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## Original Research Article

## Assessment of knowledge and attitude towards menstrual cup usage among adolescent girls

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## ABSTRACT

**Introduction:** A woman is the essence of whole universe. If there would be no women, the human race is surely going to end. Women deserves more care and attention especially during the reproductive phase. Menstruation is a unique phenomenon of females of reproductive age group. Cultural, religious and traditional beliefs can lead to different restrictions that women face during their menstrual period. Menstrual cup is a device for menstrual flow management and is claimed to be a healthy and environmentally friendly alternative to the conventional menstrual sanitary protections.

Even though menstrual cup is highly efficient it requires fair amount of self-confidence and assurance to insert into one's own body. And the prevailing myths on breakage of hymen make the confusion of adolescents even worse. This study was aimed at assessing knowledge and attitude towards menstrual cup usage among adolescent girls.

**Materials and Methods:** Descriptive survey design was used. A total of 100 adolescent girls were selected using convenient quota sampling methods. Data was collected using structured knowledge questionnaire to assess knowledge and an attitude rating scale to assess attitude towards menstrual cup usage.

**Results:** The study results revealed that 50 % students had good knowledge, 35 % students had satisfactory knowledge, 8 % students had excellent knowledge, 6 % students had poor knowledge and one percent students had very poor knowledge about menstrual cup usage. Majority (81%) had a positive attitude towards menstrual cup usage, 19% had neutral attitude and none had negative attitude. Hence majority of the subjects had a good attitude towards menstrual cup usage. There was no relation between knowledge and attitude of adolescent girls towards menstrual cup usage.

**Discussion:** Women have lots of concerns about managing menstrual flow. Fear of spotting, stains, squishy, messy, smelling and annoying nature of sanitary pads is still a major dilemma. Other alternative measure to sanitary napkins is menstrual cup. Adolescent girls achieve their knowledge on menstrual cup through the social media.

In a developing world, menstrual management is not only difficult but also may have serious adverse impact on the lives of women. Even when taboos are not a major problem, convenient or inexpensive menstrual collection materials are not available. Efforts to produce inexpensive materials are solely lacking. Women use clothes, absorbent pads or tampons to manage menstrual flow. Washing the clothes or disposing the pads hygienically is a challenge for most of the females. By interacting with other teens, investigators understood that women have lots of concerns about using sanitary pads. Other alternative measure to sanitary napkins is menstrual cup but females require self-confidence and assurance to insert it to one's own body.

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## 1. Introduction

A woman is most privileged for giving birth, rising up a family and thus creating the basic unit of society. Hence the reproductive health of women is of utmost concern to every nation to lay down the foundation of healthy society. Menstruation is a normal biological process experienced by millions of women and each month around the world. Menarche signifies the start of female reproductive years and often marks her transition to full adult female status within a society. One challenge of menstruation that is taken for granted is the simple question of how to manage the menstrual flow and what happens to a girl or women who is not able to do this successfully.<sup>1</sup>

Menstrual cup is a device for menstrual flow management and is claimed to be a healthy and environmentally friendly alternative to the conventional menstrual sanitary protections. A menstrual cup is a type of feminine hygiene product used at the time of menstruation which is usually made up of medical grade silicone, shaped like a bell and is flexible. It is worn inside the vagina by folding it in C – shape as it is flexible and gets adjusted to the shape of vaginal cavity during menstruation, to catch menstrual fluid. The cup has to be removed, emptied, rinsed, and reinserted depending upon the amount of flow. At the end of the monthly period the cup can be sterilized by boiling water. Unlike tampons, pads and clothes, cup collects menstrual fluid rather than absorbing it.<sup>2</sup>

In low-income settings, many women and girls face activity restrictions during menstruation, due to lack of affordable menstrual products. In present scenario, women and girls of a developing country like India still lack sufficient knowledge about the availability of various other alternatives and practice related to proper menstrual hygiene.<sup>2</sup>

A female is generally having 456 total menstruation cycles throughout her life; menstrual cups are cheaper than disposable pads and tampons. On an average a pad costs rupees 15 to 18. For a complete 5-7 days of a menstrual cycle women should use at least 40 pads per period. However, it depends on individual, the menstrual flow and the quality of sanitary pad. An average figure the expenses over 1.5 lakh rupees throughout the fertile life. As per gynaecologist's opinion sanitary pad should be changed after at least 3-4 hours interval since long time use of the same pad can lead to various health issues.<sup>2</sup>

The material used in sanitary pads can cause cancer as most of these plastic materials that can complicate embryonic development. Absorbent pads can cause cervical cancer; the dioxin present in pad is an environmental pollutant and can also cause ovarian cancer. Chemicals in the pad are linked to thyroid malfunction, infertility and other health problems. Many women suffer from

urinary tract infection due to pads. Pads can also cause skin darkening, hormone dysfunction, birth defects; scented pads can cause bacteria and yeast infection.<sup>2</sup> Most women living in urban areas dispose sanitary napkins in a dustbin which eventually piles up in landfills, whereas women in rural areas prefer to wash napkins and bury in a pit. In public washrooms, often due to poor infrastructure, sanitary napkins are flushed or are left in corners or other open areas. Very few women actually incinerate the soiled sanitary napkins.<sup>3</sup> Improper disposal and non-segregation from household waste leads to unhygienic working condition for waste workers. Commonly available sanitary napkins constitute 90% plastic, the report claimed. India generates 3.3 million tonnes of plastic waste every year, according to Central Pollution Control Board report (2018-19).<sup>4</sup> Thus, majority of women want to switch to environmentally friendly alternatives like organic pads and menstrual cups. Menstrual cup is one potential cost-effective product, environmentally friendly, maintains vaginal pH, inodorous, safe, accessible and convenient. Probably because of lack of knowledge, the menstrual cup is not being promoted as much as it should be. India is still unreasonably conservative country. So, people think that using the menstrual cup in unmarried girls might result in loss of virginity. Due to the promotion and popularity of sanitary pads even educated ones have meagre knowledge about menstrual cup.<sup>2</sup> Women in India shows reluctance in using menstrual cups due to existing social taboos about menstrual cup, lack of knowledge about such products, and its availability is an issue. Other problems like vaginal irritation can occur if not cared and cleaned properly, need practice to insert, maybe difficult to clean and empty.<sup>5</sup> The percentage of women using menstrual cups and tampons is meagre, even in developed Indian cities. India has 1.7% of women who prefer using tampons and 0.3% of women who are open to the idea of using menstrual cups.<sup>6</sup> Since cups have to be inserted into the vagina, people are often unsure of trying it. Then there is the obvious emphasis of the Indian culture on a woman's virginity and the myth that using a cup would make her lose her virginity. Many women are, therefore, unwilling to use cups. There is also a difference in the way girls get to know about cups. It often reaches them through recommendations from a friend. Reviews, advertisements, and endorsements from friends play a huge role in making the switch. So even if enough women know it, only some of them will actually try a cup.<sup>7</sup>

Adolescent girls have lots of concern about managing menstrual flow. In spite of knowledge of menstrual cup, they hesitate to use it due to fear and socio-cultural issues. Therefore, investigators decided to conduct a study to assess the knowledge and attitude towards menstrual cup usage among adolescent girls.

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## 2. Materials and Methods

A quantitative approach, descriptive survey design was used. Study was conducted in Kerala India. The participants were 100 adolescent girls from Ernakulam District. Data collected in the month of October 2022. The study participants were recruited using convenient quota sampling method from two higher secondary schools of Ernakulam District, Kerala. Subjects were explained about the purpose of the study and were ensured that data collected would be kept confidential and would be used only for research purpose. The data was collected by using a structured knowledge questionnaire to assess knowledge and attitude rating scale to assess attitude towards menstrual cup usage.

### 2.1. Tools for data collection

Tools comprised of structured knowledge questionnaire to assess knowledge and an attitude rating scale to assess attitude towards menstrual cup usage.

#### 2.1.1. Tool 1

Tool 1 used in the present study was structured knowledge questionnaire which include two sections.

1. *Section A:* - Demographic data sheet, which includes age, residential area, type of family, religion, age of menarche, and source of information.
2. *Section B:* - Structured knowledge questionnaire was developed to assess the knowledge regarding menstrual cup usage among adolescent girls. It consist of 25 questions which are categorized under the headings of knowledge regarding menstrual cup, its usage, availability, cost, advantages, disadvantages and complications.

#### 2.1.2. Tool 2

Attitude rating scale is used to assess the attitude of adolescent girls towards the usage of menstrual cup. It was developed to assess the attitude of adolescent girls towards the usage of menstrual cup. It consist of 11 positive statements and 14 negative statements which had 5 options, strongly agree, agree, neutral, disagree and strongly disagree.

The techniques used were Self reporting and self rating,

### 2.2. Data collection process

A formal administrative sanction to conduct the study was obtained from the authorities. Data collection was done from two higher secondary schools of Ernakulam District, Kerala. Convenient, quota sampling technique was used to select 100 subjects. Subjects were explained about the purpose of the study and were ensured that data collected would be kept confidential and would be used only for research purpose. The data was collected by using a

structured knowledge questionnaire to assess knowledge and attitude rating scale to assess attitude towards menstrual cup usage.

## 3. Results

### 3.1. Sample characteristics

Details of sample characteristics are given in Tables 1 and 2.

**Table 1:** Frequency and percentage distribution of subjects according to age, residential area, type of family. N-100

Selected variable	Frequency	Percentage
Age (in years)		
16	63	63
17	34	34
18	03	03
Residential area		
Rural	27	27
Urban	73	73
Type of family		
Upper class	05	05
Middle class	95	95
Lower class	00	00

Table 1 showed that 63% of the subjects were 16 years, 34% were 17 years and 3% were 18 years old. Of this 27% of subjects were living in rural area and 73% were living in urban area. There were 5% of subjects from upper class family, 95% were from a middle class family.

**Table 2:** Frequency and percentage distribution of subjects according to religion, age of menarche, source of information and familiarity of menstrual cup. N-100

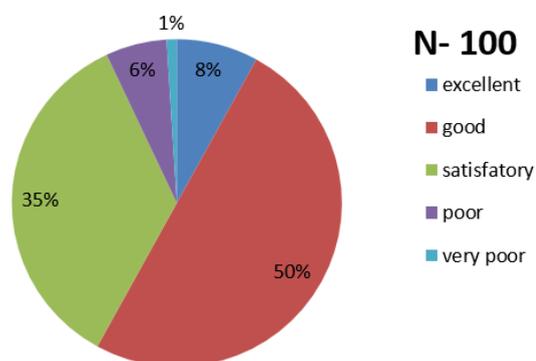
Selected variable	Frequency	Percentage
Religion		
Christian	49	49
Muslim	15	15
Hindu	36	36
Others	00	00
Age of menarche		
<10 years	04	04
10-15 years	93	93
>15 years	03	03
Source of information		
Friends	12	12
Family members	31	31
Internet	42	42
Radio	00	00
Television	02	02
Articles	02	02
News papers	04	04
Other sources	07	07
Do you know anyone using menstrual cup?		
Yes	46	46
No	54	54

Table 2 showed that 49% of subjects were Christians, 15% were Muslims and 36% were Hindus. Among them 93% of the subjects attained menarche between the age of 10 to 15 years, 4% before 10 years and 3% had menarche at after 15 years. For 12% of subjects, the main source of information about menstrual cup was from friends, 31% from family members and 42% from internet, 2% from television, 2% from articles, 4% from newspapers and 7% from other sources. Majority (54%) of them did not know any person who was using menstrual cup and 46% knew people who were using menstrual cup.

From the study it was found that significantly higher proportion of the subjects were at the age of 16 years belonging to middle class family living in urban areas who attained menarche between the age of 10-15 years of age. Majority came to know about menstrual cup through internet and most of them did not know any person using menstrual cup.

### 3.2. Knowledge of adolescent girls regarding menstrual cup

This section deals with the knowledge of adolescent girls regarding menstrual cup usage. The data was collected from 100 students in St. Mary's convent Girls Higher secondary school, Ernakulum. Grading of knowledge scores of the students regarding the menstrual cup usage was done in terms of frequency and percentage and is presented in Figure 1.



**Fig. 1:** Pie diagram showing percentage distribution of subjects according to grading of knowledge regarding menstrual cup usage.

As per Figure 1, 50% had good knowledge regarding menstrual cup usage, 35% had satisfactory, 8% had excellent, 6% had poor and 1% had very poor knowledge about menstrual cup.

### 3.3. Item wise analysis of knowledge among adolescent girls towards menstrual cup usage

Table 3 showed that 96% of subjects identified the purpose of menstrual cup, 60% were able to identify the device

**Table 3:** Frequency and percentage distribution of subjects based on correct response to items on knowledge questionnaire about menstrual cup. N-100

Item	f	%
What is the purpose of using menstrual cup?	96	96
Which is the device inserted into the body during menstruation?	60	60
Which is the material used to make menstrual cup?	31	31
What is the shape of a menstrual cup?	80	80
Is there any age restriction for menstrual cup?	76	76

that can be inserted into the body, only 31% identified the material used in making menstrual cup, 80% knew the shape of menstrual cup and 76 % knew there is no age restriction for menstrual cup.

Table 3 also revealed that 4% of adolescent girls were unaware of the purpose of using menstrual cup, 40% of them didn't know that it is a device which is to be inserted into the body. Among them 69% of them did not know about the material used to make menstrual cup.

**Table 4:** Frequency and percentage distribution of subjects based on correct response to items on knowledge questionnaire about insertion of menstrual cup. N-100

Item	f	%
Where does the menstrual cup inserted into the body?	84	84
What is the size of menstrual cup to be used for a virgin woman?	38	38
What are the parts of menstrual cup?	70	70
What is the purpose of a stem in menstrual cup?	59	59
Which is the commonly used position for menstrual cup insertion?	24	24
Why does menstrual cup fits properly in the vagina?	78	78
How can menstrual cup be inserted into vagina?	84	84

Table 4 showed that 84% of subjects knew the place where menstrual cup is inserted, 38% knew the size of menstrual cup used in virgins, 70% knew the parts of menstrual cup, only 59% knew the purpose of stem in menstrual cup, 24% knew the position used for menstrual cup insertion, 78% knew how menstrual cup fits properly in the vagina and 84% knew the method of insertion of menstrual cup into vagina.

Table 4 also revealed that 62% of subjects didn't know the size of menstrual cup used in virgins, 76% of them were unaware about commonly used positions in menstrual cup insertion, 41% did not know the purpose of a stem in menstrual cup.

**Table 5:** Frequency and percentage distribution of subjects based on correct response to items on knowledge questionnaire about cleaning and sterilization of menstrual cup. N-100

Item	f	%
How often menstrual cup should be emptied?	47	47
How is menstrual cup sterilized?	78	78
How often menstrual cup needs to be sterilized in boiling water?	39	39
How can the menstrual cup be stored after use?	73	73

Table 5 showed that only 47% knew how the menstrual cup should be emptied, 78% knew about the sterilization of menstrual cup, only 39% knew about how often menstrual cup need to be sterilized, and Majority (73%) knew how to store menstrual cup after use. And that 53% of subjects didn't know how often menstrual cup should be emptied, 61% of them were unaware about how often menstrual cup need to be sterilized.

**Table 6:** Frequency and percentage distribution of subjects based on correct response to items on knowledge questionnaire about availability of menstrual cup N -100

Item	f	%
Where can menstrual cup purchased?	64	64
What will be the cost of menstrual cup?	67	67
How long menstrual cup can be used after purchase?	38	38

Table 6 showed that 64% knew how to purchase a menstrual cup, 67% knew the cost of menstrual cup and 38% knew how long menstrual cup can be used after purchase. and 36% of subjects didn't know how to purchase a menstrual cup, 33% of them were unfamiliar with the cost of menstrual cup, 62% of them were unaware about how long menstrual cup can be used after purchase.

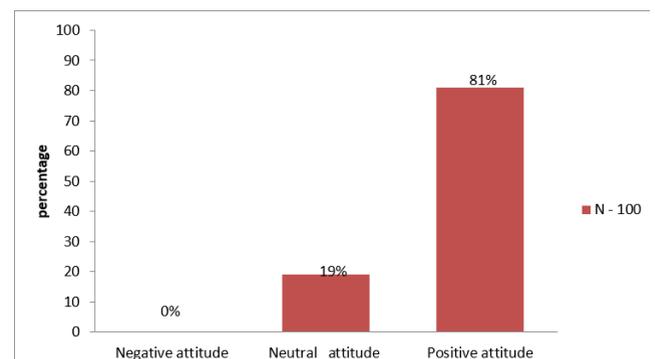
**Table 7:** Frequency and percentage distribution of subjects based on correct response to items on knowledge questionnaire about complication of menstrual cup. N- 100

Item	f	%
Which is the complication associated with usage of menstrual cup?	22	22
Which is not complication of menstrual cup insertion?	48	48
What is the advantage of menstrual cup?	86	86
What is the disadvantage of menstrual cup?	20	20
In which situation menstrual cup can leak?	72	72
Is it possible to use menstrual cup when there is urinary tract infection?	44	44

Table 7 showed that only 22% of subject knew about the complication associates with usage of menstrual cup, 48% identified the complication which has not associated with the insertion of menstrual cup. Only 20% knew the

disadvantage of using menstrual cup. Majority (86%) knew about the advantages of using a menstrual cup, 72% knew about the situation in which menstrual cup can leak and 44% knew about the possibility to use menstrual cup in case of urinary tract infection. And 78% of subjects were not able to identify the complication associated with the usage of menstrual cup, 52% of them were unfamiliar with indication of menstrual cup insertion, 80% of them were unaware of the disadvantage of menstrual cup, 56% of them didn't know about the possibility to use menstrual cup in case of urinary tract infection.

### 3.4. Attitude of adolescent girls towards usage of menstrual cup

**Fig. 2:** Bar diagram showing Percentage distribution of subjects according to grading of attitude towards menstrual cup usage.

Bar diagram showed that 81% of adolescent girls had a positive attitude and 19% had neutral and none had a negative attitude towards using menstrual cup. Hence majority of the subjects had a good attitude towards menstrual cup usage.

### 3.5. Correlation between the knowledge and attitude towards menstrual cup usage among adolescent girls

$H_0$ : There is no significant relationship between knowledge and attitude towards menstrual cup usage among adolescent girls.

**Table 8:** Mean score, correlation coefficient and level of significance between knowledge and attitude towards menstrual cup usage among adolescent girls. N- 100

Items	Mean score	Correlation coefficient	df	p value
Knowledge	15.06	-0.10*	99	0.632
Attitude	84.42			

\*(p= 0.05 level)

Table 8 showed that mean knowledge score was 15.06 and mean attitude score was 84.42 and obtained r value between knowledge and attitude mean score was -0.10. Null

hypothesis (H<sub>0</sub>) was accepted and research hypothesis was rejected. This indicates there was no statistically significant relationship between knowledge and attitude.

#### 4. Discussion

The current study provided information regarding knowledge and attitude towards menstrual cup usage among adolescent girls. 63% of subjects belong to age group of 16 years, 34% belongs to the age group of 17 years and 3% were of 18 years. Of this 27% of subjects were living in rural areas and 73% were from urban areas. Majority (54%) of the subjects did not know any person who was using menstrual cup. Most (57%) of them came to know about menstrual cup through internet and other social media. These findings were consistent with another study conducted by Joana Correia Cardoso among medical students knowledge on menstrual cup. The majority of participants knew about menstrual cup (93.8%), mainly from social networks, friends and social media and less frequently from family, lessons, workshops/conferences and doctor. Most of them were familiar with menstrual cup functions.<sup>8</sup>

In a study conducted by Manorama Eti, Shreya M. S and Sailakshmi M. P. regarding knowledge about menstrual cup and its usage among 400 medical students. Among them 7% did not know about menstrual cup and 70.4% students were willing to use it. There was no clear picture among students regarding material used in cup manufacture, its emptying time and sterilization technique. Most of the subjects used sanitary pads, owing to its popularity and promotions.<sup>1</sup> So findings of this study was contradictory to the present study. Because subjects in the present study had adequate knowledge than that of them in the reviewed study. Even though they did not have a proper knowledge about menstrual cup they were willing to use it.

The usage of menstrual cup was not only based on its knowledge but also based on its promotion, popularity, and support from family members.

A study conducted by Kakani and Jalpa Bhatt about adaptability and efficacy of menstrual cup in managing menstrual health and hygiene. The menstrual cup was acceptable to most users in relation to comfort, ease of use, and effectiveness in menstrual collection. Cited advantages include overall convenience, portability and easy storage, extended wear time, and greater freedom of movement. When reusable, menstrual cups are easy to clean and therefore more hygienic than cloth pads, and they require less water for cleansing. Internal placement of cups avoids the odour and discomfort of an external pad. Reusable menstrual cups have an economic advantage. Overall, the study showed that women preferred the cup to their current method of menstrual management and had a positive attitude in using it.<sup>3</sup> So, in both studies it was evident that majority of adolescent girls had a positive attitude about the

usage of menstrual cup.

A study conducted by Akashi Boakye-Yiadom, David Alatlule Aladago on the topic assessing the Knowledge, Attitude and Practice of Menstrual Hygiene Management among Junior High schools Adolescent Females in the Yendi Municipality. The study showed that 67.5% had adequate knowledge of menstrual hygiene management. The study concluded that more than half of the respondents have adequate knowledge but their awareness and knowledge did not translate to positive attitude towards good menstrual hygiene management practices due to negative socio-cultural norms and practices among others that tend to stigmatize menstruation.<sup>4</sup> The study concluded that there was no correlation between knowledge and attitude of adolescent girls towards the usage of menstrual cup. So, it can be concluded that the knowledge alone was not enough to formulate positive attitude towards menstrual cup usage.

Knowledge about menstrual cup usage did not translate to positive attitude towards its usage due to negative socio cultural norms and practices among others stigmatize menstruation.<sup>4</sup> Most of the studies pointed out the importance of awareness campaigns about the use of menstrual cup as this can help to build menstrual hygiene among reproductive women.<sup>4,6,9,10</sup>

##### 4.1. Strength and limitations of the study

The study helped to reveal knowledge and attitude towards menstrual cup usage. The major limitation the study was that it was conducted among only two higher secondary schools at Ernakulam which may not be a true representation of the target population.

Data was collected through questionnaire and rating scale, technique used were self-reporting and self-rating in which there was an element of guessing that can influence the actual score so the generalization should be done with caution.

#### 5. Conclusion

The study was conducted to assess the knowledge and attitude towards menstrual cup usage among adolescent girls. Structured knowledge questionnaire and attitude rating scale was administered to 100 subjects in which 50% had good, 35% had satisfactory, 8% had excellent, 6% had poor and 1% had very poor knowledge about menstrual cup and majority (81%) of subjects had a positive attitude towards the menstrual cup usage. But there was no correlation between knowledge and attitude of adolescent girls towards menstrual cup usage. The study findings gave an insight that not only knowledge but many other factors are also contributing to develop a positive attitude towards menstrual cup usage among adolescent girls.

## 6. Source of Funding

None.

## 7. Conflict of Interest

None.

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