

Bridging The Knowledge-To-Practice Gap: Effect of Educational Intervention On Menstrual Cup Adoption Among Degree Women in Bangalore

Fathima Kinza Tirupattur¹, Netra Gouda², Deepa Lingadahalli Nanjundaswamy³

¹Student, Department of Community Medicine, East Point College of Medical Sciences & Research Center, Bangalore, India. ²Associate Professor, Department of Community Medicine, PES University Institute of Medical Sciences and Research, Bengaluru, India. ³Professor and HOD, Department of Community Medicine, Sri Madhusudan Sai Institute of Medical Sciences and Research, Muddenahalli, Karnataka, India

Abstract

Background: Despite known benefits of menstrual cups over disposable products, adoption remains low. The gap between awareness and actual use suggests that knowledge alone is insufficient for behaviour change. The objective is to assess the effect of structured educational intervention on menstrual cup adoption and to identify barriers that persist despite comprehensive education among degree college women in India. **Material and Methods:** This longitudinal intervention study followed 443-degree college women in Bangalore over three months. Following baseline assessment, participants received a structured educational session covering menstrual cup benefits, usage techniques, and hygiene practices, supported by a WhatsApp group for ongoing guidance. After three months, 375 participants (84.7% retention) were followed up to assess adoption rates, reasons for use or non-use, and user experiences. Data were analysed using SPSS v26.0. Descriptive statistics included frequencies, percentages, means, and standard deviations. **Results:** Educational intervention significantly increased willingness to use menstrual cups from 37.5% to 59.2% ($p < 0.001$). Among followed participants, 18.1% (68/375) adopted menstrual cups. Sexual experience was the strongest predictor of adoption (64.0% vs 14.9%, $p < 0.001$), while income showed no significant association. Primary motivations for adoption were environmental benefits (73.5%), reduced leakage/odor (58.8%), and cost savings (50%). Fear of pain (66.8%) and virginity concerns (34.2%) remained dominant barriers. Among users, 94.1% considered the cup worth the learning curve, 76.5% intended to continue use, and 68.0% shared knowledge with peers. **Conclusion:** Structured education substantially increases willingness but translates to modest adoption rates, revealing a persistent knowledge-to-practice gap. Virginity-related misconceptions and pain fears represent significant cultural and psychological barriers requiring targeted interventions. The high satisfaction among actual users (75% Good/excellent) and strong peer advocacy suggests that supporting initial adoption through demonstration, mentorship, and culturally sensitive counseling may be critical for scaling menstrual cup use.

Keywords: Menstrual cup, behavior change, health education, intervention study, women's health.

Received: 12 June 2026

Revised: 29 June 2026

Accepted: 13 July 2026

Published: 18 July 2026

INTRODUCTION

Menstruation, although a physiological phenomenon, has been linked to many taboos, such as impurity, untouchability, embarrassment and shame, in developing countries like India. Menstruation associated issues are therefore not discussed openly or enough, keeping women ignorant about menstrual hygiene and menstrual product options [1].

Menstrual cups are making a significant change in the way menstrual health management is done; it is not only the health promoting option that is sustainable and cost-effective as well. They are constructed from medical-grade silicone to collect menstrual fluid instead of absorbing it, can be used for many years, and are a much safer option and less of a health and environmental problem when compared to disposable menstrual pads or tampons.^[1-3] Systematic reviews have found them to be safe, acceptable, and tolerance, where almost 73% of users said that they would continue taking them.^[4]

But these benefits do not appear to have helped adoption

become common practice in India. About 355 million women in India use menstrual pads every month, but only 2% use them at all, and most of these pads are disposable products.^[5-7] This is a clear difference between benefits that have been proven and low uptake of the benefits, which shows that barriers are not just about lack of awareness. Theories of public health – the Health Belief Model and Theory of Planned Behaviour – emphasize that knowledge is not enough to bring about behaviour change – perceived barriers, social norms, self-efficacy and access to

Address for correspondence: Dr. Deepa LN, Professor and HOD, Department of Community Medicine, Sri Madhusudan Sai Institute of Medical Sciences and Research, Muddenahalli, Karnataka, India
E-mail: deepa.a.patil@gmail.com

DOI:
10.21276/amit.2026.v13.i2.839

How to cite this article: Tirupattur FK, Gouda N, Nanjundaswamy DL. Bridging The Knowledge-To-Practice Gap: Effect of Educational Intervention On Menstrual Cup Adoption Among Degree Women in Bangalore. Acta Med Int. 2026;13(2):1146-1153.

practical skills are key dimensions to consider when moving from awareness to action.^[8,9]

Among college women in Bangalore it was found that majority of women heard about the menstrual cup, nearly half showed good knowledge about the menstrual cup and very few used it and were not very keen. This is a clear gap between the understanding and practice. Additionally, the literature on the menstrual cup has been limited to assessing acceptability with current users, or to comparing with other products in a controlled study.

The adoption situation becomes even further complicated in an Indian context where social-cultural factors come into the picture. Women's menstrual cycles are frequently taboos and linked to the concepts of dirtiness; various myths are also associated with virginity and the hymen^[5,17A2]. These beliefs and poor guidance from health care professionals add to the psychological and practical barriers.^[10]

Aims and objectives:

Primary Objective:

- To determine the proportion of participants who adopt menstrual cups following structured educational intervention

Secondary Objectives:

- To assess whether structured education changes attitudes and behaviour regarding menstrual cup adoption
- Quantifying the knowledge-to-practice gap even after comprehensive education
- To identify reasons for adoption and continued non-adoption
- To evaluate user experiences and satisfaction to examine demographic correlates of adoption

MATERIALS AND METHODS

Study Design: Longitudinal intervention study with three-month follow-up

Study Setting and Population: This cross-sectional study was conducted among degree college-going women within a 5 km radius of a medical college in east Bangalore, Karnataka, India, from March 2021 to April 2022.

Study Population: All women going to degree college

Inclusion Criteria:

- Women who had attained menarche and experienced at least six menstrual cycles
- Currently enrolled in degree college
- Able to attend educational session
- Willing to provide informed consent

Exclusion Criteria:

- Those unable to attend follow-up
- Women who did not provide consent

Sample Size:

Using the formula

$$4pq$$

$$d^2$$

with $p = 36\%$ (based on previous study,^[11]

$q = 64\%$, and

$d = 13\%$ of p ,

the calculated sample size was 410. Adding 5% for potential non-response, final sample size was 430.

Visit 1: Baseline Assessment

Following Institutional Ethics Committee approval and informed consent, participants completed a questionnaire for baseline assessment demographics, current menstrual practices and existing awareness of menstrual cups, willingness to use menstrual cups.

Educational Intervention: Immediately following baseline assessment, participants attended a structured 45-minute educational session conducted in groups of 20-30. It was delivered by the research team in English and Kannada. Using AV aids PPT with images, diagrams of anatomy, live demonstration of the menstrual cups (unused), video clips showing insertion/removal techniques. Lastly, with interactive session allowing participants to voice concerns and receive personalised responses.

Session Content:

- **Review of Menstrual Products (10 minutes):** Health effects of disposable pads/tampons (infections, allergies, TSS, cancer risk) Environmental impact (12 billion pads generated annually in India; decomposition takes 500-800 years) Economic burden (lifetime cost comparison)
- **Introduction to Menstrual Cups (15 minutes):** What they are: medical-grade silicone devices, How they work: collect rather than absorb, Benefits: reusable (5-10 years), cost-effective, eco-friendly, safer & Safety evidence: no increased infection risk, suitable for all ages and virgins
- **Practical Usage Demonstration (15 minutes):** Size selection (based on age, childbirth history, flow), Folding techniques (C-fold, punch-down fold, 7-fold), Insertion and positioning technique, Removal, Emptying and rinsing (every 8-12 hours), Cleaning between cycles, Sterilization (boiling for 5-7 minutes monthly)
- **Addressing Common Concerns (5 minutes):** Virginity: hymen has natural opening, cups don't affect virginity, Pain concerns: cups are small and flexible, efficient insertion is painless, Leakage: proper seal prevents leakage more reliably than pads, Hygiene: silicone is non-porous and doesn't harbour bacteria

Post-Education Support: A dedicated WhatsApp support group was created including the principal investigator, faculty guide, and all participants. This provided:

- Ongoing access to expert guidance
- Peer support and experience sharing
- Provision of information about sources (pharmacies/ online retailers) and approximate costs of menstrual cups (INR 300-600, equivalent to 3-6 months of disposable pads)
- Troubleshooting for first-time users
- Reinforcement of key educational messages and motivation to switch to the cup

Visit 2: Follow-Up Assessment

Three months after the educational intervention, participants were contacted for follow-up assessment using a structured questionnaire administered in person.

Statistical Analysis: Data was analysed using SPSS v26.0 (IBM Corp., Armonk, NY, USA). Descriptive statistics included frequencies, percentages, means, and standard deviations. Comparative Analyses was done using McNemar's test for paired

proportions (willingness before vs. after education), Chi-square tests for associations between categorical variables, Fisher's exact test when expected cell counts <5. p-values <0.05 was considered statistically significant.

RESULTS

As per the [Table 1] most participants (55.8%) were aged 18–20, and the large majority (90.3%) were pursuing health-related courses (MBBS/BSc), with only 9.7% from non-health backgrounds.

Table 1: Demographic Characteristics of Participants: Age and Education

	Category	Frequency (n=443)	Percentage
Age	18-20	247	55.8
	21-23	191	43.1
	24-26	5	1.1
Degree pursued	MBBS/Bsc	400	90.3
	BA/BCom/Engineering/ Architecture (n=43)	43	9.7

Table 2: Association Between Degree Program and Willingness to Use the Menstrual Cup

Degree pursued	Willing to try the menstrual cup	Frequency	Percentage
MBBS/BSc. (n=400)	Yes	150	37.5
	No	247	61.8
	Already a user	3	0.8
BA/BCom/Engineering/ Architecture (n=43)	Yes	21	48.8
	No	21	48.8
	Already a user	1	2.3
Total		443	

[Table 2] depicts that willingness to try the menstrual cup was higher among students in non-health courses (48.8%) than health-related courses (37.5%), a statistically significant difference ($p=0.015$).

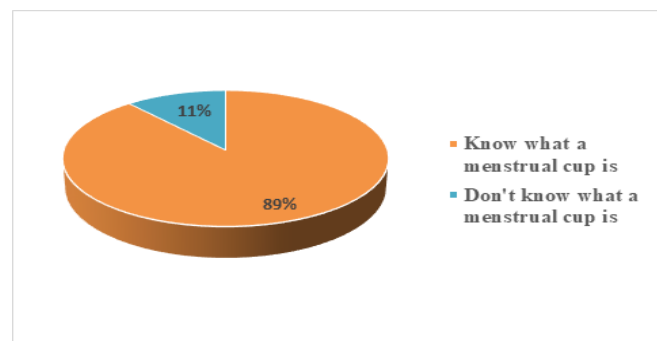


Figure 1: Awareness among participants about what the menstrual cup is about.

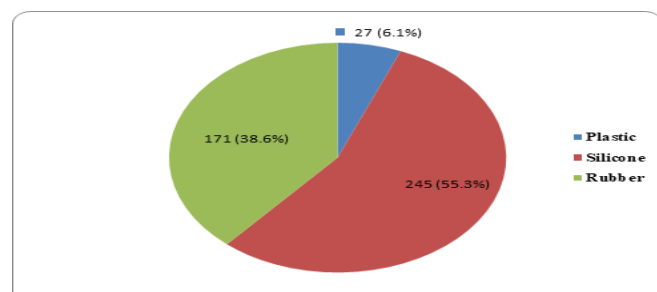


Figure 2: Participants' knowledge about the material used in the menstrual cup

The above pie chart depicts that participants' baseline awareness that 88.7% (393) knew about menstrual cup prior to the educational intervention but majority 97.7% of the participants used Sanitary pads before the intervention. The figure illustrates participants' knowledge of the material menstrual cups are made from (medical-grade silicone).

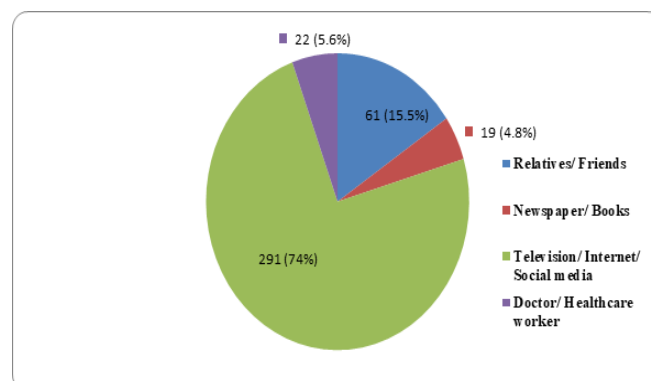


Figure 3: Participants' source of information about the menstrual cup

The above figure shows where participants first learned about the menstrual cup (e.g., healthcare providers versus internet/other sources).

Encouragement to use the cup: 84.8% (318/375) felt encouraged by the knowledge gained to use the menstrual cup, and 68.0% (255/375) shared it with peers, indicating strong potential for peer-to-peer education.

Table 3: Correlation of the source of information about the menstrual cup and willingness to use it

Source of information	Participant is willing to use/ already uses the cup	Frequency	Percentage
Doctor / healthcare provider (n=20)	Yes	15	75
	No	4	20
Other (n=373)	Yes	334	89.5
	No	39	10.5
Total		393	

[Table 3] show that Willingness to use the cup was similar regardless of information source — 75% among those informed by healthcare providers versus 89.5% among those

informed by other sources, a non-significant difference ($p=0.462$).

Table 4: Participants' views on menstrual cup usage (both users and non-users)

		Frequency (n=443)	Percentage
Frequency of changing the cup per day	Once	45	10.2
	Twice	126	28.4
	Thrice	72	16.3
	>3 times	47	10.6
	Don't know	153	34.5
Method of disposal	Throw it	23	5.2
	Flush it down the toilet	5	1.1
	Wash and reuse it	415	93.7
Method of sterilisation (considering reusability)	Rinse with water	56	12.6
	Wash with water and soap	147	33.2
	Boil	230	51.9
	Microwave	10	2.3
Efficiency of cup in preventing foul odour	More efficient than sanitary pad	366	82.6
	Less efficient than sanitary pad	77	17.4
Interference in daily activities by the cup	Present	184	41.5
	Absent	259	58.5

Baseline knowledge gaps were evident: most participants (34.5%) did not know the cup typically needs changing twice daily, and about half were unaware it must be sterilised by boiling (51.9%); most correctly knew it should be washed

and reused. 82.6% of the participants believed the menstrual cup would be more efficient than sanitary napkins in preventing foul odor during use.

Table 5: Participants' knowledge about the benefits of the menstrual cup to the user's health and the environment

		Frequency (n=443)	Percentage
Risk of allergies/ infections/ genital cancer relative to sanitary pad and tampon	Higher	19	4.3
	Lower	219	49.4
	Equal	47	10.6
	Don't know	158	35.7
Biodegradability of menstrual cup	Biodegradable	151	34.1
	Non-biodegradable	106	23.9
	Don't know	186	42.0

About half the participants (50.6%) were unaware that menstrual cups carry a lower health risk than pads/tampons,

and 65.9% did not know the cup was biodegradable, reflecting substantial baseline knowledge gaps. [Table 5]

Table 6: Overall level of awareness about the menstrual cup prior to the educational session

Awareness level	Frequency (n=443)	Percentage
Good (>75%)	219	49.4%
Satisfactory (50-75%)	26	5.9%
Poor (25-50%)	121	27.3%
Very poor (<25%)	77	17.4%

The level of awareness about the menstrual cup, including its usage and benefits compared to disposal sanitary products, was calculated by summing up the scores for awareness.

Before the educational session, 49.4% of participants had “good” overall awareness of the menstrual cup, while 17.4% had “very poor” awareness. [Table 6]

Table 7: Participant Flow and Retention, and impact of Education on attitudes of the participants

Before education	Frequency (n=443)	Percentage
Existing menstrual cup users	4	0.9
Non-users	439	99.1
Non-users willing to use the cup	166	37.5 (37.8% of non-users)
Non-users unwilling to use the cup	273	61.6 (62.2% of non-users)
After education	Frequency (n=375)	Percentage
Tried the menstrual cup	68	18.1
Non-users	307	81.9
Non-users willing to use the cup	222	59.2 (72.3% of non-users)
Non-users unwilling to use the cup	85	22.7 (27.7% of non-users)

Of 443 enrolled participants, 375 (84.7%) completed follow-up; willingness to use the cup rose from 37.5% before

education to 59.2% after, but only 18.1% had adopted it, revealing a clear intention-action gap.

Table 8: Correlation of monthly family income, sexual experience and use of menstrual cup on follow up

Income	Did the participant use the cup?	Frequency	Percentage
<10,000 (n=34)	Yes	6	17.6
	No	28	82.4
10,000 - 50,000 (n=153)	Yes	31	20.3
	No	122	79.7
50,000 - 1,00,000 (n=104)	Yes	9	8.7
	No	95	91.3
>1,00,000 (n=84)	Yes	22	26.2
	No	62	73.8
Sexual experience	Did the participant use the cup?	Frequency	Percentage
Sexually active (n=25)	Yes	16	64
	No	9	36
Sexually inactive/ virgin (n=350)	Yes	52	14.9
	No	298	85.1
Total		375	

Cup adoption ranged from 8.7% to 26.2% across income groups with no significant association ($\chi^2 = 12.78$, $p > 0.254$); notably, the middle-income group (INR 50,000–1,00,000) showed the lowest uptake contradicting assumptions that higher income predicts adoption. Adoption was higher among sexually active participants (64.0%) than sexually

inactive/virgin participants (14.9%), a highly significant association ($\chi^2 = 33.47$, $p < 0.001$) after educational intervention.

Results post education of the participants about the menstrual cup:

Table 9: Use of the menstrual cup or willingness of participants to use it before and after education

Before education	Frequency (n=443)	Percentage
Non-user willing to use the menstrual cup	166	37.5
Non-user unwilling to use the cup	49	11.1
Already a menstrual cup user (prior to participation in the study)	4	0.9
Non-user unsure about using the cup	224	50.5
AFTER EDUCATION	FREQUENCY (n=375)	PERCENTAGE
Have switched to the cup	68	18.1
Not switched to the cup but intend to use the cup	222	59.2
Not switched to the cup and don't intend to use it	85	22.7

Willingness to use the cup increased from 37.5% before education to 59.2% after, but actual switching to the cup among followed-up participants was only 18.1%,

underscoring the gap between attitude change and behaviour change. [Table 9]

Table 10: Participants' reasons for choosing and not choosing to use the menstrual cup after education

Reason for using the menstrual cup*	Frequency (n=68)	Percentage
Lesser leakage / odour, more comfort	40	58.8
Lesser risk of infections / genital cancer	20	29.4
Cheaper	34	50
Eco friendly	50	73.5
Reason for not using the menstrual cup*	Frequency (n= 307)	Percentage of participants
Anxiety, being a virgin	105	34.2
Scared it might hurt, irrespective of virginity	205	66.8
Don't want to have to touch the vagina / menstrual fluid	33	10.7
Using the cup is believed to be cumbersome; more convenient products are preferred in spite of their disadvantages	21	6.8
Others	6	2

*Multiple answers

Among adopters, the leading motivations were eco-friendliness (73.5%), reduced leakage/greater comfort (58.8%), and cost savings (50%), with lower infection/cancer risk cited by 29.4%. Of the 375 participants who were followed up, 307 i.e. 81.9% had not started using the

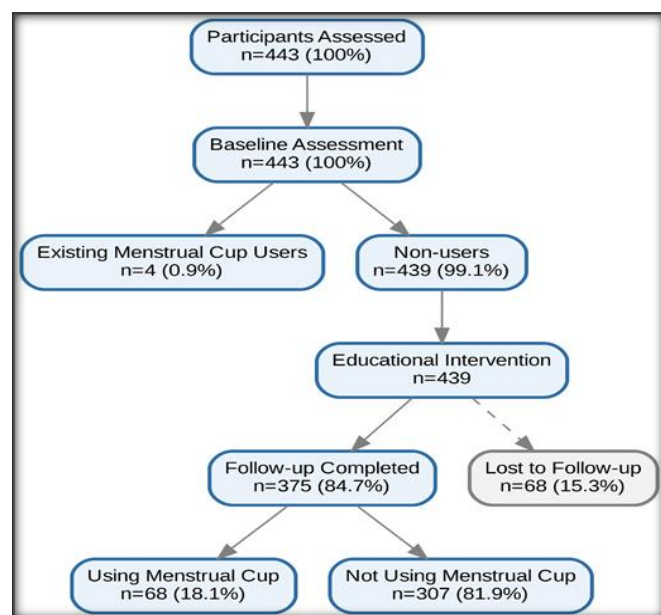
menstrual cup. The dominant barriers to adoption were fear of pain (66.8%) and virginity-related anxiety (34.2%), both of which persisted despite these concerns being directly addressed during education. [Table 10]

Table 11: Participants' experience using the menstrual cup

		Frequency (n=68)*	Percentage
Ease of insertion	Fairly easy	26	38.2
	Not so easy	34	50
	Difficult	7	10.3
Ease of removal	Fairly easy	23	33.8
	Not so easy	32	47.1
	Difficult	13	19.1
Difficulty faced in using the menstrual cup*	Leakage	18	26.5
	Rash / infection	3	4.4
	Difficult to insert	30	44.1
	Difficult to remove	24	35.3
	Poor sealing/ cup fell off/ cup displaced inside vagina	24	35.3
	Discomfort / hindrance of activities	3	4.4
Overall experience using the menstrual cup	Excellent	12	17.6
	Good	39	57.4
	Average	13	19.1
	Bad	4	5.9
Using the cup is worth the initial learning curve-	Yes	64	94.1
	No	4	5.9
Intention to continue using the menstrual cup	Yes	52	76.5
	No	4	5.91
	Unsure	12	17.62

*Multiple responses

Most users found insertion and removal only moderately (not fully) easy, 44.1% of the users found it difficult to insert the cup into the vagina, 35.3% had difficulty removing it and 26.5% experienced leakage while using the cup. Majority i.e., 57.4% had a good experience and 94.1% believe it is using the menstrual cup is worth the initial learning curve and 76.5% of the users intend to continue using it. [Table 11] Among 68, 70.6% of them tried the cup for at least two cycles, allowing adequate trial period for fair assessment. Participant Flow Diagram Showing Recruitment, Baseline Willingness to Use the Menstrual Cup, Educational Intervention, Follow-up, and Menstrual Cup Adoption:



DISCUSSION

When attitudes towards menstrual cups were examined, there was a modest but statistically significant increase in the use

of menstrual cups following Education. Significantly changes attitudes intervention (from 37.8% to 59.8%, a 58% relative increase, $p < 0.001$). Knowledge has a role in attitude; this is the confirmation. The actual adoption, however, was comparatively low, showing a significant intention-behaviour gap (18.1%). Theory of Planned Behaviour states that intention for behaviour is valid only when behavioural control is believed to be present and barriers for behaviour are low.^[8] Although attitudes are positive, perceived barriers (pain and virginity concerns) and low self-efficacy (insertion technique) are obstacles to the translation to action, according to our findings.

As a comparison, the adoption rate is 18.1%, compared to other contexts. Kambala et al. discovered that the acceptance of various menstrual products varied across Malawi.^[12] Trial results by Kakani et al. that gave free cups with intense support resulted in a higher number of adoptions, indicating that financial elimination, along with actual demonstration, might need to be applied.

The significantly higher menstrual cup adoption among sexually active women compared with sexually inactive women (64.0% vs. 14.9%; $p < 0.001$; OR=10.3) was one of the most notable findings of this study. The psychological barrier appears to be dramatically lowered when experience with vaginal insertion is obtained, as this is at least a 10-fold difference. Potential Mechanisms:

- Familiarity with vaginal anatomy
- Reduced anxiety: prior positive experiences with vaginal penetration reduce fear of pain/injury
- Hymen-related concerns eliminated
- Comfort with genital touching and bodily fluids

This discovery has significant implications for interventions that focus on sexually inactive women, which need more work to include interventions related to virginity myths, to discuss the opening and elasticity of the hymens, and possibly to provide some in-person honeypump and/or initial guidance support. In Western setting, studies indicate higher acceptance toward hymens among sexually experienced girls and women [7,11] and

school girls in Nepal expressed concern about impregnation,^[13] and virginity.

Although there were teaching sessions on the myths related to virginity's integrity, 34.2% of the non-users still stated that the concern about virginity was a barrier to using the menstrual cup. This discovery underscores the strong roots of sociocultural beliefs that associate an "intact hymen" with virginity, virginity with purity and marriageability, and indicates that such beliefs may not be easily changed with information-based interventions.^[12,14]

The fear of pain was seen in 66.8% of non-users irrespective of virginity status. Despite warnings that it is painless and an educational campaign showing that silicone is flexible, this fear has not disappeared.

To our surprise, there was no significant association between family income and adoption ($p=0.254$). This goes against the perception that people can't afford to use menstrual cups.

That 50% of adopters reported being motivated by cost savings suggests that there are economic considerations, but that psychological factors are more important than economic issues in this group.^[15]

The top answer for using menstrual cups was for environmental considerations (73.5%).^[15,16] Hence, educating on the environmental benefits of menstrual cups should be highlighted to increase their acceptance and use.

The results by Peberdy et al, indicated that there was an environmental awareness effect, regarding choice of menstrual products.^[6] But, just knowing was not enough; our cross sectional study revealed that 80.6% were aware of solid waste problem and only 0.9% used cups.

Kakani et al. reported 80%, 88%, 93.3% respectively (confidential) similar to our finding in first cycle, second cycle and third cycle.^[11] The improvement over successive cycles is an indication that helping users is crucial to retention.

Low levels of infection (4.4%) and odor (1.5%) and no severe adverse events confirm that menstrual cups are safe to use, as shown in previous systematic reviews.^[2,4,17,18] Medical-grade silicone is not porous and this can help reduce infection risks. 68% of the participants shared information about the menstrual cups with their peers, suggesting that there were effects on a broader target population, as information was passed between peers. This aligns with previous research findings which indicate a strong influence by peers in cup adoption. A study by Oster et al. found that female friends were more likely to use a menstrual cup when they heard about it from their friends, and Moon et al. found that young adults like to receive information related to menstrual health through peers and social media.^[19,20]

Strengths:

- Longitudinal design: Captured actual behaviour, not just intentions
- High retention: 84.7% follow-up rate
- Comprehensive assessment: Both barriers and facilitators examined
- Objective outcomes: Actual use, not just attitudes
- Diverse demographic analysis: Identified key predictors
- User experience data: Informs future intervention design

- Peer advocacy measurement: Documents multiplier effects

Limitations:

- Self-selection bias: Those attending follow-up may be more motivated
- Short follow-up: Three months may not capture long-term adoption and retention
- Urban, educated sample: Findings may not generalize to rural or less educated populations
- Social desirability bias: Participants may over-report positive attitudes
- Single intervention session: More intensive or repeated education may be more effective
- Cultural specificity: Indian context limits global generalizability

CONCLUSION

This study demonstrates that structured educational intervention significantly increases willingness to use menstrual cups but achieves modest actual adoption rates, revealing a substantial knowledge-to-practice gap that must be addressed through multi-level interventions.

Key Findings:

- Education works—but incompletely: 58% increase in willingness but only 18.1% adoption
- Sexual experience is the strongest predictor: 10-fold higher adoption among sexually active women
- Virginity myths persist: Affect one-third despite education
- Pain fear is universal: Affects two-thirds despite reassurance
- Environmental motivation drives adoption: 73.5% of users motivated by eco-benefits
- High user satisfaction: 75% good/excellent experience, 94% say it's worth it
- Peer advocacy is powerful: 68% shared knowledge, creating multiplier effect

For Healthcare Providers:

- Proactive counselling: Include menstrual cup discussion in gynaecological care
- Demonstration: Use models to show folding, insertion, removal techniques
- Virginity reassurance: Explicitly address hymen myths with anatomical education
- Follow-up: Check in after first 2-3 cycles

For Educational Institutions:

- Peer ambassador programs
- Reinforcements
- Testimonial sharing: Facilitate user experiences sharing
- Menstrual cup availability: Stock in campus health centres
- Hostel facilities: Ensure sterilization facilities available

For Researchers:

- Longer-term follow-up: Track retention beyond 3 months
- Controlled trials: Compare intervention intensities
- Qualitative research: Deep exploration of cultural barriers
- Virginity-specific interventions: Test strategies for sexually inactive women
- Cost-effectiveness analysis: Economic evaluation of menstrual cup programs

Acknowledgements

The authors thank the study participants for their cooperation and the administrations of the participating colleges for facilitating data collection.

Financial support and sponsorship

This research was funded by the Rajiv Gandhi University of Health Sciences (RGUHS), Karnataka (Project Code: UG20MED331).

Conflicts of interest

There are no conflicts of interest.

REFERENCES

- Kakani CR, Bhatt JK. Study of adaptability and efficacy of menstrual cup in managing menstrual health and hygiene. *Int J Reprod Contracept Obstet Gynecol*. 2017 Jun 24;6(7):3045–53.
- Van Eijk AM, Zulaika G, Lenchner M, Mason L, Sivakami M, Nyothach E et al. Menstrual cup use, leakage, acceptability, safety, and availability: A systematic review and meta-analysis. *Lancet Public Health*. 2019 Aug;4(8):e376–93. doi: 10.1016/S2468-2667(19)30111-2. Epub 2019 Jul 16. PMID: 31324419; PMCID: PMC6669309.
- North BB, Oldham MJ. Preclinical, clinical, and over-the-counter postmarketing experience with a new vaginal cup: Menstrual collection. *J Womens Health*. 2011 Feb;20(2):303–11. doi: 10.1089/jwh.2009.1929. Epub 2011 Jan 1. PMID: 21194348; PMCID: PMC3036176.
- Van Eijk AM, Laserson KF, Nyothach E, Oruko K, Omoto J, Mason L, et al. Use of menstrual cups among school girls: Longitudinal observations nested in a randomized controlled feasibility study in rural western Kenya. *Reprod Health*. 2018 Aug 17;15(1):139. doi: 10.1186/s12978-018-0582-8. PMID: 30119636; PMCID: PMC6098596.
- Mahajan T. Imperfect information in menstrual health and the role of informed choice. *Indian J Gend Stud*. 2019;26(1-2):59–78.
- Peberdy E, Jones A, Green D. A study into public awareness of the environmental impact of menstrual products and product choice. *Sustainability*. 2019;11(2):473.
- Choi H, Lim NK, Jung H, Kim O, Park HY. Use of Menstrual Sanitary Products in Women of Reproductive Age: Korea Nurses' Health Study. *Osong Public Health Res Perspect*. 2021 Feb;12(1):20–8. doi: 10.24171/j.phrp.2021.12.1.04. PMID: 33659151; PMCID: PMC7899234.
- Rosenstock IM, Strecher VJ, Becker MH. Social learning theory and the Health Belief Model. *Health Educ Q*. 1988;15(2):175–83. doi: 10.1177/109019818801500203. PMID: 3378902.
- Ajzen I. The theory of planned behavior. *Organ Behav Hum Decis Process*. 1991;50(2):179–211.
- Divakar H, Singh R, Narayanan P, Divakar GV. Menstrual health and hygiene: Study of knowledge, attitudes and practices of OBGYNs on usage of menstrual cups. *J Evid Based Med Healthc*. 2020 Feb;7(8):372–6.
- Eti M, Shreya MS, Sailakshmi MPA. Knowledge about menstrual cup and its usage among medical students. *Int J Reprod Contracept Obstet Gynecol*. 2019 Nov 26;8(12):4966–70.
- Kambala C, Chinangwa A, Chipeta E, Torondel B, Morse T. Acceptability of menstrual products interventions for menstrual hygiene management among women and girls in Malawi. *Reprod Health*. 2020 Nov 23;17(1):185. doi: 10.1186/s12978-020-01045-z. PMID: 33228723; PMCID: PMC7686682.
- Pokhrel D, Bhattarai S, Engård M, von Schickfus M, Forsberg BC, Biermann O. Acceptability and feasibility of using vaginal menstrual cups among schoolgirls in rural Nepal: a qualitative pilot study. *Reprod Health*. 2021 Jan 25;18(1):20. doi: 10.1186/s12978-020-01036-0. PMID: 33487171; PMCID: PMC7831234.
- Bae J, Kwon H, Kim J. Safety evaluation of absorbent hygiene pads: A review on assessment framework and test methods. *Sustainability*. 2018;10(11):4146.
- Howard C, Rose CL, Trouton K, Stamm H, Marentette D, Kirkpatrick N, et al. FLOW (finding lasting options for women): multicentre randomized controlled trial comparing tampons with menstrual cups. *Can Fam Physician*. 2011 Jun;57(6):e208–15. PMID: 21673197; PMCID: PMC3114692.
- Kaur R, Kaur K, Kaur R. Menstrual Hygiene, Management, and Waste Disposal: Practices and Challenges Faced by Girls/Women of Developing Countries. *J Environ Public Health*. 2018 Feb 20;2018:1730964. doi: 10.1155/2018/1730964. PMID: 29675047; PMCID: PMC5838436.
- Juma J, Nyothach E, Laserson KF, Oduor C, Arita L, Ouma C, et al. Examining the safety of menstrual cups among rural primary school girls in western Kenya: observational studies nested in a randomised controlled feasibility study. *BMJ Open*. 2017 May 4;7(4):e015429. doi: 10.1136/bmjopen-2016-015429. PMID: 28473520; PMCID: PMC5566618.
- Oster EF, Thornton RL. Menstruation and Education in Nepal. National Bureau of Economic Research Working Paper No. 14853; 2009.
- Stewart K, Greer R, Powell M. Women's experience of using the Mooncup. *J Obstet Gynaecol*. 2010 Apr;30(3):285–7. doi: 10.3109/01443610903572117. PMID: 20373933.
- Moon, G., Kim, I., Kim, H. et al. How can we improve knowledge and perceptions of menstruation? A mixed-methods research study. *BMC Women's Health* 2020;20:214.