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## Original Research Article

# Knowledge, attitude and practice of menstrual cup among female medical students in private medical college

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## ABSTRACT

**Background:** Menstrual cups have been available for decades, but their use in India is limited because of the popularity of sanitary pads. Menstrual cups are a safe and feasible alternative to the more widely used sanitary napkins. Objective of this study was to assess menstrual cup awareness among the female medical college students.

**Methods:** A cross sectional study was conducted on 389 undergraduate female medical students, among which 355 students responded after consent. Data was collected through Google forms using pre-tested semi structured questionnaire. Collected data was transferred to Microsoft excel and was analysed using statistical package for the social sciences (SPSS) version 21. Chi-square test was used to determine the association.

**Results:** Among the 355 female medical students, 215 (60%) of them belonged to upper middle class. 335 (94%) of them were unmarried. (282) 80% of the students had knowledge regarding menstrual cups, in which majority were aware of the material used to manufacture the cups. The cup was preferred by 100 (28%) and 54 (15%) of them used menstrual cups for its comfort, easiness to wear and less odor. Few of them had pain, dryness and rashes after the use of menstrual cup. Problem of leakage was encountered in 15-26%. There was significant association between income and usage of menstrual cup ( $p < 0.05$ ).

**Conclusions:** Menstrual cup is a cost-effective and eco-friendly alternative to tampons and sanitary napkins. Menstrual cup also appears to be a comfortable, safe and efficient option for menstrual hygiene. Due to the popularity and promotion of napkins, there is lack of awareness on menstrual cups. So, awareness programs must be conducted to enlighten the benefits on usage of menstrual cups, so as to promote menstrual health and hygiene.

**Keywords:** Awareness, Menstrual cup, Menstrual hygiene, Medical students

## INTRODUCTION

Menstruation is a normal biological phenomenon which is experienced monthly by millions of women and adolescent girls around the world. Menarche signifies the start of a female's reproductive years and often marks her transition to adult female status within the society.<sup>1</sup> Menstruation is the process in which the endometrium lining the uterus gradually thickens and sheds off causing per vaginal bleeding that usually lasts up to 3-5 days.<sup>2</sup> There are around 121 million women and adolescent girls in the menstrual age group in India.<sup>3</sup>

Sanitary pads are made of bleached rayon, which is non-biodegradable. On average, a woman throws about 150 kg of sanitary pad waste every year, which is far away from the eco-friendly practises.<sup>3</sup> Fibres in the sanitary pad can also be a cause of cervical cancer.<sup>4</sup> Despite a long history, menstrual cups are not commonly known. Menstrual cup being the best alternative to sanitary pads, had received attention recently which was evidenced in few small-scale studies performed in high, middle and low-income countries. Like tampons, menstrual cups are inserted into the vagina, but the blood is collected in the receptacle.<sup>5</sup> Menstrual cups are made of medical-grade silicone,

rubber, latex, or elastomer. Two types of cups are available. One type is the vaginal cup which are designed as bell shaped cups with receptacles which can hold about 10–38 ml of blood when inserted into the vaginal canal.<sup>5</sup> The other type - cervical cups, which, like a diaphragm for contraception, is placed around the cervix high in the vagina. The cups are usually emptied every 4–12 hours, but it depends on menstrual flow and type of cup and reinserted with a need to boil the cup only at the end of a cycle only. Cups can be reused again for further cycles and can last up to 10 years duration. Disposable single-use menstrual cups are also available.

### Need for the study

Menstrual cups reduce a greater amount of waste generated from other menstrual products as it is reusable. Hence, it is more eco-friendly. As it could be used for five or more years, its more economical too.<sup>3</sup> The rubber used in manufacturing menstrual cups has been made resistant to bacterial growth, thus ensuring its safety against urogenital infections.<sup>6</sup> The advantages of menstrual cup are far more compared to other menstrual products but its usage is limited due to either the lack of awareness or the fear of trying something new among the people of reproductive age group and also myths like using menstrual cups in unmarried girls might result in loss of virginity.<sup>7</sup>

Hence, this study intended to assess the awareness and also attitude and practices regarding menstrual cup among female medical students of reproductive age group and also to determine the factors associated with it.

## METHODS

A cross sectional study was conducted in Saveetha Medical College and Hospital, Thandalam among all female medical students in the reproductive age group 18–25 years belonging to first, second, third and final year of MBBS.

Data was collected using online questionnaire (Google forms). The questionnaire collected comprised of socio-demographic details, and also questions to assess the knowledge, attitude and practise of menstrual cups. The contact numbers of all the female medical students were obtained from the dean's office. A link to the Google forms was sent through what's app to all the female medical students. There was a total of 389 female students. About 355 students submitted their response (response rate – 91.2%).

The required information was collected via Google forms and the collected data was analysed using statistical package for the social sciences (SPSS) software. Descriptive analysis was carried out. Association between various study variables with knowledge and practice was carried out by Chi square test.

## RESULTS

### Socio-demography

Out of the 389 female students, 355 of them participated in the study. A majority of 204 (57.5%) were in the age group 18–20 years and 149(42%) of them belonged 21–23 years of age. Most of them, i.e., 335 (94.4%) were unmarried. Majority of students who participated in the study, i.e., 79 (22.3%) belonged to the category with monthly family income ranging from Rs. 74,756 to Rs. 99,930.

Almost half the students belonged to the graduate family (49%). Regarding the occupation of head of family, around 45% belonged to professional (white collar) category, followed by semi-professional (34.6%) (Table 1).

**Table 1: Socio-demographic details of the participants.**

Variables	Frequency (N=355)	Percentage (%)
<b>Age (years)</b>		
18-20	204	57.5
21-23	149	42
>24	2	0.56
<b>Marital status</b>		
Married	20	5.6
Unmarried	335	94.4
<b>Monthly income</b>		
199862 and above	37	10.4
99931-199861	56	15.8
74756-99930	79	22.3
49962-74755	64	18
29973-49961	37	10.4
10002-29972	33	9.3
10001 and less	49	13.8
<b>Education of head of family</b>		
Profession of honors	98	27.6
Graduate	174	49
Intermediate or diploma	39	11
High school	30	8.4
Middle school	7	2
Primary school	5	1.4
Illiterate	2	0.6
<b>Occupation of head of family</b>		
Professional (white collar)	160	45.1
Semi-professional	123	34.6
Clerical/shop-owner/farm	40	11.3
Skilled	16	4.5
Semi-skilled	8	2.3
Unskilled	3	0.8
Unemployed	5	1.4

## Knowledge

Among 355 students who participated in the study, 79.4% have heard about menstrual cups and 45.6% knew how to use it. 40.6% of them think menstrual cups are safe to use while 48.4% were not sure about the safety. Internet was the main source of knowledge about the usage of menstrual cup to 45% of students, followed by peers and friends (30.9%). 51.8% students knew that menstrual cups are made of silicone, 11% thought it is made up of latex, 7% natural rubber and 6% plastic. 24.2% did not know about the material used in manufacturing menstrual cups (Table 2).

**Table 2: Knowledge regarding menstrual cups.**

Knowledge component	Yes (%) (N=355)
<b>Have you heard of menstrual cups?</b>	282 (79.4)
<b>Do you know that menstrual cups are used during menstruation?</b>	291 (82)
<b>Do you know how to use a menstrual cup?</b>	162 (45.6)
<b>How did you come to know about the usage of menstrual cup?</b>	
Friend	50 (30.9)
Internet	73 (45)
Mother	7 (4.3)
Sister	9 (5.6)
School	10 (6.2)
Others	13 (8)
<b>Do you think menstrual cup is safe?</b>	
Yes	144 (40.6)
May be	172 (48.4)
<b>Material used?</b>	
Silicone	184 (51.8)
Latex	39 (11)
Natural rubber	25 (7)
Plastic	21 (6)
Don't know	86 (24.2)

## Attitude

Regarding the attitude, 100 (28.2%) preferred menstrual cups. Out of them, 110 (30.9%) found menstrual cups to be more convenient, 115 (29.8%) preferred menstrual cups for their long-term usage, (18.3%) of them found them cost effective and 21% preferred it as does not require frequent disposal. On the whole, 182 (51.3%) female students were willing to recommend menstrual cups.

Among 355 students, 180 (50.7%) found menstrual cups easy to use, 200 (56.3%) agreed that it doesn't inhibit physical activity, 223 (62.8%) agreed that it can be worn up to 12 hours, 219 (61.7%) agreed that it can be worn overnight, 161 (45.4%) found that it cannot be felt while wearing and 222 (62.5%) agreed on no odour (Tables 3 and 4).

**Table 3: Attitude regarding the menstrual cups.**

Attitude components	Yes (%)
<b>Do you prefer menstrual cup?</b>	100 (28.2)
<b>More convenient</b>	110 (30.9)
<b>Long term usage</b>	115 (29.8)
<b>Cost effective</b>	65 (18.3)
<b>No frequent disposal</b>	75 (21.1)
<b>Will you recommend?</b>	182 (51.3)

**Table 4: Attitude regarding the menstrual cups.**

Question	Agree (%)	Disagree (%)
<b>Easy to use</b>	180 (50.7)	175 (49.3)
<b>Does not inhibit activity</b>	200 (56.3)	155 (43.7)
<b>Worn up to 12 hours</b>	223 (62.8)	132 (37.2)
<b>Cannot be felt</b>	161 (45.4)	194 (54.6)
<b>Worn overnight</b>	219 (61.7)	136 (38.3)
<b>No odor</b>	222 (62.5)	133 (37.5)

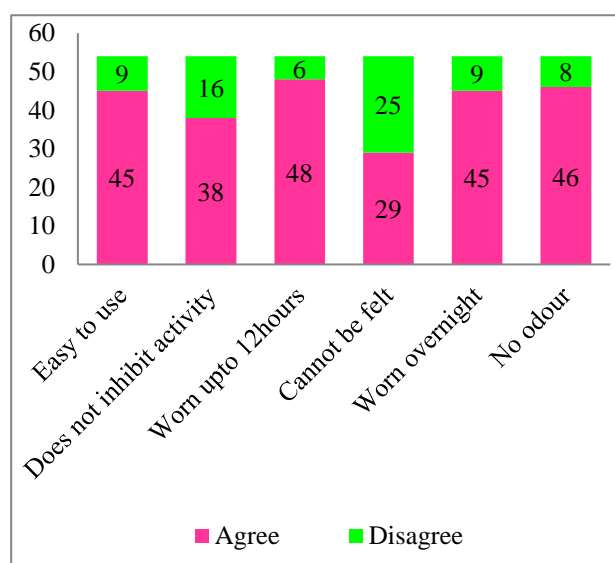
**Table 5: Practice of menstrual cups.**

Practice component	Yes (%)
<b>What sanitary protection were you using before menstrual cup?</b>	
Sanitary pad	45 (83.3)
Tampons	9 (16.7)
Comfortable to insert?	44 (81.5)
Comfortable while wearing?	44 (81.5)
Comfortable to remove?	42 (77.8)
<b>How do you store menstrual cup?</b>	
Cloth bag	25 (46.3)
Plastic bag	23 (42.6)
Airtight container	6 (11.1)
<b>Leakage?</b>	
Yes	8 (14.8)
Sometimes	14 (25.9)
<b>Side effects</b>	
Pain	4 (7.4)
Rashes	1 (1.9)
Allergies	0
Dryness	1 (1.9)
Infection	0
Fever	0
Urinary tract infection	0
None	48 (88.8)
<b>Do you wash after every use?</b>	
Yes	52 (96.2)
Sometimes	1 (1.9)
<b>How frequently do you have to empty?</b>	
Once/day	7 (12.9)
2-4 times/day	(66.7)
>4 times/day	11 (20.4)

## Practice

Among the 355 female students, only 54 (15.2%) were using menstrual cups. Among these 54 students, 44 of them found it comfortable to insert and to wear while 42 of them found it comfortable to remove. 48 (88.8%) students did not experience any side effect, while a very few students, i.e., 4 (7.4%) experienced pain as a side effect.

Leakage was a problem for 8 (14.8%) students. Majority 25 (46.3%) of students store the menstrual cups in cloth bags. Most of them 36 (66.7%) emptied the cup 2-4 times a day (Table 5).



**Figure 1: Practice of menstrual cups (N=54).**

Female medical students whose monthly income was above 75,000 were more aware of menstrual cups and also usage of menstrual cups was more among them ( $p < 0.05$ ).

**Table 6: Association between socio-demographic variables and knowledge regarding menstrual cups.**

Variables	Aware of menstrual cups		P value
	Yes (%) N=282	No (%) N=73	
Age (years)			0.882
<20	94 (33)	25 (34)	
≥20	188 (67)	48 (66)	
Marital status			0.948
Married	16 (6)	4 (5)	
Unmarried	266 (93)	69 (95)	
Income			0.002*
>Rs.75,000	148 (52.5)	24 (33)	
≤Rs.75,000	134 (47.5)	49 (67)	

\* $P < 0.05$  is statistically significant; p value obtained from Chi-square test

**Table 7: Association between socio-demographic factors and practice of menstrual cups.**

Variables	Usage of menstrual cups		P value
	Yes (%) N=54	No (%) N=301	
Age (years)			
<20	21 (39)	98 (33)	0.364
≥20	33 (61)	203 (67)	
Marital status			
Married	4 (7)	16 (5)	0.539
Unmarried	50 (93)	285 (95)	
Income			
>Rs.75,000	39 (72)	96 (32)	0.000*
≤Rs.75,000	15 (28)	205 (68)	

\* $P < 0.05$  is statistically significant; p value obtained from Chi-square test

## DISCUSSION

Almost 3/4<sup>th</sup> of the students was aware of menstrual cups in which majority of them came to know via internet followed by friends and peers. In a study conducted among Iranian women between the age group of 18-50 years, 83.9% were familiar with menstrual cups via internet and 98.6% women recommended menstrual cups to other women, which was similar to our study.<sup>8</sup> In our study 18% of the students have not heard of menstrual cups, which was similar, when compared to a study done among medical students.<sup>1</sup>

Among 355 (59%) of the students, said menstrual cups to be a safe device, which was lower, when compared to a similar study, where 92% of the students, said it is safe to use menstrual cups.<sup>7</sup> More than half of the students, knew that silicone is the material used to make menstrual cup in our study, which was higher when compared to a similar study, as only 28% of them knew the material, used to make menstrual cup.<sup>7</sup>

On whole, 28.2% students preferred menstrual cups, while a study conducted in Taiwan, among 1245 female students 95% of them had a positive attitude towards menstrual cup usage.<sup>9</sup> Adding on to this, a randomized study conducted in Durban, South Africa among 105 women aged 18-45 years, showed that menstrual cups were rated significantly better for acceptance, comfort and quality when compared to other menstrual products.<sup>10,11]</sup>

Where as in our study, menstrual cup was preferred for its long-term use, convenience, for the later frequency of disposal, and cost effectiveness.

In a study conducted among Iranian women, 50% of women were willing to recommend menstrual cups, which was higher in our study where 51% of them recommended menstrual cups to use as an alternative to sanitary napkins.

In our study 54 (15%) students used menstrual cups for its easiness, as it can be worn for 12 hours, produces no odour and does not inhibit physical activity. In a similar study conducted in Karnataka, none of the medical students used menstrual cups, where as in our study 15% of the students used menstrual cups.<sup>7</sup>

A study in Zimbabwe, showed that 81% did not experience any discomfort during cup insertion or during their daily activities, which is nearly same to the results obtained in our study.<sup>12</sup> A study conducted in Gujarat among 158 women, problem of leakage was encountered in 3-6%, when compared to our study 15% of women experienced leakage as a problem.<sup>13</sup>

## CONCLUSION

More than 3/4th of the students had knowledge regarding menstrual cups, where only 15% of the students are using menstrual cups. Due to the popularity and promotion of napkins, there is lack of access to on menstrual cup. Demonstration and explanation of the process of inserting and removing the menstrual cups should be performed targeting the adolescent girls and women in reproductive age group, which will henceforth give more practical knowledge on using the cup. Future programs should use behavioural change communication involving families, peers and community members to a greater extent in order to improve menstrual health and hygiene.

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