

Prevalence of Menstrual Cups Usage among Female Undergraduate Students of Reproductive Age Group at a Medical College in Pune, India: A Cross-Sectional Study

¹Dr. Aishwarya Ohri, ^{2*}Dr. Swati Ghonge, ³Dr. Soveli Suvechha Khuntia and ⁴Dr Pratap Bhan Kaushik

¹Junior Resident, Department of Community Medicine, Dr.D.Y.Patil Vidyapeeth, Pimpri, Pune (Deemed to be University) Dr.D.Y.Patil Medical College, Hospital & Research Centre, Pimpri, Pune.

^{2*}Professor, Department of Community Medicine, Dr.D.Y.Patil Vidyapeeth, Pimpri, Pune (Deemed to be University) Dr.D.Y.Patil Medical College, Hospital & Research Centre, Pimpri, Pune.

³Junior Resident, Department of Community Medicine, Dr.D.Y.Patil Vidyapeeth, Pimpri, Pune (Deemed to be University) Dr.D.Y.Patil Medical College, Hospital & Research Centre, Pimpri, Pune

⁴Assistant Professor, Department of Community Medicine, Dr.D.Y.Patil Vidyapeeth, Pimpri, Pune (Deemed to be University) Dr.D.Y.Patil Medical College, Hospital & Research Centre, Pimpri, Pune.

Email: ¹aishwaryaohri484@gmail.com, ^{2*}dr.swati.ghonge@gmail.com, ³sk.little999@gmail.com,

³aishwaryaohri484@gmail.com and ⁴Pratap.kaushik@dpu.edu.in

Orcid Id: ⁴0009-0009-6273-9242

Received: 28th Feb, 2026; Revised: 6th March 2026; Accepted: 7th April, 2026; Available Online: 20th April, 2026

ABSTRACT

Introduction: A menstrual cup is a menstrual hygiene product; inserted into the vagina during menstruation and works by collecting the menstrual blood. It is an alternative to sanitary pads and is mainly made up of elastomers (silicone, latex or thermoplastic rubbers). It is considered safe, eco-friendly & durable, yet the lack of adaptability among the reproductive age women brings us to this research question.

Methods: We conducted the study to assess the knowledge, attitude, and practice regarding menstrual cups among undergraduate female medical students in a medical college, with a focus on understanding the shift toward eco-friendly menstrual hygiene practices. A cross-sectional study was conducted among 196 female participants. The study was done using a structured questionnaire to assess knowledge, attitude and practice on menstrual cups. Data entry and statistical analysis were performed using Epi Info software version 7.2.6.

Results: Among the 196 participants; 184 (94.4%) were aware about the menstrual cups as an alternative to sanitary napkins as a menstrual hygiene product. Internet was the primary source of information in 127(65.1%) participants. Almost one-third participants 124 (63.6%) felt that menstrual cups were environment friendly & cost effective 103(52.8%) alternative. Practise wise, 30 (15.4%) respondents were active menstrual cup users, out of which 20(66.7%) did not face any side effects, 7(23.3%) had pain, 2(6.7%) had rashes and 1(3.3%) participants had experienced urinary tract infections.

Conclusion: This study highlights a high level of awareness, positive attitudes, and yet slow adaptability of environment friendly alternatives of menstrual hygiene among medical undergraduates in Pune. A large proportion of positive responses regarding the knowledge of menstrual cups were likely due to respondents being educated in medical field. Positive attitudes needs to transform into action and medicos can lead in the health education for promoting this safer and better alternative.

Keywords: Menstrual hygiene; eco-friendly; menstrual cups; sanitary pads.

How to cite this article: Ohri A, Ghonge S, Khuntia SS, Kaushik PB. Prevalence of Menstrual Cups Usage among Female Undergraduate Students of Reproductive Age Group at a Medical College in Pune, India: A Cross-Sectional Study. Int J Drug Deliv Technol. 2026;16(38s): 785-791. DOI: 10.25258/ijddt.16.38s.81

Source of support: Nil.

Conflict of interest: None

INTRODUCTION

During the current era of reduce, reuse, and recycle, use of menstrual cups offer an appropriate, secure, and practical choice for long-term menstruation. Utilizing nonconformist products during the menstrual cycle of

women for benefit of the body and the environment is known as "sustainable menstruation"⁽¹⁾

Menstrual hygiene is a crucial component of woman's health. During the period of menstruation, poor personal hygiene and use of subpar menstrual products can cause

*Author for Correspondence: dr.swati.ghonge@gmail.com

infections of the reproductive system and urinary tract, which can have serious repercussions.⁽²⁾ There are products available in the market to contain the menstrual flow, such as pads, cloths, tampons, or menstrual cups. The choice these products is dependant on sociocultural and economic backgrounds as well as personal comfort. No single material will be preferable to all people who menstruate at all times, with each method having its own merits and demerits according to the user⁽³⁾.

Sustainable menstruation aims to reduce the amount of plastic waste which ends up in landfills or our oceans by raising awareness regarding the damage that disposable sanitary products cause to the environment.⁽⁴⁾

Studies examining menstrual cup knowledge and usage among female medical students in India reveal consistently low adoption rates despite varying levels of awareness. Among medical students, awareness ranged from 80% to 82.4% , yet actual usage remained extremely low at 1.6% to 15%^(5,6), with one study reporting zero usage⁽⁷⁾. Students demonstrated poor knowledge regarding cup materials, sterilization methods, and emptying frequency across studies^(6,7). Educational interventions showed promise, with knowledge about cup availability improving from 29.7% to 89.8% post-intervention⁽⁸⁾. Income was significantly associated with cup usage. Despite recognition of menstrual cups as eco-friendly and cost-effective alternatives, widespread sanitary pad popularity and lack of awareness remain major barriers to adoption in India.

Need For the Study:

Menstrual cups might help in reducing a greater amount of waste that is generated from other menstrual products as these are reusable. Hence, eco-friendly and economical as compared to other products available. The rubber used in manufacturing menstrual cups has been made resistant to bacterial growth, thus ensuring its safety against urogenital infections⁽⁹⁾.

Against this background we further extended the study to the Pune metro city in India to estimate the prevalence of the use of menstrual cups; and to assess the knowledge, attitude and practice of the menstrual cups among female undergraduate students studying in a medical college.

MATERIALS & METHODS

Study design and setting:

A cross-sectional study was conducted among female undergraduate medical students belonging to the reproductive age group in a medical college located in the Pune district of Maharashtra, India. This medical college is attached to a tertiary health care centre and is an urban area.

Study duration:

The study was carried out over a period of three months, from November 2024 to January 2025.

Study population:

The study population comprised female undergraduate medical students aged 18–25 years. Medical students

represent a relatively informed group; therefore, their perceptions and practices provide valuable insight into both awareness levels and existing barriers to the adoption of menstrual cups.

Sample Size:

The sample size was calculated using the prevalence of active menstrual cup users as 5.9%, as reported in a study by Supriya S. Jamkhandi and Rajesh Tile, titled “*Awareness, Acceptability, and Feasibility of the Menstrual Cup: A Descriptive Study*” published in the *Journal of South Asian Federation of Obstetrics and Gynaecology* (2024).⁽¹⁰⁾ with a 95% confidence level and an acceptable absolute precision of 3.3%, the minimum required sample size was calculated to be 196 using WinPepi software (version 11.65).

Sampling Method:

Convenience sampling was employed to recruit respondents for the study.

Inclusion Criteria:

- i) Female undergraduate medical students aged between 18 and 25 years
- ii) Participants who provided informed consent

Exclusion Criteria:

- i) Students below 18 years or above 25 years of age
- ii) Students who did not provide consent

Ethical Considerations

Ethical approval for the study was obtained from the Institutional Ethics Committee of the concerned medical college prior to the commencement of the study.

Add ethics clearance certificate, number and date Participation in the study was entirely voluntary. Informed consent was obtained electronically from all participants before they completed the online questionnaire. Participants were assured of confidentiality and anonymity, and no personally identifiable information was collected. The data obtained were used solely for research purposes.

Data Collection Tool and Procedure

Data were collected using a predesigned, structured questionnaire created in Google Forms. The questionnaire consisted of simple, close-ended and multiple-choice questions assessing knowledge, attitudes, and practices related to menstrual cup usage.

The online questionnaire was circulated to eligible female undergraduate medical students who agreed to participate in the study. A total of 196 students completed the questionnaire and were included in the final analysis. Confidentiality of the participants was strictly maintained throughout the study.

Data Analysis

The collected data were entered into Microsoft Excel and analyzed using Epi Info software (version 7.2.6). Descriptive statistics were used to summarize the data, and results were expressed as frequencies and percentages.

RESULTS

A total of 196 female undergraduate medical students participated in the study, with a mean age of 22.7 ± 1.35 years. The findings revealed that most students, 184 (94.4%), had prior knowledge about menstrual cups (Figure 1). The primary source of information was the internet, reported by 127 students (65.1%). Friends were the source of information for 49 students (25.1%), while mothers accounted for a smaller proportion, with 14 students (7.2%) obtaining information from them (Figure 2).

Regarding menstrual hygiene practices, sanitary pads were the most commonly used product among the participants, with 162 students (82.6%) relying on them. Menstrual cups were used by 30 students (15.4%), tampon use was minimal, reported by only 4 participants (2.0%), reflecting a low preference for this product among the study population (Table 1).

When assessed for knowledge about the materials used in menstrual cups, 130 students (66.7%) correctly identified silicone as the primary material. A much smaller proportion of participants identified other materials, including latex (8 students, 4.1%), natural rubber (5 students, 2.6%), and plastic (2 students, 1%).

Perceptions regarding the environmental and economic benefits of menstrual cups were also explored. Many respondents, 124 students (63.6%), believed menstrual cups to be environmentally friendly, while 16 students (7.7%) disagreed and 56 students (28.7%) were uncertain. Similarly, 103 students (52.8%) considered menstrual cups to be cost-effective; however, 14 students (6.7%) did not share this view, and 79 students (40.5%) remained unsure (Table 2).

User experience with menstrual cups was largely positive among respondents. Out of the 30 users, 22 (73.3%) reported that menstrual cups were comfortable to insert. A majority, 28 (93.3%) found them easier to use compared to other menstrual products. Most participants 26 (86.7%) indicated that menstrual cup usage did not interfere with their routine daily activities. Additionally, 27 (90%) of respondents reported comfort during overnight use, highlighting the suitability of menstrual cups for extended wear (Table 3).

Storage practices varied among participants. The most common method was storing menstrual cups in airtight containers, reported by 40% (12) of users. An equal proportion (40%) stored their cups in plastic bags, which is considered a less ideal practice due to inadequate ventilation and the potential risk of microbial growth. Only 6(20%) respondents reported using cloth bags for storage (Figure 3).

Majority of participants (50%) were in the favour of recommending the menstrual cup to others; whereas 17% of them disagreed and 33% of them were still not sure for the same.

Attitudes toward recommending menstrual cups were mixed. Half of the participants (50%) were in favor of

recommending menstrual cups to others, while 17% disagreed. The remaining 33% were uncertain about recommending their use.

DISCUSSION

The present study estimated the prevalence of menstrual cup usage and assessed the knowledge, attitude, and practices related to menstrual cup usage among female undergraduate medical students aged 18–25 years.

Knowledge and Awareness of Menstrual Cups

In the present study, awareness regarding menstrual cups was found to be very high (94.4%). This finding is higher than that reported by Brindhaavanan et al. ⁽⁵⁾ who observed awareness among 80% of medical students, and Pavithra Ramanna et al. ⁽⁶⁾ who reported that 17.6% of students had no knowledge about menstrual cups. Similarly, Eti et al. ⁽⁷⁾ reported that 7% of students were unaware of menstrual cups. The higher awareness observed in the present study may be attributed to increased internet penetration, social media exposure, and growing discourse on sustainable menstrual hygiene practices in recent years.

The internet was the most common source of information (65.1%) in the present study, followed by friends (25.1%) and mothers (7.2%). Comparable findings have been reported in several studies where digital media and peer networks were the dominant sources of information. Meghana et al. ⁽¹¹⁾ also reported media as a major source of information (36.7%). The relatively low contribution of mothers highlights the ongoing cultural hesitation surrounding intergenerational discussions on menstruation, even among educated families. This underscores the potential of social media and online platforms as effective tools for menstrual health education.

Practice and Usage of Menstrual Cups

Despite high awareness, actual usage of menstrual cups in the present study was low. The present study reported that 162 (82.6%) participants use sanitary pads during their menstruation; only 30 (15.4%) of females chose menstrual cups and 4 (2%) of the participants opted for tampons as an alternative for sanitary pads during menstruation. It was very evident that the majority of the adult females still use sanitary napkins for the menstrual hygiene. This finding is consistent with numerous Indian studies that demonstrate a significant gap between awareness and practice. Brindhaavanan et al. ⁽⁵⁾ reported a similar usage rate of 15%, while several other studies reported even lower usage, ranging from 0% to 4.4%. Eti et al. ⁽⁷⁾ and Shrivastava et al. ⁽⁸⁾ reported no menstrual cup usage among their study participants despite high awareness.

However, the usage rate observed in the present study is higher than that reported in older studies, suggesting a gradual shift toward acceptance. In contrast, a study from Puducherry by Mercy M. Jafrin et al. ⁽¹²⁾ reported a much higher prevalence of usage (41.5%), indicating that contextual factors such as institutional support, exposure, and counselling may significantly influence adoption rates.

Tampon usage in the present study was minimal (2%), similar to findings from Britto et al. ⁽¹³⁾ where tampon use

was reported by only 2.5% of participants. This reflects a general low preference for intravaginal menstrual products in the Indian context.

Knowledge About Materials Used:

Regarding knowledge about menstrual cup materials, 66.7% of participants correctly identified silicone as the primary material. However, a notable proportion either identified incorrect materials or did not know, indicating incomplete technical knowledge. Similar gaps were reported by Pavithra Ramanna et al.⁽⁶⁾ where students lacked clarity regarding materials, sterilization, and usage duration. This suggests that while general awareness exists, detailed and practical knowledge remains insufficient.

In terms of perception, 63.6% of participants considered menstrual cups environmentally friendly and 52.8% believed them to be cost-effective. These findings are comparable to earlier studies that highlight positive perceptions but also a significant proportion of uncertainty. Studies by Britto et al.⁽¹³⁾ and Das et al.⁽¹⁴⁾ reported that many participants were aware of benefits but were still hesitant to adopt menstrual cups. This uncertainty may act as a psychological barrier, preventing trial and sustained use.

User Experience and Acceptability:

Among menstrual cup users in the present study, experiences were predominantly positive. A majority reported comfort with insertion (73.4%), ease of use (93.4%), comfort during overnight use (90%), and no interference with daily activities (86.7%). These findings align with Meghana et al.⁽¹¹⁾ where 65% of participants expressed willingness to use menstrual cups if available. Positive user experiences suggest that once initial apprehensions are overcome, menstrual cups are well accepted.

Despite positive experiences, storage practices were suboptimal among some users, with 40% storing cups in plastic bags. Proper storage in breathable cloth bags was reported by only 20% of users. This finding indicates a need for better education regarding hygiene and maintenance practices, which has also been emphasized in previous studies.

Attitude towards future Usage:

In the present study, 50% of participants were willing to recommend menstrual cups to others, while 33% were uncertain. This cautious attitude is consistent with findings from other studies, where fear of social acceptance and lack of confidence in correct usage influenced recommendations. The uncertainty observed highlights the need for peer-led advocacy and confidence-building interventions.

Limitations:

The study has certain limitations. Being a Google Form-based self-administered questionnaire, it is subject to reporting bias. The study was conducted among medical undergraduate students from a single district, which limits generalizability. Additionally, the study did not explore in

depth the psychosocial and cultural barriers influencing menstrual cup adoption.

Implications:

The present study highlights that while awareness of menstrual cups among medical students is high, actual usage remains limited. Bridging this gap requires structured educational interventions focusing on practical demonstration, addressing myths and fears, and promoting peer support. As future healthcare providers, medical students can play a pivotal role in disseminating accurate information and normalizing sustainable menstrual hygiene practices in the community.

CONCLUSION

This study explored the knowledge, attitudes, and practices related to menstrual cup usage among urban reproductive women in a medical college setup. Although many participants were aware of menstrual cups, their acceptance and usage remain limited. The study highlighted a significant gap between awareness and the willingness to adopt menstrual cups, emphasizing the need for focused efforts to bridge this gap and encourage acceptance.

REFERENCES

1. Singh R, Agarwal M, Sinha S, Chaudhary N, Sinha HH, Anant M. Study of adaptability and efficacy of menstrual cups in managing menstrual health and hygiene: A descriptive longitudinal study. *Cureus*. 2022;14(9)
2. Gayathri Mallika Sudevan Devan1, Gayathri Mohanan1, Gowri Krishna Ajitha1, Haripriya Kavitha1, Ijaz Majeed1, Anjana Nalinakumari Kesavan Nair; Knowledge, Attitude and Practices Regarding Menstrual Cup Among Females in an Urban Setting of South Kerala. *Journal of Family and Reproductive Health*; Vol. 16, No. 4, December 2022
3. Arumadi A, Raman R, Thayyil NA, Rasheed RR. Knowledge, attitude and experiences of students regarding menstrual cup usage in a medical college in North Kerala, India. *Cureus*. 2023;15(9)
4. Jaafar H, Ismail SY, Azzeri A. Period poverty: A neglected public health issue. *Korean J Fam Med*. 2023;44:183-8.
5. Brindhaavanan PG, Ranganadhan P, Boominathan C, Parasuraman G. Knowledge, attitude and practice of menstrual cup among female medical students in private medical college. *Int J Reprod Contracept Obstet Gynecol* [Internet] 2022 [cited 2026 Jan 18];12(1):119. Available from: <https://ijrcog.org/index.php/ijrcog/article/view/12056>
6. Ramanna P. Knowledge among medical students about the usage of menstrual cup in a medical college in Central Karnataka. *Indian J Community Fam Med* [Internet] 2024 [cited 2026 Jan 18];10(2):119–22. Available from: https://journals.lww.com/10.4103/ijcfm.ijcfm_5_24

7. Eti M, S. SM, A. SMP. Knowledge about menstrual cup and its usage among medical students. *Int J Reprod Contracept Obstet Gynecol* [Internet] 2019 [cited 2026 Jan 18];8(12):4966. Available from: <https://www.ijrcog.org/index.php/ijrcog/article/view/7428>
8. Ayushi Shrivastava, Satish Saroshe, Vijay Khare, Shivam Dixit. Awareness about Menstrual Cups and Hygiene amongst Undergraduate Medical Students of Government Medical College of Central India. *Indian J Public Health Res Dev* [Internet] 2025 [cited 2026 Jan 18];16(1):85–93. Available from: <https://medicopublication.com/index.php/ijphrd/article/view/21570>
9. Gangadharan PB, Ranganadhan P, Boominathan C, Parasurama G. Knowledge, attitude, and practice of menstrual cups among female medical students in a private medical college. *Int J Reprod Contracept Obstet Gynecol*. 2023 Jan;12(1):119-123.
10. Supriya S Jamkhandi, Rajesh Tile Awareness, Acceptability, and Feasibility of the Menstrual Cup: A Descriptive Study *Journal of South Asian Federation of Obstetrics and Gynaecology* (2024)
11. Meghana S and Gomathy E, Knowledge, attitude, and practices regarding menstrual cup among reproductive women in a rural tertiary care Hospital. *International Journal of Clinical Obstetrics and Gynaecology* 2021; 5(2): 211-214.
12. Jafrin M, S. Pravinraj, R. Ishwarya. Determinants and the Correlates of menstrual cup usage among medical students in a tertiary care hospital in Puducherry. *Indian J Public Health Res Dev* [Internet] 2025 [cited 2026 Jan 18];16(1):277–82. Available from: <https://medicopublication.com/index.php/ijphrd/article/view/20630>
13. Britto DR, George N, Rizvana AMS, Ratchagar JS, Muniyapillai T, Kulothungan K. Nonconventional Menstrual Hygiene Products and its Usage among Reproductive age Group Women in India – A Cross-Sectional Study. *J Datta Meghe Inst Med Sci Univ* [Internet] 2023 [cited 2026 Jan 18];18(3):357–63. Available from: https://journals.lww.com/10.4103/jdmimsu.jdmimsu_388_22
14. Das P, Saenkunmuang N, Jange I, Jaiswar P. Menstrual cups: awareness and acceptability for menstrual hygiene management among women and girls in Pune city. *World Rev Entrep Manag Sustain Dev* [Internet] 2024 [cited 2026 Jan 18];20(1):85–96. Available from: <http://www.inderscience.com/link.php?id=135066>

TABLES AND FIGURS

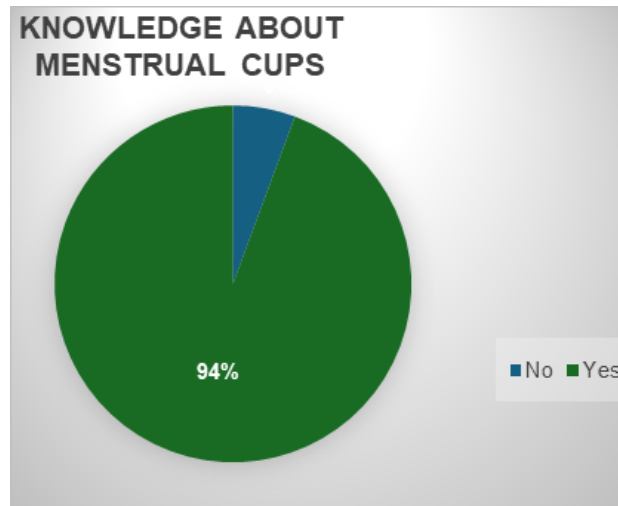


FIGURE 1:

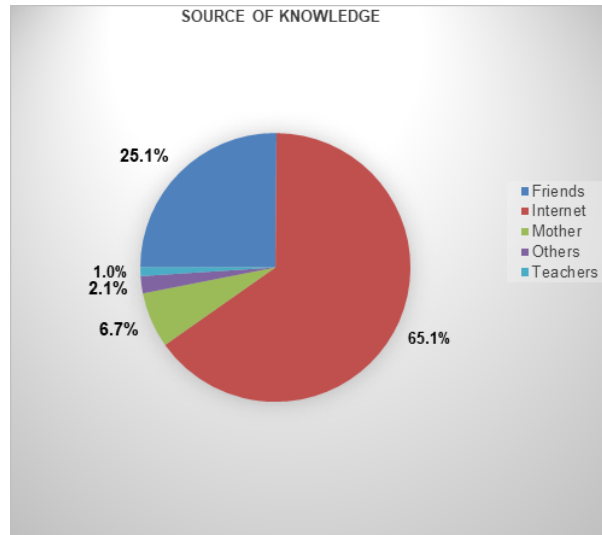


FIGURE 2:

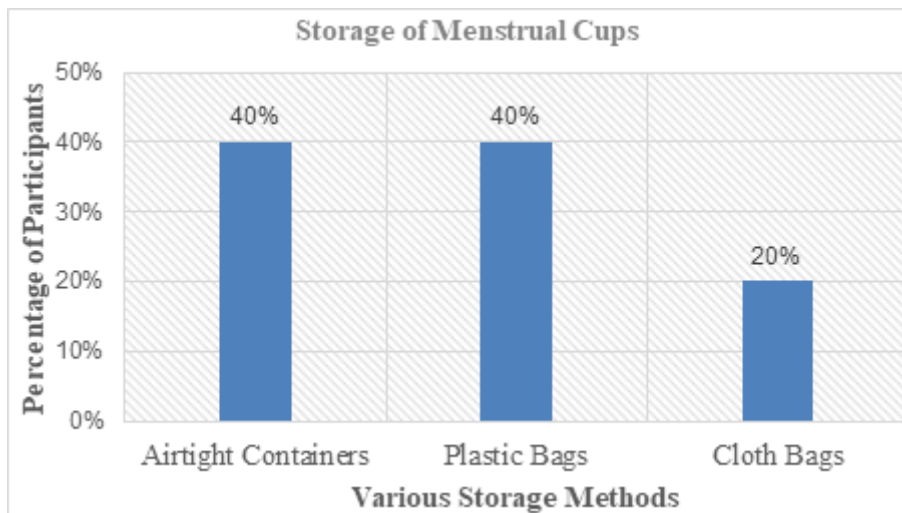


FIGURE 3:



FIGURE 4:

TABLE:1

PERCEPTION	ENVIRONMENT FRIENDLY (FREQUENCY/ %)	COST EFFECTIVE (FREQUENCY/%)
YES	124 (63.6%)	103 (52.8%)
NO	16 (7.7%)	14 (6.7%)
MAYBE	56(28.7%)	79 (40.5 %)
TOTAL	196 (100%)	196 (100%)

TABLE 2:

	FREQUENCY	PERCENTAGE
PRODUCTS USED DURING MENSTRUATION		
MENSTRUAL CUPS	30	15.4
SANITARY PADS	162	82.6
TAMPONS	4	2
TOTAL	196	100
MATERIALS USED IN MENSTRUAL CUPS		
LATEX	8	4.1
NATURAL RUBBER	5	2.6
PLASTIC	2	1
SILICONE	130	66.7
DON'T KNOW	50	25.6
TOTAL	196	100

TABLE 3:

QUESTION	YES (%)	NO (%)
Is the menstrual cup comfortable to insert?	22 (73.4%)	8 (26.6%)
Did you find it easier for using as compared to other menstrual products?	28 (93.4%)	2 (6.6%)
Does the usage inhibit you for routine activities?	4 (13.3%)	26 (86.7%)
Is it comfortable for overnight usage?	27 (90%)	3 (10%)
Do you wash it after every use?	28 (93.4%)	2 (6.6%)