

Original Research

Determinants of Menstrual Cup Usage among Medical Students in Index Medical College, Indore: Perceived Barriers and Facilitators

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ABSTRACT

Background: Globally, approximately one-fifth of the female population comprises adolescent girls (defined as the period between 10–19 years of age), necessitating focused attention to their specific needs. Menstruation, a distinctive biological process that begins during this stage, is often accompanied by significant social stigma. This phenomenon can impact the physical, mental, and social well-being of teenagers, underscoring the importance of addressing these challenges to prevent future sexual and reproductive health disorders. This study aimed to assess the prevalence of menstrual cup usage among female medical students, identify the barriers and facilitators influencing menstrual cup use, and evaluate knowledge and practices related to menstrual cups and their association with various determinants.

Methods: An analytical cross-sectional study was conducted among female medical students from Index Medical College, Indore. Data collection was carried out using a structured Google Form that included sections on socio-demographic details, usage patterns of menstrual products (with a focus on menstrual cups), and associated factors. The universal sampling method was employed, and responses were obtained from 345 students. Data were analyzed using Microsoft Excel and SPSS version 23.

Results: The prevalence of knowledge about menstrual cups among participants was 42.03%, while 41.45% reported using menstrual cups. Logistic regression analysis revealed that age significantly influenced barriers to menstrual cup usage. Participants aged 18–22 years were more likely to encounter barriers compared to those aged 23–26 years. Additionally, as age increased, the likelihood of experiencing barriers decreased. Students in earlier years of study were more likely to report barriers to menstrual cup use.

Conclusion: The choice of menstrual hygiene products is shaped by individual perspectives and socio-cultural factors that can either encourage or hinder their adoption. The menstrual cup, as a sustainable and hygienic option, holds promise in reducing the risk of sexual and reproductive tract infections among adolescents. Thus, efforts should focus on improving awareness of sexual and reproductive health and promoting safe, durable, and sustainable practices.

Key Words: Menstrual hygiene, Menstrual cup, Socio-cultural factors, Reproductive health

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INTRODUCTION

Adolescence, encompassing individuals aged 10–19 years, represents a critical phase of life, during which approximately one-fifth of the global female population falls within this age bracket, necessitating targeted and specialized attention. Menstruation, a

natural phenomenon characteristic of this stage, is often accompanied by significant social stigma [1,2]. This process impacts the physical, psychological, and social well-being of adolescents and holds considerable importance in mitigating potential disorders related to sexual and reproductive health

later in life. Despite being a normal physiological occurrence, menstruation is heavily influenced by pervasive cultural and social taboos, which can have a distressing effect on young girls. During adolescence, societal expectations and community norms further compound the challenges faced by these individuals [3-5].

Although menstruation is a natural biological process, its implications extend to the sexual and reproductive health of girls, who ultimately form the foundation of a society's future womanhood. Women with greater awareness of menstrual hygiene and safe practices are at a reduced risk of reproductive tract infections and their associated complications. Conversely, inadequate knowledge and poor menstrual hygiene practices among adolescents increase their susceptibility to infections, which can potentially lead to infertility in the long term.

This study aims to explore the introduction and acceptance of modern menstrual hygiene practices, particularly the menstrual cup, among the student population. The primary objective was to assess the prevalence of menstrual cup usage among medical students, identify barriers and facilitators influencing its adoption, and evaluate knowledge and practices related to its use. Additionally, the study sought to examine associations between various factors and menstrual cup use. The overarching goal was to assess awareness of the menstrual cup as a sustainable alternative and its potential role in bridging the gap between knowledge and practical application within the medical community, who, as future healthcare providers, are well-positioned to disseminate this information to the broader public.

MATERIAL AND METHODS

This research employed an analytical cross-sectional design, targeting female medical students from Index Medical College, Indore, a private medical college in Madhya Pradesh. Data collection was facilitated using a structured, pre-validated, and pre-tested questionnaire, which was adapted into a Google Form and disseminated via WhatsApp and email to the students.

A universal sampling method was adopted, ensuring the inclusion of all female students willing to participate. The primary aim of the study was to evaluate knowledge about the newer sustainable menstrual cup among all female medical students of the institution.

The questionnaire comprised sections, addressing the socio-demographic characteristics of participants, their usage patterns of menstrual products—particularly menstrual cups—their knowledge and perceptions regarding these products, and their attitudes and practices concerning sustainable menstrual hygiene. Specific questions were included to evaluate both the facilitators and barriers influencing menstrual cup usage.

Participants were provided with detailed information about the study through a participant information sheet and informed consent form before data collection commenced. The survey was conducted using Google Forms, and responses were gathered from female M.B.B.S students across all four academic years, as well as those in their internship phase.

The collected data were downloaded into Microsoft Excel and analyzed using SPSS software (version 22). Descriptive and inferential statistical methods were applied for analysis. Categorical variables were presented as frequencies and percentages, while continuous variables were grouped into class intervals and similarly described. Associations between users and non-users of menstrual cups were analyzed using the Chi-square test. Logistic regression was performed to evaluate the influence of factors on barriers to menstrual cup usage.

RESULTS

The baseline characteristics of the participants are detailed in Table 1. The majority of participants (54.78%) were aged between 18–22 years, with the remaining in the 23–26 age group. Most participants (62.32%) were in their first three years of MBBS study. Regarding family type, 57.97% belonged to joint families, and 42.03% to nuclear families. Awareness of menstrual cups was noted in 42.03% of participants, while 41.45% reported using them.

Table 1: Baseline parameters among study participants

Parameter	n	%
Age; in Years		
18-22	189	54.78
23-26	156	45.22
Year of MBBS Study		0
I – III	215	62.32
IV – Internship	130	37.68
Type of Family		0

Nuclear	145	42.03
Joint	200	57.97
Knowledge about Menstrual Cup		0
Yes	145	42.03
No	200	57.97
Use of Menstrual Cup		0
Yes	143	41.45
No	202	58.55

The barriers and factors favoring the use of menstrual cups are summarized in Table 2. Social media (15.94%) and friends (13.04%) were the most common sources of information about menstrual cups. Cost-effectiveness (37.10%) and reduced rashes

(26.09%) were the primary factors favoring menstrual cup usage. However, fear of leaking (40.00%), pain (31.88%), and sociocultural factors (13.04%) were the most commonly perceived barriers.

Table 2: Barriers and Facilitators for use of Menstrual Cups

Parameter	n	%
Source of information for MC		
TV	10	2.90
Friend	45	13.04
Social media	55	15.94
Medical practitioner	14	4.06
News	3	0.87
Family	7	2.03
Medical books	17	4.93
Factors favoring use of MC		
Cost effective	128	37.10
Environmental safety	55	15.94
More comfortable	72	20.87
Less rashes	90	26.09
Perceived Barriers to usage of MC		
Pain	110	31.88
Sociocultural Factors	45	13.04
Fear of Leaking	138	40.00
Difficult to insert	35	10.14
Unable to maintain hygiene	17	4.93

The relationship between perceived barriers and menstrual cup usage is illustrated in Table 3. Participants aged 18–22 years were significantly more likely to report barriers compared to those aged 23–26 years (41.45% vs. 13.33%, $P < 0.01$). Similarly, students in the earlier years of MBBS (49.28%) experienced barriers more frequently than

interns (9.28%, $P < 0.01$). Joint family participants (46.38%) were more affected by barriers than those from nuclear families (12.17%, $P < 0.01$). Notably, individuals lacking prior knowledge of menstrual cups reported barriers at a higher rate (46.96%) than those with knowledge (11.59%, $P < 0.01$).

Table 3: Association between perceived barriers an usage of Menstrual Cups

Parameter	Barriers Present		Barriers Absent		P Value
	n	%	n	%	
Age; in Years					
18-22	143	41.45	46	13.33	<0.01
23-26	59	17.10	97	28.12	
Year of MBBS Study					
I – III	170	49.28	44	12.75	<0.01
IV – Internship	32	9.28	99	28.70	
Type of Family					

Nuclear	42	12.17	103	29.86	<0.01
Joint	160	46.38	40	11.59	
Knowledge about Menstrual Cup					
Yes	40	11.59	105	30.43	<0.01
No	162	46.96	38	11.01	

The regression analysis findings are detailed in Table 4. Age, year of MBBS study, and family type were significant predictors of barriers. Younger age (OR: 5.181, 95% CI: 3.202–8.25), earlier year of MBBS study (OR: 12.43, 95% CI: 7.155–20.34), and joint

family type (OR: 10.1, 95% CI: 6.02–16.16) were associated with higher odds of reporting barriers. Lack of prior knowledge of menstrual cups was inversely associated with barrier perception (OR: 0.087, 95% CI: 0.051–0.153, $P < 0.01$).

Table 4: Regression analysis of barriers and usage of Menstrual Cups

Variable	Odds Ratio	95% CI		P value
		Lower	Upper	
Age	5.181	3.202	8.25	<0.01
Year of MBBS Study	12.43	7.155	20.34	<0.01
Type of Family	10.1	6.02	16.16	<0.01
Knowledge about Menstrual Cup	0.087	0.051	0.153	<0.01

DISCUSSION

In this study, a total of 345 participants were involved, and the prevalence of knowledge regarding the menstrual cup was found to be 42.03%. The usage prevalence of menstrual cups was 41.45%. All the participants who were currently using menstrual cups had previously used sanitary pads, indicating that adopting a new method is challenging, even within a highly educated group. Among the non-users of menstrual cups, 31.88% reported pain as a reason for non-use, while 40% feared leakage, 13.04% faced socio-cultural barriers, 10.14% found insertion difficult, and 4.93% struggled with maintaining hygiene. These factors were identified as key obstacles to the adoption of this new method. Additionally, approximately 22% of participants reported being able to insert the menstrual cup correctly only after multiple attempts, emphasizing that mastering any new method typically requires trial and error, which depends on the individual's proficiency level.

Out of the users, 42.45% recommended the menstrual cup to others. However, the dissemination of knowledge was limited, as only a portion of users shared their experiences and promoted the habit of knowledge transfer. Only 46.54% of users reported using the menstrual cup in public restrooms. Among those who did not use menstrual cups, the primary reasons were the convenience of sanitary pads (72%), easy availability (25%), and the simplicity of maintaining hygiene (3%). These factors were considered facilitators for the continued use of sanitary pads or cloths. Approximately 36% of non-users expressed interest in using menstrual cups in the future.

A study by Eti M et al. and Pokhrel D et al. [6,7] found that 11.25% of girls used sanitary pads, 48.75% used cloth pieces, and 40% used a combination of both, with no girls using alternative menstrual hygiene products. Similarly, Van Eijk et al. [8] reported that awareness of tampons and menstrual cups among the general population was relatively low (15.9% and 11.4%, respectively). In their study, the most important factors influencing the choice of menstrual hygiene products were comfort for disposable sanitary pads (31.3%) and custom fit for menstrual cups (50.7%). In contrast, our study revealed a higher prevalence of menstrual cup usage, likely due to the better-informed medical student population, who are more aware of the benefits and challenges associated with new medical innovations. This platform provides an opportunity for students to share information on sustainable menstrual practices with the broader public, fostering a safe and healthy environment.

To ensure accessibility, these eco-friendly products should be made available at affordable prices and designed for ease of use. In our study, among reproductive-age medical students, 95.45% used sanitary pads, with comfort and ease of use being the primary factors for their choice (71.42%). In a study by Diksha Pokhrel et al. [7] involving females aged 13–19 years in Nepal, 67% found the menstrual cup easy and convenient to use, and 45% considered it economically and environmentally advantageous. A systematic review and meta-analysis by Anna Maria Eijk et al. [8-11] on menstrual hygiene management among adolescent girls in India found that 73% of participants wished to continue using the menstrual cup after switching from their previous menstrual hygiene products.

CONCLUSION

The choice of menstrual hygiene products and the level of awareness surrounding their use are largely influenced by an individual's perspectives and the socio-cultural environment, which can either promote or deter the adoption of specific products or practices. The introduction of menstrual cup, an innovative, sustainable product, has the potential to reduce the risk of sexual and reproductive tract infections among adolescents, owing to its durability and hygienic method of use. Therefore, significant efforts must be directed towards enhancing knowledge dissemination related to sexual and reproductive health, as well as promoting safe, durable, and sustainable practices and products.

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