hygiene assumes a key role in reproductive health.

Male role in reproductive health has been acknowledged as an important contributor.<sup>5</sup> However, most men do not know about the normal physiology of menstruation, such as the menstrual cycle and the hygienic measures that should be taken during menstruation, even though they are often responsible for decision-making regarding health facilities and services needed by women and girls.<sup>6</sup> Men and boys can support women in different domains during menstruation starting from the household, community, workplace etc.<sup>5</sup>

Therefore, addressing strategic issues regarding menstruation should aim both at men and women, to bring about significant changes in their attitudes and behavior towards menstruation.

Studies which were conducted earlier have targeted mainly girls and women. There are very few studies which assess the knowledge and attitude towards menstruation in both men and women.

One of the reasons why menstrual hygiene is often poor is because menstruation is rooted in a “culture of shame” for girls and women with a resultant lack of support from their male counterparts. Therefore, this study was conducted with the aim of assessing the knowledge and attitudes regarding menstruation in both young men and young women, the practice of menstrual hygiene among young women as well as the associated factors.

## METHODS

The study was a cross – sectional study conducted for a period of 3 months (September – November) in 2018, among both male and female students studying in a degree college – St. Francis De Sales degree college, Hebbagodi, Anekal taluk, located in peri-urban Bangalore. Sample size was calculated as 314, with 95% confidence limits and 80% power, based on a previous study<sup>7</sup> where 28.7% girls knew the exact process during menstruation. It was decided to include all the students in the college present on the days of the study. The study was conducted on 7 pre-scheduled days. The students were informed regarding the need for the study and a written informed consent was taken from all the students included in the study. Data was collected using a face-validated, semi-structured and self-administered questionnaire which included details on socio-demography, knowledge, attitude, practices and social restrictions regarding menstruation.

Knowledge regarding menstruation was assessed through 14 questions, with one mark for each correct response,

giving a maximum possible total score of 14 marks. Scores 8 and above were considered adequate knowledge.

Students then participated in health education sessions, separately for men and women.

Prior permission was obtained from the college authorities and ethical approval was obtained from the institutional ethics committee (IEC approval no. 137/2018).

The data collected was entered in MS Excel and analyzed using SPSS statistical software. The data was described using frequencies, proportions, mean and standard deviation. Outcome variables (adequate knowledge, adequate practice) were associated with various socio-demographic factors using independent t test, chi-square test and Fischer’s exact where applicable. A  $p < 0.05$  was considered significant.

## RESULTS

### *Socio-demographic details*

The study included a total of 758 students of which 372 (49.1%) were male students and 386 (50.9%) were female students. The mean age of the students was  $19.35 \text{ yrs} \pm 1.403$ . Majority of the students belonged to urban population which constituted 412 students (54.5%) and 656 (86.5%) students stayed in a nuclear family.

Most of the students were Hindu by religion 60 (73.9%). The mean per capita income was Rs. 7462 per person. The mean age of menarche was  $13.38 \text{ yrs} \pm 1.238 \text{ yrs}$ .

### *Knowledge regarding menstruation*

The mean knowledge score was  $7.51 \pm 2.523$ . Overall 389 (51.3%) of the students had adequate knowledge. Among male students, only 110 (29.6%) students had adequate knowledge and among the female students, 279 (72.3%) had adequate knowledge. Before attaining menarche, only 211 (54.7%) of the girls had some knowledge regarding menstruation and their main source of information had been their mother.

Majority of the students, 557 (73.5%) knew that menstruation takes place once in 28 to 30 days, 405 (53.4%) knew that menstrual bleeding occurs for 2 to 7 days, 431 (56.9%) did not know the source of menstrual blood, 152 (20.1%) thought that menstrual blood originated from the urinary bladder, 313 (41.3%) students did not know that menstruation is due to hormones, and 35 (4.6%) thought that menstruation occurs due to curse of God.

Majority of the students, 481 (63.5%) were not aware of menopause and 526 (69.4%) students were not aware of pre-menstrual symptoms. 107 (14%) of the students said that women continue to menstruate during pregnancy.

Majority of the students, 570 (75.2%) believed that menstrual blood is poisonous and 473 (62.4%) believed that it is harmful if women run or dance during periods.

There was a significantly higher knowledge regarding menstruation among the young women as compared to the young men and knowledge was significantly higher among those who reported having received information regarding menstruation at school (Table 1).

**Table 1: Knowledge regarding menstruation and its associated factors.**

Factor	Category	Knowledge		P value
		Adequate (n=389) N (%)	Inadequate (n=369) N (%)	
<b>Age at menarche</b>		13.30±1.203	13.58±1.311	0.045*
<b>Gender</b>	Male	110 (29.6)	262 (70.4)	0.000
	Female	279 (72.3)	107 (27.7)	
<b>Source of information-school</b>	Yes	267 (68.5)	123 (31.5)	0.000
	No	122 (33)	246 (67)	

\*Independent sample t test.

**Table 2: Multilogistic regression analysis between awareness levels and various factors.**

Factor	Category	Odd's ratio	Confidence interval	Significance
<b>Gender</b>	Male	1.460	3.060-6.055	p<0.001
	Female	-	-	
<b>Source of information-school</b>	Yes	0.917	0.917-1.779	p<0.001
	No	-	-	

The awareness level was low among women who attained menarche at an earlier age which was statistically significant (Table 1). There was a negative correlation between mean age of menarche and awareness levels and it was found to be significant on performing a multilogistic regression analysis. “r”=-0.174 (p<0.001)

It was found that women with higher awareness levels regarding menstruation were comfortable in talking about menstruation when compared to women with lower awareness levels which was statistically significant (p=0.000).

Multilogistic regression analysis was conducted and it was found that awareness regarding menstruation was statistically significant with gender, age at menarche and source of information-school (Table 2).

### Menstrual history

The mean age of menarche among the female students was 13.38±1.238 yrs. Only 43 (11.1%) felt happy after attaining menarche, 125 (32.5%) felt scared and 195 (50.5%) felt irritated during menarche. Almost 220 (56%) had a traditional celebration after their first periods. Majority of them, 275 (71.2%) had some sanitary product to manage during their first periods.

The mean number of days of bleeding among the female students was 4.92±1.765 days and almost 301 (78%) had regular periods. Severe abdominal pain was experienced by 121 (31.3%) during menstruation and 18 (4.7%) reported atleast one episode of urinary tract infection in

the last 6 months. Only 184 (47.7%) of the young women were comfortable talking about menstruation.

### Practices during menstruation

The use of cloth as sanitary protection was reported in 69 (17.9%) of female students, the rest were all using sanitary napkins. Of these, less than half of those who used cloth, washed the cloths with soap and dried them in the sun. Among those using sanitary napkins, 145 (37.7%) disposed the napkins wrapped in paper and in a separate container, 90 (23.4%) burned the used napkins, 99 (25.7%) disposed the used napkins in a common bin and 50 (13%) flushed the used napkins in the toilet.

108 (28.1%) miss college during periods due to various reasons such as abdominal pain, fear of bad smell during menstruation, fear of staining in clothes, lack of safe disposal methods and traditional restrictions.

352 (91.2%) took bath during menstruation and 373 (96.6%) washed their private parts after changing their sanitary product. 356 (92.2%) did not use any products on private parts, whereas 21 (5.4%) used talcum powder and 4 (1%) used deodorant on their private parts.

Almost 384 (99.5%) students, had heard of sanitary napkin, and almost 374 (96.9%) preferred use of napkins. Among the various other products, 165 (42.7%) students were aware of menstrual cup, 12 (3.1%) students were aware of tampon, 348 (90.2%) were aware of cloth and 254 (65.8%) were aware of reusable cloth.

**Table 3: Use of various menstrual products.**

Product	Heard n=386 N (%)	Used at least once n=386 N (%)	Preferred option n=386 N (%)
Sanitary pad	384 (99.5)	379 (98.2)	374 (96.9)
Menstrual cup	165 (42.7)	8 (2.1)	1 (0.3)
Tampon	12 (3.1)	12 (3.1)	5 (1.3)
Cloth	348 (90.2)	159 (41.2)	69 (17.9)
Reusable cloth	254 (65.8)	64 (16.6)	13 (3.4)

Almost all 384 (99.6%) young women were aware of sanitary napkins and the most preferred sanitary product was sanitary napkins-374 (96.9%) followed by cloth 60 (15.5%). Although 165 (42.7%) were aware of menstrual cup hardly anyone preferred it.

Use of technology regarding menstruation and menstrual products were also assessed, and it was found that internet was the main source of information. More than half of the students had used internet to obtain information from internet.

The information regarding menstruation had been obtained by 155 (20.4%) students through television and 411 (54.2%) students from internet. For gathering information regarding various menstrual products 136 (17.9%) students had used TV and 389 (51.3%) students had used internet. Knowledge regarding solutions for various menstrual related problems were obtained from 81 (10.7%) TV and 428 (56.5%) from internet.

### Attitudes regarding menstruation

Participants were asked whether girls should follow restrictions during menstruation such as should not be allowed to enter the house/temple, should not be allowed to eat with others/should not be allowed to eat certain food items/ cannot attend functions/cannot play sports etc (Table 2).

Students who reported of that women should follow any one of these restrictions, were considered to have a negative attitude. Negative attitude to menstruation was higher among young men 292 (78.5%) compared to 187 (48.4%) young women, and this difference was statistically significant.

**Table 4: Restrictions that should be followed during menstruation.**

Restrictions	n=758	(%)
Should not enter the house	82	10.8
Should not go to college/work	58	7.7
Should not go to temples	511	67.4
Should Not allowed to go out of the house	130	17.2
Cannot attend functions	287	37.9
Cannot eat with others	95	12.5
Cannot eat certain food items	321	42.3
Cannot touch regular items	206	27.2
Separated from the rest of the family	102	13.5
Cannot play sports / do exercise	288	38
Not allowed to touch others	100	13.1
Not allowed to enter kitchen	117	15.4

**Table 5: Attitudes towards menstruation and its associated factors.**

Factor	Category	Attitude		P value
		Positive (n=279) N (%)	Negative (n=479) N (%)	
Gender	Male	80 (21.5)	292 (78.5)	0.000
	Female	199 (51.6)	187 (48.4)	
Knowledge level	Adequate	185 (47.6)	204 (52.4)	0.000
	Inadequate	94 (25.5)	275 (74.5)	

**Table 6: Multilogistic regression analysis between attitudes towards menstruation and various factors.**

Factor	Category	Odd's ratio	Confidence interval		Significance
Gender	Male	0.174	0.225	0.448	p<0.001
	Female	-	-	-	
Source of information – school	Yes	0.175	1.211	2.390	p< 0.001
	No	-	-	-	

The study found that there was positive attitude among those who had higher knowledge regarding menstruation which was statistically significant (Table 5).

On performing a multilogistic regression analysis, perceptions towards menstruation was found to be statistically significant with gender and awareness levels (Table 6).



## DISCUSSION

The mean age of menarche in our study was found to be 13.38yrs $\pm$ 1.238. This was similar to the mean age of the study population found in other studies.<sup>7,8</sup> It was also found that the awareness levels were low among girls who attained menarche at an earlier age. The mean age of menarche in girls is decreasing and it might have an effect on the awareness levels, which will also eventually affect the attitudes and practices related to menstruation.<sup>9</sup>

In our study we found that the knowledge regarding menstruation overall (51.3%) was low. In a study done by Shanbhag et al, in a similar setting, 99.6% students had heard of menstruation. 79.7% knew that menstruation is a normal physiological process.<sup>7</sup> Only 3% knew the source of menstrual blood. However, it was seen that none of the girls had adequate knowledge regarding menstruation. In another study done in Gandhinagar by August et al, it was found that 51.1% girls have no knowledge regarding organ from where bleeding occurs.<sup>10</sup> Only 33.1% girls have knowledge that menstruation is a physiological process while 59.1% did not know about cause of menstruation.

In our study it was found that awareness levels were lower among males (29.6%) when compared to females (72.3%) which were statistically significant. India is largely a patriarchal society where men have greater power in decision-making.<sup>5</sup> Women do not generally share information about menstruation with men and boys, and there are cultural taboos in speaking about menstruation. This leads to culmination of misconceptions and practices which may not be right.<sup>11</sup> Millions of women face significant barriers in menstrual hygiene management due to inadequate awareness, misconceptions and erroneous practices.

Hence adequate knowledge and the right attitude aiming at both males and females will cause major significant changes in the menstrual hygiene management.

Among the female students only 54.7% of them had knowledge regarding menstruation before attaining menarche. In a study done in Haryana among school going adolescents by Bachloo et al, found that awareness about menstruation before attainment of menarche was higher in urban girls 48.6% as compared to girls from a rural background 33.3%.<sup>9</sup> Another study done by August et al done in Gandhinagar found that only 39.8% girls were knew about menstruation before menarche.<sup>10</sup>

In our study the main source of information regarding menstruation was found to be mother but they also got information regarding menstruation and menstrual products from internet. A study done in Haryana reported that internet was one of the main sources of information.<sup>9</sup> We also found that the knowledge levels were higher among those who reported obtaining knowledge from their school. It is preferable to have a professional such as

a school teacher to impart the right kind of knowledge regarding menstruation to the students.

Awareness levels among the male and female students was not found to have an association with factors such as age, mothers education, and also their socio-economic status, which was in contrast to the study done by Gultie et al where they found that awareness levels were higher among those whose mothers had better educational status.<sup>12</sup> Another study done in an urban community, Gandhinagar by Prajapathi et al reported there was no association between mothers educational status and awareness levels.<sup>10</sup>

Majority (47.7%) of the girls did not feel comfortable talking about menstruation; however, it was found that when their awareness levels are high, women are more comfortable to talk about menstruation compared to women who had lower awareness levels which is statistically significant. This could probably be because of the lack of inhibitions and misconceptions regarding menstruation. This is evident that knowledge is an independent factor to change the attitudes regarding menstruation among women.

In our study, almost all were aware of sanitary napkins and majority (96.9%) preferred use of sanitary napkins followed by cloth as sanitary protection. In the study done by Shanbhag et al, among high school girls, it was seen that 34.7% of the study population used cloth, 44.1% used sanitary pad and 21.2% used both cloth and sanitary pad.<sup>7</sup> Another study done in Gujarat also showed that 76% of them used sanitary napkin.<sup>8</sup> The study done in Gandhinagar also showed lower use of sanitary napkins 26.1%.<sup>10</sup>

The use of sanitary napkin was lower compared to our study population which may be attributed to their lower age of the study population, rural background, poor awareness levels and also socio-cultural taboos.

In our study we found that 5.6% of the girls had experienced atleast one episode of urinary tract infection in the last 6 months and 31.3% of the female students experienced severe abdominal pain during menstruation. Dysmenorrhea and reproductive tract infections (RTI) are important concerns for majority of adolescent girls. RTI is a consequence of improper menstrual hygiene which is also corroborated in a study done by Anand et al on Menstrual hygiene practices and its association with reproductive tract infections and abnormal vaginal discharge among women in India.<sup>13</sup> The problem can be prevented to a major extent by raising awareness.<sup>4</sup>

However, in our study we did not find an association between RTI and awareness levels.

Majority of the students felt that menstruation is a normal phenomenon and not a disease, which is very high compared to a study done in West Bengal where only

21.6% of them knew that menstruation is a physiological process.<sup>14</sup> The other study done in Bangalore, Karnataka, showed that 74.2% of them felt that menstruation is a normal physiological process.<sup>7</sup>

Negative attitude was found among 78.5% of the young men and 48.4% young women. The restrictions followed in the local region were asked in our questionnaire, and were commonly found to be: some of them were such as not allowed to enter the house, not allowed to go to temple, cannot attend functions, cannot run/ play, restriction of certain food items, not allowed to touch regular items etc. In our study we found that 23.8% were not following any of these restrictions and rest of them were following atleast one of them. Compared to our study, in a study done in West Bengal, 64.72% were following some restrictions and a study done in Gujarat among school children showed that 48.85% of them were not following any restriction.

Though the prevalence of women following some kind of restriction was low in our study, there are still restrictions followed in many places which is deep rooted in the cultures of the people, in spite of urbanization and an increased level of awareness regarding menstruation. These beliefs are present for centuries. A view that persisted into the nineteenth century where Aristotle viewed menstruation as an outward sign of female inferiority. A pioneering nineteenth century Scottish gynecologist claimed, 'young girls should not play music or read serious books because it makes much mischief with their menstrual cycle'.<sup>15</sup> The cultural dimension represents the way that a phenomenon is perceived within the society.<sup>16</sup> Menstruation is associated with deep rooted taboos and misconceptions in many countries and especially in our country, India.

Majority of the girls which constitutes 81.1% of them quoted that they were not happy during menstruation and wished that they weren't born as a girl and only 21.9% of them felt happy during their periods. Around 74.9% felt that they were not confident during their periods.

These attitudes will have a bearing on the mental health of the women who are in their vulnerable age group. As a community it is more important to support women and boost their confidence levels to have a healthy wellbeing.

## CONCLUSION

Awareness levels were poor among males in comparison to females. Practices regarding menstrual hygiene were adequate. However, misconceptions were widely prevalent among both genders. It was also found that the attitude regarding menstruation was poor in both males and females which indicate the need for the right knowledge and the right attitude to be instilled in these young minds.

## Recommendations

The knowledge can be given by schools as a part of their curriculum to both boys and girls and in a more practical and interactive way. Increasing awareness levels through combined efforts by the government, community, schools and NGO's would definitely improve the attitudes and practices regarding menstruation among both men and women.

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