

Awareness, Usage and Environmental Perceptions of Menstrual Cups Among Women in Idukki District, Kerala

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ABSTRACT

The increasing use of disposable menstrual hygiene products has contributed significantly to environmental pollution due to the generation of non-biodegradable menstrual waste. Menstrual cups have emerged as a sustainable and reusable alternative that can reduce waste while promoting safe menstrual hygiene practices. The present study examines the awareness, usage, and environmental perception of menstrual cups among women in Idukki District, Kerala. A descriptive research design was adopted, and primary data were collected from 114 women aged 15–49 years using a structured questionnaire. The collected data were analysed using descriptive statistical techniques, including frequency and percentage analysis. The findings reveal that 93.9% of the respondents were aware of menstrual cups, and 89.5% knew that they are reusable; however, only 26.3% were currently using menstrual cups, while 71.1% continued to rely on disposable sanitary pads. Social media emerged as the primary source of information (54.4%), followed by friends and family members (30.7%). Comfort, cost savings, and environmental concerns were the major reasons for adopting menstrual cups, whereas fear of insertion, leakage, and cleaning difficulties remained the principal barriers to their use. The study further found that 79.8% of the respondents recognised that disposable sanitary pads generate non-biodegradable waste, 63.2% believed that menstrual cups could substantially reduce menstrual waste, and 57.9% expressed willingness to use menstrual cups for environmental reasons. The study concludes that although awareness of menstrual cups is high, their adoption remains comparatively low because of practical and psychological barriers. Strengthening awareness programmes, providing practical demonstrations, and promoting community-based menstrual health education can improve the acceptance of menstrual cups and contribute to environmentally sustainable menstrual hygiene management.

Keywords: Menstrual Cup; Menstrual Hygiene; Sustainable Menstrual Hygiene; Menstrual Waste; Environmental Perception; Awareness; Usage Pattern; Idukki District; Kerala.

INTRODUCTION

Menstrual hygiene is a fundamental component of women's health, dignity, and overall well-being. The availability and use of safe, hygienic, and affordable menstrual products enable women to maintain their health, comfort, and daily activities during menstruation. In recent decades, disposable sanitary pads have become the most commonly used menstrual hygiene product because of their convenience, easy availability, and user-friendly nature. Rapid urbanisation, improved market accessibility, and changing lifestyle patterns have further accelerated their adoption among women.

Despite their widespread acceptance, the extensive use of disposable sanitary pads has created a growing environmental challenge. A menstruating woman is estimated to use between 5,000 and 10,000 sanitary pads or tampons during her reproductive years, resulting in a substantial quantity of menstrual waste (Mulepati et al., 2024). The environmental impact is aggravated by the presence of non-biodegradable plastic components in most disposable sanitary products, which require several hundred years to decompose. Improper disposal methods, including open dumping and landfilling, further contribute to soil contamination, pollution, and public health concerns.

Menstrual cups have emerged as a sustainable alternative that can significantly reduce menstrual waste while promoting environmentally responsible menstrual hygiene practices. Manufactured primarily from medical-grade silicone, rubber, or thermoplastic elastomer, menstrual cups are designed for repeated use over an extended period. Studies indicate that women may discard approximately 5,000 to 15,000 disposable sanitary pads during their lifetime (Shekhawat, 2024). In contrast, a single menstrual cup can be reused for approximately five to ten years under appropriate hygienic conditions and may replace nearly 2,600 disposable pads or tampons during its usable lifespan (Mulepati et al., 2024).

Beyond their environmental benefits, menstrual cups offer several practical advantages. Their long-term usability makes them a cost-effective menstrual hygiene product, while their reusable nature substantially reduces solid waste generation. They are also considered safe, comfortable, and convenient for prolonged use when proper hygiene practices are followed. Consequently, menstrual cups represent an effective strategy for improving menstrual health management while simultaneously addressing the environmental burden created by disposable menstrual products.

Although awareness of menstrual cups has increased in recent years through government initiatives, healthcare professionals, and digital media, their actual adoption remains limited in many parts of India. Social taboos, misconceptions, inadequate awareness, cultural beliefs, and concerns regarding comfort and safety continue to influence women's acceptance of this product. Understanding the current level of awareness, usage patterns, and environmental perceptions is therefore essential for designing effective awareness campaigns and policy interventions.

Against this backdrop, the present study investigates the awareness, usage, and environmental impact of menstrual cups among women in Idukki District, Kerala. The findings are expected to contribute to the growing body of literature on sustainable menstrual hygiene management and provide valuable insights for policymakers, healthcare professionals, and environmental agencies seeking to promote eco-friendly menstrual practices.

REVIEW OF LITERATURE

Existing literature indicates that awareness of menstrual cups has increased considerably in recent years; however, their actual adoption remains relatively low. Studies conducted in different parts of India consistently report a substantial gap between awareness and regular usage, suggesting that knowledge alone is insufficient to promote behavioural change.

Lakshman et al. (2024) observed that more than half of the respondents were aware of menstrual cups, with younger women demonstrating relatively higher awareness. The study identified the internet and social media as the primary sources of information, followed by healthcare professionals. Although a large proportion of respondents believed menstrual cups were safe, less than one-third were actual users. Fear of insertion and inadequate knowledge regarding correct usage emerged as the principal barriers. The authors also emphasized the environmental significance of menstrual cups, highlighting their ability to reduce sanitary waste through long-term reusability.

Similarly, VM et al. (2025) reported that urbanisation and increased exposure to social media have positively influenced menstrual cup adoption. However, misconceptions regarding cost-effectiveness and overnight use continue to affect women's acceptance of the product. Sunny et al. (2025), in a study among healthcare workers in Kerala, found that actual usage remained limited despite product distribution. The study further revealed that user satisfaction improved with repeated use, while lack of confidence, discomfort, and fear were the major reasons for non-adoption. Friends and health awareness programmes were identified as the leading sources of information.

Several studies have highlighted the persistent gap between awareness and practical knowledge. Saldon and Bessy (2023), Upama De et al. (2023), Meghana and Gomathy (2021), and Joan Rita O'Brien (2025) reported that although many women had heard about menstrual cups, their understanding of insertion techniques, removal procedures, cleaning, maintenance, and safety remained inadequate. These studies consistently found that

disposable sanitary pads continued to dominate menstrual hygiene practices despite increasing awareness of reusable alternatives.

Research focusing on awareness and utilisation has also demonstrated remarkably low adoption rates. Sangaraju Sreeja et al. (2023) found that sanitary pads were used by the overwhelming majority of participants, whereas menstrual cup usage was negligible. Likewise, Ballal and Bhandary (2020) reported high awareness but extremely low usage, although many respondents expressed willingness to adopt menstrual cups in the future. Similar findings were reported by Shivani Kaushik et al. (2023), who observed that while awareness was very high among healthcare professionals, only a small proportion continued using menstrual cups regularly.

Studies by Veena Madi et al. (2024), Yamini Shekhawat (2024), Preeti Bhatt (2025), and Sumitra Mulepati et al. (2024) further emphasized that social media, healthcare professionals, family members, and friends constitute the major sources of information regarding menstrual cups. These studies consistently recognised menstrual cups as economical, environmentally sustainable, and safe for long-term use. Nevertheless, misconceptions regarding pain, discomfort, insertion, and ease of use continue to discourage widespread adoption. Most researchers therefore recommend comprehensive awareness campaigns, menstrual health education programmes, and practical demonstrations to improve acceptance and promote sustainable menstrual hygiene practices.

Overall, previous studies consistently demonstrate that awareness of menstrual cups has increased across different population groups, yet their actual utilisation remains comparatively low due to psychological, cultural, and informational barriers. While several studies have examined awareness and acceptance among healthcare workers, students, and urban populations, empirical evidence from district-level community settings, particularly in Kerala's hilly regions such as Idukki District, remains limited. The present study attempts to bridge this gap by examining women's awareness, usage patterns, and environmental perceptions regarding menstrual cups in Idukki District.

Statement of the Problem

Menstrual cups are increasingly recognised as a safe, economical, and environmentally sustainable alternative to disposable menstrual hygiene products. Their long-term reusability not only reduces the financial burden on users but also contributes significantly to minimizing menstrual waste and environmental pollution. Despite these advantages, the adoption of menstrual cups in India, particularly in Kerala, remains considerably lower than expected.

Previous studies have identified inadequate awareness, cultural beliefs, misconceptions, fear of insertion, and limited practical knowledge as the major barriers to menstrual cup adoption. Although awareness campaigns and distribution programmes have been implemented in several parts of Kerala, including Idukki District, there is a lack of empirical evidence regarding women's awareness, usage patterns, and environmental perceptions of menstrual cups in this region. In the absence of district-specific evidence, it is difficult to evaluate the effectiveness of existing awareness initiatives or to formulate appropriate policy interventions.

Against this background, the present study examines the awareness, usage, and environmental perception of menstrual cups among women in Idukki District. The findings are expected to provide valuable insights for policymakers, healthcare professionals, educational institutions, and public health agencies in designing strategies to promote sustainable menstrual hygiene management and environmentally responsible menstrual practices.

Objectives of the Study

The study was undertaken with the following objectives:

1. To assess the level of awareness of menstrual cups among women in Idukki District.
2. To examine the usage pattern of menstrual cups among women in Idukki District.

3. To analyse women's awareness of the environmental issues associated with the use and disposal of disposable sanitary pads.

RESEARCH METHODOLOGY

The present study adopted a descriptive research design to examine the awareness, usage, and environmental perceptions of menstrual cups among women in Idukki District, Kerala. Idukki was selected because of its unique geographical setting, diverse socio-economic characteristics, and the limited availability of district-level studies on menstrual hygiene practices. Primary data were collected from 114 women aged 15–49 years using a structured questionnaire developed for the study. Participation was voluntary, and informed consent was obtained from all respondents before data collection. Convenience sampling was employed due to the dispersed nature of settlements and the practical challenges of accessing respondents across the hilly terrain of the district within the study period. Secondary data were obtained from peer-reviewed journals, government reports, publications of WHO and UNICEF, NFHS reports, and other relevant sources. The data were classified, tabulated, and analysed using descriptive statistical tools, mainly frequencies and percentages. While the use of convenience sampling enabled the collection of useful district-level information, the findings should be interpreted with caution, as they may not be statistically representative of the entire female population of Idukki District. Future studies employing larger samples and probability-based sampling methods, such as stratified or cluster random sampling, could improve the representativeness and generalisability of the findings.

RESULTS

Socio- Demographic Profile

Table 1

Age Profile		
Category	Frequency	Percentage
Below 20	6	5.3
21-30	69	60.5
31-40	28	24.6
41-49	11	9.6
Educational Qualification		
Category	Frequency	Percentage
No Formal Education	3	2.6
School Education	14	12.3
Graduation	50	43.9
Post Graduation and Above	47	41.2
Occupation		
Category	Frequency	Percentage
Student	34	29.8
Employed	49	43.0
Self-employed	2	1.8
Homemaker	23	20.2
Others	6	5.3
Monthly family Income		
Category	Frequency	Percentage
Below ₹10,000	23	20.2
₹10,001-₹25,000	45	39.5
₹25,001-₹50,000	22	19.3
Above ₹50,000	24	21.1
Area of Residence		

Category	Frequency	Percentage
Rural	96	84.2
Urban	18	15.8

Source: Primary Data

The demographic profile of the respondents indicates that the largest proportion belonged to the 21–30 years age group, followed by those in the 31–40 years category. This suggests that the study primarily represents women belonging to the economically and reproductively active age groups.

Awareness of Menstrual Cups

Table 2

Heard about Menstrual Cups		
Category	Frequency	Percentage
Yes	107	93.9
No	7	6.1
Knowledge on Reusability		
Category	Frequency	Percentage
Yes	102	89.5
No	4	3.5
Not Sure	8	7.0
Knowledge on How to Use Menstrual Cup		
Category	Frequency	Percentage
Yes	89	78.1
No	25	21.9
Source of Information about Menstrual Cups		
Source of information	Frequency	Percentage of respondents
Social Media	62	54.4
Friends/Family	35	30.7
Health Workers	21	18.4
School/College	21	18.4
Healthcare Professionals	18	15.8
Others	2	1.8

Source: Primary Data

The findings reveal a high level of awareness regarding menstrual cups among the respondents. A substantial majority (93.9%) had heard about menstrual cups prior to the survey. Most respondents were aware that menstrual cups are reusable and possessed basic knowledge regarding their use. Social media emerged as the principal source of information, followed by friends and family members, healthcare workers, and educational institutions. These findings indicate that digital media plays a significant role in promoting awareness of sustainable menstrual hygiene products.

Usage Pattern of Menstrual Cups

Table 3

Currently Used Menstrual Product		
Category	Frequency	Percentage

Sanitary Pad	81	71.1
Cloth	2	1.8
Menstrual Cup	30	26.3
Others	1	0.9
Sanitary Pads Used Per Cycle		
Category	Frequency	Percentage
Below 5	19	16.7
5-10	50	43.9
10-15	32	28.1
More than 15	13	11.4
Disposal Method of Used Menstrual Products		
Category	Frequency	Percentage
Waste Bin	13	11.4
Burning	90	78.9
Burial	4	3.5
Others	7	6.1
Ever Used a Menstrual Cup		
Category	Frequency	Percentage
Yes	54	47.4
No	60	52.6
Duration of Menstrual Cup Use		
Category	Frequency	Percentage
Less than 6 months	23	20.2
6-12 Months	4	3.5
More than 1 Year	28	24.6
Not Applicable	59	51.8
Overall Satisfaction among Users		
Category	Frequency	Percentage
Low	7	6.1
Moderate	29	25.4
High	23	20.2
Not Applicable	55	48.2
Reasons for Using Menstrual Cup		
Variable	Frequency	Percentage
Comfort	33	61.1
Cost Saving	14	25.9
Environmental Concern	11	20.4
Recommendation by Doctor/ Medical Staff	8	14.8
Health Reasons	8	14.8
Difficulties Experienced While Using Menstrual Cup		
Variable	Frequency	Percentage
Insertion	21	38.9
No difficulties	20	37.0
Leakage	14	25.9
Cleaning	5	9.3
Others	3	5.6

Source: Primary Data

Although awareness of menstrual cups was high, disposable sanitary pads remained the most commonly used menstrual hygiene product among the respondents. Women who had adopted menstrual cups preferred them primarily because of their cost-effectiveness, comfort, and environmental benefits. Overall satisfaction among

users was encouraging; however, practical challenges such as insertion, leakage, and cleaning were identified as the major difficulties experienced during use.

Environmental Perception

Table 4

Awareness about Non-biodegradable Waste from Pads		
Category	Frequency	Percentage
Yes	91	79.8
No	22	19.3
No Response	1	0.9
Belief that Menstrual Cups Reduce Menstrual Waste		
Category	Frequency	Percentage
Yes	72	63.2
No	7	6.1
Not Sure	35	30.7
Consider Using Menstrual Cup to Reduce Waste		
Category	Frequency	Percentage
Yes	66	57.9
No	11	9.6
Maybe	37	32.5

Source: Primary Data

The study demonstrates that respondents possess a positive perception of the environmental benefits of menstrual cups. A majority recognised that disposable sanitary pads generate non-biodegradable waste and contribute to environmental pollution. The respondents also acknowledged that menstrual cups could substantially reduce menstrual waste, and 57.9% expressed their willingness to adopt menstrual cups as an environmentally sustainable alternative.

DISCUSSION

The present study found that, although awareness of menstrual cups among women in Idukki District was remarkably high, their actual usage remained comparatively low. This indicates that awareness alone is not sufficient to encourage the adoption of sustainable menstrual hygiene products.

A significant finding of the study is that 93.9% of the respondents were aware of menstrual cups, which is consistent with the findings of Ballal and Bhandary (2020), Lakshman et al. (2024), and VM et al. (2025), who also reported increasing awareness among women. However, despite this high level of awareness, only 26.3% of the respondents were current users, supporting earlier studies by Sunny et al. (2025), Sreeja et al. (2023), and Kaushik et al. (2023) that identified a substantial gap between awareness and actual adoption.

The study also revealed that social media was the primary source of information, corroborating the findings of Lakshman et al. (2024), Veena Madi et al. (2024), and VM et al. (2025). Respondents who used menstrual cups mainly preferred them for their comfort, cost-effectiveness, and environmental benefits, which is in agreement with the observations of Bhatt (2025), Mulepati et al. (2024), and Shekhawat (2024).

Fear of insertion, leakage, and cleaning difficulties emerged as the major barriers to menstrual cup adoption. Similar challenges have been reported by Meghana and Gomathy (2021), Upama De et al. (2023), Ballal and Bhandary (2020), and Sunny et al. (2025), indicating the need for practical demonstrations and counselling to improve users' confidence.

The findings also show that most respondents recognised the environmental impact of disposable sanitary pads and believed that menstrual cups could reduce menstrual waste. This supports previous studies by Mulepati et al. (2024), Shekhawat (2024), and Bhatt (2025), which emphasised the environmental advantages of reusable menstrual products.

The relatively low adoption observed in the present study may also reflect the geographical and socio-cultural characteristics of Idukki District. Many settlements are located in remote hilly regions where access to menstrual health education, demonstrations, and healthcare counselling may be comparatively limited. Consequently, although awareness has increased through digital platforms and public health campaigns, practical confidence in using menstrual cups remains limited. This finding highlights the importance of combining awareness initiatives with hands-on demonstrations and community-based support programmes.

Overall, the study confirms that the key challenge is not creating awareness but translating awareness into sustained practice. By providing evidence from Idukki District, the study adds to the limited district-level literature and offers useful insights for policymakers and healthcare professionals to promote sustainable menstrual hygiene practices.

Major Findings

The major findings of the study are summarised below:

1. The majority of the respondents belonged to the 21–30 years age group.
2. Most respondents possessed graduate-level or higher educational qualifications.
3. Awareness of menstrual cups was remarkably high among the respondents.
4. Social media emerged as the leading source of information regarding menstrual cups.
5. Despite high awareness, disposable sanitary pads continued to be the most widely used menstrual hygiene product.
6. Women who used menstrual cups preferred them because of their cost-effectiveness, comfort, and environmental sustainability. Fear of insertion, lack of practical knowledge, leakage, and cleaning concerns were the major barriers to menstrual cup adoption.
7. Most respondents recognised the environmental impact of disposable sanitary pads and believed that menstrual cups could significantly reduce menstrual waste.
8. Higher awareness was associated with a greater willingness to adopt menstrual cups.

Suggestions

Based on the findings of the study, the following suggestions are proposed to improve the adoption of menstrual cups among women in Idukki District:

1. Organise regular awareness programmes in schools, colleges, and community settings to improve knowledge of menstrual cups and their benefits.
2. Strengthen social media campaigns to address misconceptions and disseminate scientifically accurate information regarding the safe use, maintenance, and advantages of menstrual cups.
3. Conduct practical demonstration sessions and counselling programmes through healthcare professionals to improve users' confidence, particularly among first-time users.

4. Integrate sustainable menstrual hygiene education into school health programmes, public health initiatives, and women empowerment activities.
5. Encourage collaboration between government departments, local self-government institutions, non-governmental organisations, and healthcare agencies to promote the use of reusable menstrual hygiene products through awareness campaigns and community outreach programmes.

LIMITATIONS OF THE STUDY

The present study has certain limitations that should be considered while interpreting the findings. First, the study was conducted using a convenience sample of 114 respondents, which limits the statistical generalisability of the findings to the broader female population of Idukki District. Second, the unique geographical characteristics of the district, including its dispersed rural and hilly settlements, posed practical challenges in obtaining a probability-based sample. Third, the study relied on self-reported responses, making the results susceptible to recall bias and social desirability bias. Finally, the analysis was confined primarily to descriptive statistics; therefore, causal relationships among variables were not examined. Future research involving larger samples drawn through stratified or cluster random sampling techniques would strengthen the external validity of the findings and provide a more comprehensive understanding of menstrual cup adoption across diverse population groups.

Future Scope of the Study

Future research may expand the present investigation by employing probability-based sampling techniques, including stratified or cluster random sampling, to obtain a more representative sample of women across different socio-economic and geographical regions of Idukki District. Comparative studies involving rural, urban and tribal communities may provide deeper insights into regional variations in awareness and adoption. Longitudinal studies may also examine whether awareness programmes, practical demonstrations and policy interventions contribute to sustained behavioural change and increased adoption of menstrual cups over time.

CONCLUSION

The present study examined the awareness, usage, and environmental perception of menstrual cups among women in Idukki District, Kerala. The findings indicate that although awareness of menstrual cups is high, their actual adoption remains relatively low. This gap suggests that awareness alone is insufficient to promote behavioural change, as concerns related to insertion, comfort, confidence, and proper usage continue to influence women's acceptance of menstrual cups.

The study also reveals that a majority of respondents recognise the environmental advantages of menstrual cups and their potential to reduce non-biodegradable menstrual waste generated by disposable sanitary products. These findings highlight the importance of complementing awareness programmes with practical demonstrations, counselling, and community-based menstrual health education to improve users' confidence and encourage wider adoption.

By providing district-level evidence from Idukki, the study contributes to the growing literature on sustainable menstrual hygiene management. The findings may assist policymakers, healthcare professionals, educational institutions, and public health agencies in designing effective interventions that promote reusable menstrual hygiene products. Increasing the adoption of menstrual cups can contribute not only to improved menstrual health and reduced long-term costs but also to environmental sustainability through the reduction of menstrual waste.

Although the findings cannot be generalised statistically beyond the study sample, they provide valuable district-level evidence that can inform future large-scale investigations and policy initiatives aimed at promoting sustainable menstrual hygiene practices.

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