

## Unraveling the Myth: Knowledge, Awareness, Practices of Menstrual Cup among Reproductive Age Group Women at Tertiary Care Centre in Rural Karnataka

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### Abstract:

**Background:** Menstruation is an important part of women's life. Menstrual hygiene is very important by using proper menstrual products and facilities to dispose used menstrual material. A menstrual cup is a small, funnel shaped, flexible, made of silicone, latex, or a thermoplastic isomer that is inserted into the vagina to collect blood during menstruation. It is the most hygienic effective menstrual product. It reduces the burden of sanitary waste and can be used which lasts up to 10 years. It is marketed as an eco-friendly and cost-saving menstrual care.

**Objective:** To assess the awareness, knowledge, practices and acceptance regarding menstrual cup among females of reproductive age group in a rural setting.

**Methods:** A prospective study was conducted among 1000 study subjects among females of reproductive age group in rural setting during September 2023. Data collected from the selected eligible participants by an interviewer administered study proforma.

**Results:** Out of 1000 participants, who took part in the study, among them 600(60%) were between 21-25 years, 200(20%) between 26-35 years and 200(20%) between 36- 45years. Among them 432(43%) knew about menstrual cup, good knowledge 292(67%) were between 21-25years, 96(22%) between 26 -30years, 32(7%) between 31-35 years, 12(2%) between 36- 45years. Among the users (n=287), 102(35.54%) did not experience any significant side effects.

**Conclusion:** Based on the above study, it was found that while most young women were aware of the menstrual cup, a significant proportion of them did not use it primarily due to sociocultural and personal factors and presence of numerous misconceptions about menstrual cup.

**Keywords:** Menstrual cup, Reproductive age, awareness, knowledge and usage.

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### Introduction

Menstruation is a complex coordinated biological process and its onset indicates the start of reproductive years in female life [1-2]. Menstrual hygiene and its management is a much discussed topic today and it plays an indispensable part in the well-being of women worldwide. But lack of information about menstruation and menstrual hygiene practices creates a culture of taboos leading to a big barrier in the field of menstrual hygiene management. Approximately 70% of the reproductive infections in Indian women are due to poor menstrual hygiene. Three main issues for menstrual hygiene crisis include lack of awareness, lack of materials, and lack of facilities; thereby leading to poor reproductive health, and environmental sustainability [3]. The lack of

information about menstrual hygiene practices and products itself creates potential health risks such as vaginal infections, cervical cancer, Reproductive Tract Infections (RTI), Urinary Tract Infection (UTI), Hepatitis B, and different types of Yeast infections [4]. In many instances, RTI infection is transmitted to the offspring of the pregnant mother. Other problems associated with poor menstrual hygiene practices are itching or rashes in the perineal region, bad odour, and also major complications such as pelvic inflammatory disease and toxic shock syndrome [5]. As a mark of transition from pieces of cloth (sometimes supplemented with charcoal, sand, ash, grass, wood shavings, newspapers, and hay or leaves), to Disposable Sanitary Napkins (DSNs), our society

has had a major leap in accessing a modern, universally accessible product which could impart quality health and hygiene. Considering the environmental impact, the overall menstrual hygiene products available in India has been segregated into three broad categories as; (i) Reusable – cloth pads, hybrid pads with non-cloth barrier, menstrual cups, (ii) Compostable disposable – tampons, sanitary pads with banana fiber or wood pulp, and (iii) Non-compostable disposable - Cellulose based sanitary pads with plastic barriers or with super absorbent polymers (SAP), Cellulose based panty liners [6]. Sanitary napkins are among the most preferred menstrual products in India due to their ease of usage, availability, and diversity of the products [7]. However, they also form a major source of solid waste approximately constituting an annual menstrual waste generation of 113 thousand tonnes in India [8].

An alternative to sanitary pads or tampons is the menstrual cup, which has received attention in small-scale studies in high income, and low/middle-income countries, including primary school girls. Menstrual cup is a non-absorbent reusable bell-shaped device with a stem, which can be inserted into vagina to collect and hold menstrual blood during periods [9]. The menstrual cup is capable of holding up to 10-38 ml of blood. They are made of medical-grade silicon, rubber, latex, or elastomer and can be used for up to 10 years [10].

Although menstrual cups have been around for many years, their usage is still restricted. Despite the fact that menstrual cups are safe, eco-friendly, cost-effective, and long-lasting, there are still many reasons why they are not as popular as they used to be. Some of these reasons include lack of knowledge, leakage worries, discomfort, lack of availability, lack of promotion, etc.

These are just a few of the reasons why menstrual cups are not as popular today as they were in the past [11-13]. Even among the educated people, there are still some barriers to using menstrual cups despite the many benefits they offer. Therefore, the purpose of this study is to evaluate the knowledge and attitudes of medical students about using menstrual cups, as well as the experiences of those who have used them. The findings of this study will help to bridge the knowledge gaps and address some of the concerns related to the use of menstrual cups.

### Materials and Methods

This Cross-sectional study was conducted Women of reproductive age group (15 to 45 years age group) either studying or working in Adichunchanagiri Institute of Medical Sciences, B.G Nagara,

Karnataka. Duration of Study was 3 months (September 2023 to November 2023)

**Inclusion criteria:** Women of reproductive age group (15 to 45 years age group) either studying or working in the Institute.

### Exclusion criteria

- Adolescent girls, who have not attained menarche
- Women with menopause.

### Method of Collection of Data

Women of reproductive age group (15 to 45 years age group) either studying or working in Adichunchanagiri Institute of Medical Sciences, B.G Nagara, Karnataka were included in the study. Clearance from the institutional ethical committee was taken before starting the study. Study participants were included in the study by Purposive Sampling technique.

Written informed consent was taken from the study participants who fulfilled the inclusion criteria. A pre-tested, semi-structured questionnaire was used to collect information on socio-demographic variables and Awareness regarding menstrual cup and Knowledge, attitude and practice regarding menstrual cup by interview method. The questionnaire contained data related demographic parameters, awareness, knowledge, attitude and practice. It was validated by consensus of 5 experts in the field. Pre-testing and further validation were done on 20 participants. Knowledge was assessed by assigning a score of “0” and “1” for each inappropriate and right answer, knowledge score > median was considered to have good knowledge.

**Statistical Analysis:** The data was collected and compiled in MS Excel. Descriptive statistics has been used to present the data. To analyse the data SPSS (Version 26.0) was used. Significance level was fixed as 5% ( $\alpha = 0.05$ ). Qualitative variables are expressed as frequency and percentages and Quantitative variables are expressed as Mean and Standard Deviation. To compare the proportion between groups, chi-square test was applied.

### Results

A total of 1000 females in the reproductive age group were enrolled for this study. 60% of the study participants were in the age group of 21-25 years with the mean age of 23.8±3.46. Majority were users of sanitary pads (70.6%) and only 287 (28.7%) of the study participants were using menstrual cup. 56.7% of the study participants had prior knowledge regarding menstrual cups. 46.56% of them knew about menstrual cups through Internet/social media, 32.98% through Health professionals, 14.63% through Friends (Table 1).

**Table 1: Study Characteristics**

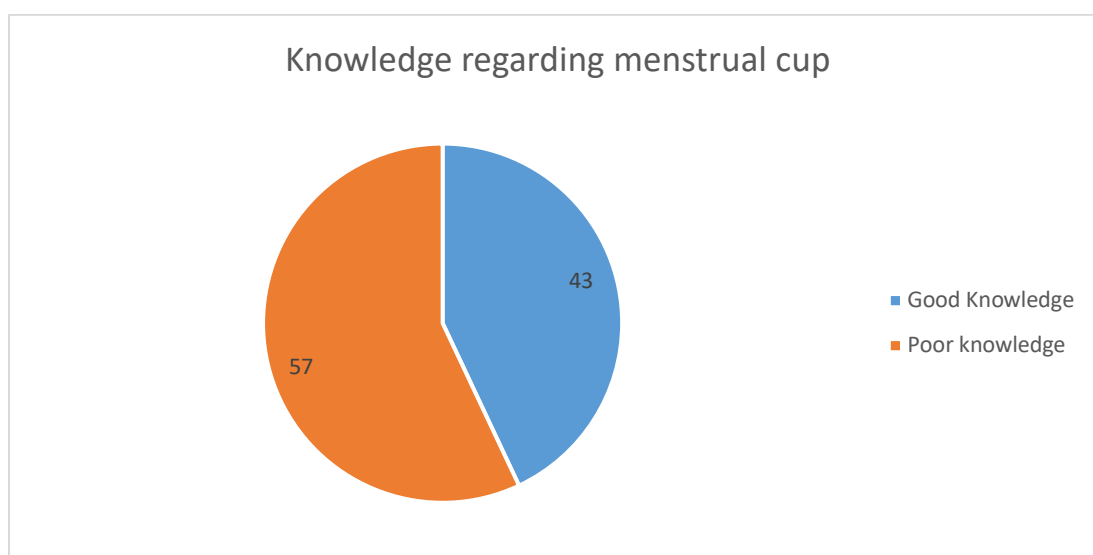
Study Characteristics		Frequency	Percentage
Age	21-25 years	600	60
	26-35 years	200	20
	36-45 years	200	20
Type of sanitary hygiene product used	Sanitary pads	706	70.6
	Menstrual cup	287	28.7
	Combined use (tampons, cloth pad, etc.)	7	0.7
Previous information about menstrual cups	Yes	567	56.7
	No	433	43.3
Source of information about menstrual cups	Friends	83	14.63
	Siblings	34	5.99
	Family	41	7.23
	Internet/social media	264	46.56
	Television/newspaper/radio	77	13.58
	Health professionals	187	32.98

**Knowledge regarding menstrual cup:** 85.3% of the study participants reported that they knew about menstrual cup. 63.3% reported that menstrual cups are made of silicone and 5.2% reported that menstrual cups are made of rubber. 29.4% of the study participants did not know about the material of menstrual cup. 83.7% of the study participants considered that menstrual cup is safe device. After

providing the information regarding menstrual cup, only 43.2% of the study participants felt that they had good knowledge on menstrual cup (Table 2, Figure 1). When the knowledge regarding menstrual cup was associated with the age of the study participants, it was found that study participants in the age group of 36-45 had poor knowledge regarding menstrual cup (Figure 2).

**Table 2: Knowledge regarding menstrual cup**

Knowledge regarding menstrual cup		Frequency	Percentage
Do you know about menstrual cup	Yes	853	85.3
	No	147	14.7
Menstrual cup is made of	Silicone	633	63.3
	Rubber	52	5.2
	Latex	31	3.1
	I don't know	294	29.4
Is menstrual cup a safe device	Yes	837	83.7
	No	163	16.3
How will you rate your knowledge on menstrual cup	<6 (Poor)	568	56.8
	>6 (Good)	432	43.2



**Figure 1: Knowledge regarding menstrual cup**

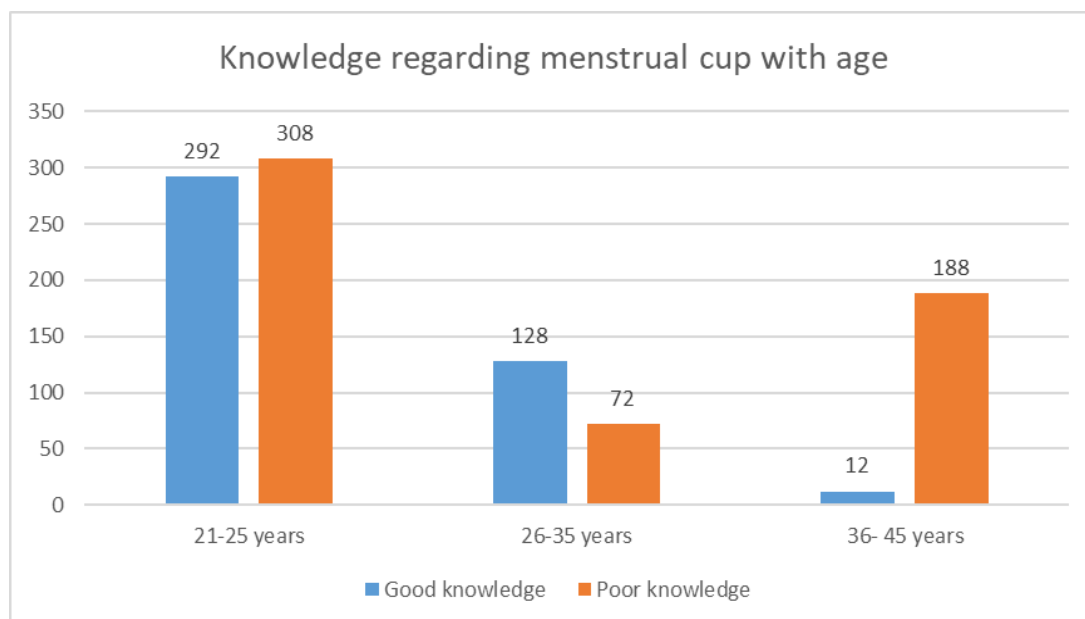


Figure 2: Knowledge regarding menstrual cup with age

**Attitude towards menstrual cup**

While assessing the attitude regarding menstrual cup, 57.2% of the study participants reported Fear of insertion, 47.3% reported their Willingness to use menstrual cup if provided free of cost. 21.3% attributed to their lack of knowledge regarding the

usage of menstrual cup. Amongst the users (n=287), 90% found menstrual cup as user friendly and 80.3% of the study participants found menstrual cup Cost-effective. 5.92% of the study participants recommended the usage of menstrual cup to others (Table 3).

Table 3: Attitude regarding menstrual cup

A) Attitude regarding menstrual cup	Frequency	Percentage
Lack of knowledge	213	21.3
Fear of insertion	572	57.2
Willingness to use menstrual cup if provided free of cost	473	47.3
B) Attitude among users		
Finding menstrual cup Cost-effective	230	80.3
Finds menstrual cup user friendly	258	90
Recommendation to others	17	5.92

**Practices regarding menstrual cup**

Amongst the users of menstrual cup (n=287), the menstrual hygiene practices were analyzed. 47.73% of the users cleaned the menstrual cup using warm water and 42.85% of the users cleaned the menstrual cup using Boiling/Cleaning with disinfect-

ant.65.15% of the users reported a frequency of changing menstrual cup during normal menstrual cycle, 2-3 times a day. 54.35% of the users reported discomfort and 8.01% of the users reported itching. Very minimal users reported dryness and leakage issues with menstrual cup (Table 4).

Table 4: Practices regarding menstrual cup

Practices regarding menstrual cup (n=287)		Frequency	Percentage
Cleaning the menstrual cup during period days	Plain water	27	9.42
	Warm water	137	47.73
	Boiling/Cleaning with disinfectant	123	42.85
Frequency of changing menstrual cup during normal menstrual cycle	1-2 times a day	77	26.82
	2-3 times a day	187	65.15
	>3 times a day	23	8.03
Problems encountered while using menstrual cup	No difficulty	102	35.54
	Discomfort	156	54.35
	Itching	23	8.01
	Dryness	8	2.78
	Leakage	3	1.04

## Discussion

This was a cross-sectional study was conducted among females in the reproductive age group and included a total of 1000 students participated in the study, and the data was collected through an online questionnaire. The results showed that 28.7% of the participants were using menstrual cups. Though the menstrual cup is an economical and eco-friendly alternative to sanitary napkins, it has not yet gained much popularity even after online shopping facilities have made it increasingly accessible. The age of the study participants in the present study was found to be in accordance with the studies done by Shwetha Ballal K et al [11], Eti M et al [12], Meghana S et al [13] and Thapa T et al [14]. In the present study, 85.3% of the study participants reported that they knew about menstrual cup. In a study done by Shwetha Ballal K et al [11], 82% of the study participants reported that they knew about menstrual cup. In a study done by Meghana S et al [13], 80% of the study participants were aware of the menstrual cup. In a study done by Thapa T et al [14], 89.5% of subjects had information about menstrual cups

In the present study, 83.7% of the study participants considered that menstrual cup is safe device. After providing the information regarding menstrual cup, only 43.2% of the study participants felt that they had good knowledge on menstrual cup. In a study done by Shwetha Ballal K et al [11], 62.5% reported that they think the menstrual cup is a safe device and 34.33% of the study participants felt that they had good knowledge on menstrual cup. In a study done by Meghana S et al [13], 62.5% of the study participants of the study participants considered that menstrual cup is safe device and only 5.8% of the study participants felt that they had good knowledge on menstrual cup. In a study done by Thapa T et al [14], 49% of subjects had adequate knowledge.

In the present study, 57.2% of the study participants reported Fear of insertion. In a study done by Shwetha Ballal K et al [11], Cumbersome to use, higher cost and poor availability were the common disadvantages reported. In a study done by Meghana S et al [13], 55% of the study participants considered the usage of menstrual cup as difficult. In a study done by Sudevan Devan GMet al [15], The main concern about the menstrual cup was found to be fear of leakage (51.7%), followed by discomfort (26.7%). In the present study, Amongst the users (n=287), 90% found menstrual cup as user friendly and 80.3% of the study participants found menstrual cup Cost-effective. 5.92% of the study participants recommended the usage of menstrual cup to others. In a study done by Arumadi A et al [16], 85.7% found menstrual cup as user friendly and 92.8% of the study participants found menstrual cup Cost-effective. In the present study,

47.73% of the users cleaned the menstrual cup using warm water and 54.35% of the users reported discomfort and 8.01% of the users reported itching. In a study done by Meghana S et al [13], 51.7% of the study participants feared leakage. In a study done by Sudevan Devan GMet al [15], 43.1% of the users reported discomfort.

Our study gave insight into the beliefs, concerns, and knowledge of women about the menstrual cup. In addition, we believe that our findings can provide a significant contribution to the available literature and also guide future studies on menstrual hygiene management in rural areas and beyond. Investment in education will definitely improve the knowledge levels on menstrual hygiene practices. Other factors like availability of cups, water supply and cost effectiveness play a major role in the selection of products especially in rural communities [17].

## Conclusion

Even though there is adequate knowledge regarding menstrual cup, the proportion of females using it is very less. This shows the need for making menstrual cups freely available and bringing a behavioural change among females of reproductive age group. Sanitary pads are unsafe, not biodegradable and eco-friendly. Menstrual cup is the safe, comfortable, eco-friendly, biodegradable and sustainable menstrual hygiene management product available throughout the world. The study also highlights the need for education and promotion of menstrual cups as a better alternative to disposable menstrual products.

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