

Knowledge, Attitude and Practice on Menstrual Cups Among South Indian Students for Plastic and Chemical - Free Menstrual Hygiene

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ABSTRACT

To Assess and promote the use of menstrual cups and develop and implement awareness campaigns to improve menstrual hygiene practices and sustainability among south Indian students.

Method: A cross-sectional observational study conducted to assess the KAP of secondary school, undergraduate and graduate students in Ananthapuramu, south India. We have randomly selected 289 eligible students were given with a per-validated self-administered questionnaire menstrual cups among students for plastic and chemical - free menstrual hygiene

Results: The mean age of the study population was 20.21 years. The study revealed that 86.5% of participants had heard about menstrual cups, indicating a high level of general awareness. However, only 62.9% of participants were aware of the material composition of menstrual cups. A majority of participants 73% reported that difficulty in inserting the menstrual cup was a reason for discontinuing its use. 63 % of agreed that menstrual cups are a more accessible option for menstrual hygiene, indicating a positive attitude toward availability and practicality and 76.8% reported that they would recommend the use of menstrual cups to others, indicating a positive perception and advocacy for this menstrual hygiene product.

Conclusion: The level of awareness about menstrual cups is a considerable gap between knowledge, attitude, and actual practice. While most participants recognized the environmental and health benefits of menstrual cups and expressed a positive attitude toward their use.

Keywords: Menstrual Hygiene, Knowledge, Attitude, Practice, Menstrual Cups, sustainable menstruation

1. INTRODUCTION

Menstrual hygiene is fundamental to women's overall health and well-being. Inadequate hygiene practices and the use of substandard menstrual products significantly elevate the risk of reproductive and urinary tract infections, potentially leading to severe and long-term health complications¹⁻³. These complications can include pelvic inflammatory disease (PID), infertility, and increased susceptibility to other infections. Menstrual hygiene materials, encompassing a variety of products such as disposable and reusable pads, cloths, tampons, and menstrual cups, are essential for effectively managing menstrual flow⁴. The selection of these materials is a multifaceted decision influenced by a complex interplay of sociocultural norms, economic realities, and individual preferences. Cultural beliefs and taboos surrounding menstruation can shape product availability and acceptability, while financial constraints may limit access to high-quality options, contributing to period poverty. Ultimately, personal comfort, lifestyle, and individual anatomy play a crucial role in determining the most suitable menstrual hygiene method. Recognizing that no single product is universally ideal,⁵ each option presents a unique set of advantages and disadvantages, requiring individuals to weigh factors such as absorbency, cost, environmental impact, ease of use, and personal comfort to make informed choices that best meet their specific needs and circumstances.

In India, sanitary napkins remain a widely favoured menstrual product, prized for their user-friendliness, accessibility, and the variety of options available⁶. However, this popularity contributes significantly to solid waste accumulation, with India generating an estimated 113,000 tons of menstrual waste annually⁷. To mitigate this environmental burden, the Solid Waste Management Guidelines 2016 mandate that used sanitary napkins be securely wrapped in manufacturer-provided pouches or suitable alternatives and disposed of in designated dry or non-biodegradable waste bins. This segregated waste is then intended for processing at specialized solid waste facilities⁸.

These practices can lead to soil and water contamination, air pollution, and blockages in sewage systems, highlighting the urgent need for improved menstrual waste management strategies. Menstrual cups present a compelling, sustainable alternative to traditional disposable menstrual products. Their reusability significantly reduces environmental impact by minimizing waste generation. Designed for internal use, the cup is inserted into the vaginal canal where it functions as a collection receptacle for menstrual flow, offering a substantial capacity ranging from 10 to 38 millilitres. This capacity often surpasses that of tampons or pads, allowing for longer wear times. Constructed from medical-grade materials such as silicone, rubber, latex, or elastomer, menstrual cups are designed for safety and durability. With proper care and cleaning, a single menstrual cup can typically be used for up to 10 years, representing a significant long-term cost saving and a reduction in environmental burden. Beyond the environmental and financial benefits, menstrual cups can also offer increased comfort and freedom from frequent changes, particularly during activities like swimming or extended periods without access to restroom facilities.¹¹

The menstrual cup's innovative design and patent dating back to 1937, its adoption in India remains significantly low. This limited uptake is attributed to a confluence of factors, including inadequate knowledge about the product, anxieties surrounding potential leakage, perceived discomfort during insertion and use, limited availability in retail outlets, and a general lack of widespread promotional campaigns¹².

2. MATERIALS AND METHODS

This cross-sectional study was conducted with South Indian Students of high school students, intermediate students (junior college students), under graduation students and graduated students during the year 2025.

Method of Collection of Data:

South Indian Students of high school students, intermediate students (junior college students), under graduation students and graduated students included in the study. Clearance from the institutional ethical committee was taken before starting the study. The nature and objectives of the study were explained to the participants and data was collected through a self-administered online questionnaire. The link was personally sent to the participants through online platform via google form. The questionnaire was divided into sections and data on the knowledge of the participants about menstrual cups, their attitude towards cup, and the experiences of the participants who were using cups were collected. A total of 289 participants responded to the questionnaire.

Statistical analysis:

Data from the online platform via google form was cleaned and entered into an Excel sheet. Statistical analysis was done using Epi Info Software 7.2 (Centers for Disease Control and Prevention, Atlanta, GA). Descriptive statistics like frequency and proportion will be used to estimate the categorical variables. Summary measures like mean and standard deviation will be used to estimate the quantitative variables. Chi-square statistical will be used for univariate analysis to find the association between Knowledge, attitude and practice.

3. RESULTS

A total of 289 participants the mean age of the study population was 20.21 years. Through all the participants had heard about the menstrual cups before only, 15% were using it either alone or in conjunction with sanitary pads. In total 250

were using sanitary pads on at least one of the days of their period and 205 were using only sanitary pads. Also, all the participants knew that menstrual cups could be reused.

Knowledge and Awareness Regarding Menstrual Cups Among Participants

Awareness of menstrual cups is high (86.5%), but knowledge gaps exist regarding material (62.9%), capacity (58.8%), and especially long-term usability (11.4%). Most (70.5%) see at least one advantage over pads, while few know about suitability for sensitive skin (11.3%). A majority (60.8%) are aware of the lower toxic shock syndrome risk, and less than half (46.3%) know which type is best for beginners.

S.no	Knowledge questions	Yes	No
1.	Do you know about menstrual cup?	250 (86.5%)	39 (13.4%)
2.	Menstrual cup is typically made of--..	182(62.9%)	107(37.1%)
3.	What is the capacity of menstrual cup in comparison to pads and tampons?	170 (58.8%)	119 (41.1%)
4.	How long can a menstrual cup be Reused for?	33 (11.4%)	256 (88.6%)
5.	What is an advantage of using menstrual cups over traditional sanitary pads.	204 (70.5%)	85 (29.4%)
6	Which type of menstrual cup is suitable for women with sensitive skin?	32 (11.3%)	257 (88.7%)
7	How do menstrual cups compare to tampons in terms of risk of toxic shock syndrome.	176 (60.8%)	11 (3.8%)
8	Which type of menstrual cup is designed for women who are new to using menstrual cup?	134 (46.3%)	155 (53.6%)

Attitude regarding Menstrual Cups Among Participants

Difficulty in insertion (73%) and lack of awareness (75.7%) are key reasons for discontinuing menstrual cup use. Cost is not a major deterrent for most (53.2% disagreed). Participants largely view menstrual cups as more accessible (75.7%), environmentally friendly (83.7%), suitable for sensitive skin (75.7%), cost-effective long-term (68.5%), and healthier (80.6%). Overall, attitudes are positive, suggesting that addressing insertion challenges and improving education could increase adoption.

Table 2: Attitude regarding Menstrual Cups Among Participants

S.no	Attitude questions	Yes	No
1.	Do you think difficulty in inserting the menstrual cup is a reason to discontinue its usage?	211 (73%)	78 (26.9%)
2.	Do you believe that lack of awareness or education about menstrual cups is a reason to stop using them?	219 (75.7%)	70 (24.2%)
3.	Do you think the initial cost of purchasing a menstrual cup is a reason to discontinue the usage?	135 (46.7%)	154 (53.2%)
4.	Do you think the menstrual are a more accessible option for menstrual hygiene?	219 (75.7%)	70 (24.2%)
5.	Do you feel that menstrual cups are a better option for women who want to reduce their environmental impact?	242 (83.7%)	47 (16.2)
6	Do you think menstrual cup are more suitable for with sensitive skin than sanitary pads?	219 (75.7%)	70 (24.2%)
7	Do you believe that menstrual cups are a more cost-effective in the long run.	198 (68.5%)	91 (31.4%)
8	Do you think menstrual cups are a healthier alternative to others sanitary products.	233 (80.6%)	56 (19.4%)

Practice regarding Menstrual Cups Among Participants

A strong majority (76.8%) would recommend menstrual cups, and 65.5% prefer them over pads for future use, while 68.5% would consider adoption. Most participants also favor menstrual cups over pads (71.2%) and are interested in future health research (73.1%). Key perceived benefits include sustainability (73.7%), long-term cost-effectiveness (76.8%), and reduced discomfort (81.3%). Overall, there's a positive attitude and growing acceptance of menstrual cups as a viable menstrual hygiene option.

Table 3: Practice regarding menstrual cups among participants

S.no	Practice questions	Yes	No
1.	Do you recommend the usage of menstrual cup to the others.	222 (76.8%)	67 (23.2%)
2.	Do you likely to consider using a menstrual cup in the near future.	198 (68.5%)	91 (31.4%)
3.	Do you want to continue using menstrual cups over sanitary pads	188 (65.5%)	101 (34.9%)
4.	Would you prefer to use menstrual cups instead of sanitary pads for your menstrual hygiene needs	206 (71.2%)	83 (28.8%)
5.	Would you be interested in joining a future study that explores the health benefits of using menstrual cups.	211 (73.1%)	78 (26.9%)
6	Are you continued to using menstrual cups are more sustainable and eco-friendly option for your menstrual hygiene needs?	213 (73.7%)	76 (26.3%)
7	Do you believe that menstrual cups are a more cost-effective in the long run.	222 (76.8%)	67 (23.2%)
8	Would you recommend menstrual cups to someone who experiences discomfort or irritation from traditional sanitary products?	235 (81.3%)	54 (18.7%)

4. DISCUSSION

The study, examining knowledge, attitude, and practice (KAP) regarding menstrual cups in young women, reveals high product awareness (86.5%) but low usage (15%). Key barriers include limited knowledge of reusability (11.4%) and suitability for first-time users (46.3%), coupled with concerns about insertion (73%) and insufficient education (75.7%). Despite this, participants held positive attitudes towards environmental (83.7%) and health benefits (80.6%), with 76.8% willing to recommend menstrual cups. The findings underscore a significant gap between awareness and practice, highlighting the need for targeted educational interventions to address misconceptions and practical challenges, thereby promoting adoption of this sustainable menstrual hygiene option.

5. CONCLUSIONS

A study of 289 South Indian students assessed their Knowledge, Attitude, and Practice (KAP) regarding menstrual cups for plastic and chemical-free hygiene. While most students showed considerable knowledge and a positive attitude, considering cups a better alternative, actual usage was low. Apprehensions about menstrual cups need to be addressed for wider adoption. The study emphasizes the necessity of education and promotion to highlight menstrual cups as a superior option to disposable products.

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