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Original Research Article

Assessment of Knowledge Regarding Menstrual Cups Among Nursing Students in Selected Nursing Colleges

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Abstract: ***Introduction***: Menstrual cups are a safe, cost-effective, and environmentally sustainable menstrual hygiene option; however, their acceptance and use largely depend on adequate knowledge and awareness. Nursing students, as future healthcare providers, play a crucial role in promoting menstrual health, making it essential to assess their knowledge regarding menstrual cups. Objective: The study aimed to assess the level of knowledge regarding menstrual cups among nursing students and to determine the association between knowledge levels and selected demographic variables. ***Material and Methodology***: A quantitative, non-experimental descriptive survey design was adopted. The study was conducted among 400 GNM nursing students selected using probability sampling techniques from selected nursing colleges of Jamui district, Bihar. Data were collected using a self-structured questionnaire comprising demographic information and knowledge-related items on menstrual cups. Data was analyzed using descriptive and inferential statistics, including the chi-square test. ***Results***: The findings revealed that 46.5% of nursing students had average knowledge, 42.5% had poor knowledge, and only 11.0% demonstrated good knowledge regarding menstrual cups. Chi-square analysis showed no statistically significant association between knowledge levels and selected demographic variables such as age, program of study, residence, prior knowledge, source of information, and family income ($p > 0.05$). ***Conclusion***: The study concludes that a majority of nursing students have inadequate knowledge regarding menstrual cups irrespective of demographic characteristics. The findings emphasize the need for structured educational interventions and curricular integration to enhance awareness and promote informed menstrual hygiene practices among nursing students.

Keywords- Menstrual cup, Knowledge, Nursing students, Menstrual hygiene, Women's health, Sustainable menstrual practices.

INTRODUCTION

Menstruation is a normal physiological process of the female reproductive system that reflects cyclical hormonal changes and the shedding of the uterine lining. It typically occurs every 21–35 days among adolescents and women of reproductive age[1]. Despite being a natural biological event, menstruation is often surrounded by social taboos, misconceptions, and cultural restrictions, which can negatively influence menstrual hygiene practices, health awareness, and quality of life[2].

During menstruation, girls and women use various materials to manage menstrual flow. Commonly used menstrual hygiene products include disposable sanitary pads, tampons, reusable cloth, and locally manufactured napkins. The selection of these products is influenced by factors such as accessibility, affordability, comfort, cultural acceptance, and level of awareness[3]. Although the use of sanitary pads has increased in recent years, especially among educated populations, many women continue to experience challenges related to comfort, skin irritation, frequent changing, and disposal issues[4].

Advancements in menstrual hygiene management have led to the development of newer and more sustainable products such as biodegradable pads, period underwear, and menstrual cups. These innovations aim to address both health and environmental concerns. Conventional disposable products generate large amounts of non-biodegradable waste and may contribute to environmental pollution[5]. Additionally, prolonged

use of sanitary pads has been associated with local irritation, rashes, and discomfort, while improper tampon use has been linked, though rarely, to toxic shock syndrome. These concerns highlight the need for safer, cost-effective, and environmentally friendly alternatives[6].

The menstrual cup is a reusable menstrual hygiene product, usually made of medical-grade silicone, designed to collect menstrual blood rather than absorb it. It can be worn for several hours, emptied, cleaned, and reused over multiple years[7]. Evidence from research suggests that menstrual cups are safe, economical, and environmentally sustainable when used correctly. Benefits include longer wear time, reduced risk of leakage, lower long-term cost, and minimal waste generation[8]. However, proper knowledge regarding insertion, removal, cleaning, sterilization, and storage is essential for safe and effective use. Lack of awareness, misconceptions related to virginity, fear of insertion, and inadequate education remain major barriers to acceptance and use[9].

Need of the Study

Nursing students, as future healthcare professionals, play a key role in promoting women's health and menstrual hygiene. Despite growing emphasis on sustainable and evidence-based menstrual products, studies indicate that knowledge and understanding of menstrual cups remain limited even among educated young women. Inadequate awareness among nursing students may affect both their personal practices and their ability to educate patients and communities. Assessing their knowledge is therefore essential to identify gaps and misconceptions. The findings can inform curriculum enhancement and targeted educational interventions, ultimately strengthening menstrual health counseling, reducing stigma, and promoting safe and sustainable menstrual hygiene practices in the community. Therefore, the present study is undertaken to assess the knowledge regarding menstrual cups among nursing students at a selected nursing college.

OBJECTIVE OF THE STUDY

The objectives of the present study are to assess the level of knowledge regarding menstrual cups among nursing students and to determine the association between their knowledge levels and selected demographic variables.

HYPOTHESIS

H_0: There is no significant association between the knowledge regarding menstrual cups among nursing students and selected demographic variables.

H_1: There is a significant association between the knowledge regarding menstrual cups among nursing students and selected demographic variables.

MATERIAL AND METHOD

Research Design, Variables and Research Setting

The study adopted a quantitative research approach using a non-experimental, descriptive survey research design. The research was conducted among nursing students in selected nursing colleges of Jamui district, Bihar. In the present study, the primary research variable was knowledge regarding menstrual cups among nursing students in selected nursing colleges of Jamui district. The extraneous variables included age of the nursing students, year of study (GNM 1st year or 2nd year), educational background, exposure to menstrual hygiene education, and prior knowledge or use of menstrual cups.

Selection of Participants and Sampling Technique

In the present study, the target population comprised nursing students enrolled in selected nursing colleges of Jamui district, Bihar. The accessible population included GNM 1st- and 2nd-year nursing students studying in these selected institutions. A probability sampling approach was employed for participant selection. Simple random sampling was used to select participants from the identified population, while cluster sampling was applied at the institutional level, wherein nursing colleges served as natural clusters to facilitate efficient and feasible data collection.

Eligibility of participants was determined based on predefined sampling criteria. The inclusion criteria consisted of nursing students enrolled in GNM 1st and 2nd year who were willing to participate in the study. The exclusion criteria included nursing students who were unwilling to participate, those who did not menstruate, and those who had previously attended educational programmes related to menstrual cups. The sample size was calculated using Cochran's formula, which is commonly used to estimate an appropriate sample size for large populations to ensure adequate statistical power. However, considering practical feasibility and resource constraints, a final sample size of 300 nursing students was selected for the study.

Data Collection and Ethical Considerations

The data collection instrument used in the present study consisted of two sections. Section I included demographic information to obtain baseline characteristics of the participants, such as age, year of study (GNM 1st year or 2nd year), educational background, previous exposure to menstrual hygiene education, and prior knowledge or use of menstrual cups. Section II comprised a self-structured questionnaire developed to assess the knowledge of nursing students regarding menstrual cups. This section included multiple-choice and short-answer questions covering the definition and purpose of menstrual cups, materials used, usage and insertion techniques, duration of use and maintenance, hygiene and cleaning practices, advantages over other

menstrual products, common myths and misconceptions, and health and safety concerns related to menstrual cups. For scoring and interpretation, each correct response was awarded a score of one, while incorrect responses received a score of zero. The total knowledge score was categorized into four levels: excellent knowledge (80–100%), good knowledge (60–79%), average knowledge (40–59%), and poor knowledge (below 40%). The content validity of the tool was established through expert validation. Reliability of the questionnaire was assessed using Cronbach's alpha to determine internal consistency, and a value of 0.7 or above was considered acceptable for the study.

Prior to data collection, administrative permission was obtained from the authorities of the selected nursing colleges in Jamui district, Bihar. Ethical considerations were strictly adhered to throughout the study. Participants were informed about the purpose of the research, and written informed consent was obtained from all respondents before data collection. Participation was entirely voluntary, and participants were assured of confidentiality and anonymity. They were also informed of their right to withdraw from the study at any time without any penalty. The data collected were used solely for research purposes, ensuring ethical integrity and respect for the participants.

Statistical Analysis

Data analysis employed both descriptive and inferential statistics. Descriptive statistics summarized the demographic characteristics and knowledge scores of the participants. Statistical analysis was executed on IBM SPSS and Microsoft Office-365.

RESULTS

Sociodemographic Data of Participants

Table 1 presents the distribution of nursing students according to their demographic characteristics. With respect to age, nearly half of the participants (49.8%) belonged to the 21–25 years age group, followed by 29.0% in the 15–20 years category and 21.3% in the 26–30 years group, indicating that the majority of respondents were young adults in their reproductive age. None of the participants were above 30 years of age. Regarding the program of study, the largest proportion of students were enrolled in 2nd Year ANM (35.8%), followed by 1st Year ANM (23.3%). Among GNM students, 1st Year students constituted 19.5%, while 3rd Year and 2nd Year GNM students accounted for 13.0% and 8.5%, respectively. This reflects a higher representation of ANM students compared to GNM students in the study sample. In terms of residence, more than half of the participants (54.8%) were from urban areas, while 45.3% belonged to rural areas, suggesting a relatively balanced representation with a slight urban predominance. Concerning prior awareness, a majority of the nursing students (66.3%) reported having previous knowledge about menstrual cups, whereas 33.8% had no prior knowledge, indicating moderate baseline awareness among the participants.

The sources of information regarding menstrual cups varied, with family members being the most commonly reported source (30.9%), followed by friends or peers and internet/social media (20.0% each). Nursing curriculum accounted for 16.6% of information sources, while healthcare professionals contributed to 12.5%, highlighting that informal sources played a greater role than formal educational channels.

With regard to the usage of menstrual cups, nearly two-thirds of the participants (63.5%) reported having used menstrual cups, while 36.5% had never used them. When assessing comfort levels in discussing menstrual hygiene, 37.3% of students reported being comfortable, 17.8% were somewhat comfortable, and 8.5% reported being not comfortable, suggesting the persistence of hesitation and discomfort related to menstrual health discussions among a subset of students.

Table 1 | Distribution of Nursing Students According to Demographic Variables (N = 400)

Sr. No.	Variables		Frequency (f)	Percentage (%)
1	Age (Years)	15–20	116	29
		21–25	199	49.8
		26–30	85	21.3
		Above 30	0	0
2	Program of Study	1st Year ANM	93	23.3
		2nd Year ANM	143	35.8
		1st Year GNM	78	19.5
		2nd Year GNM	34	8.5
		3rd Year GNM	52	13
3	Residence	Rural	181	45.3

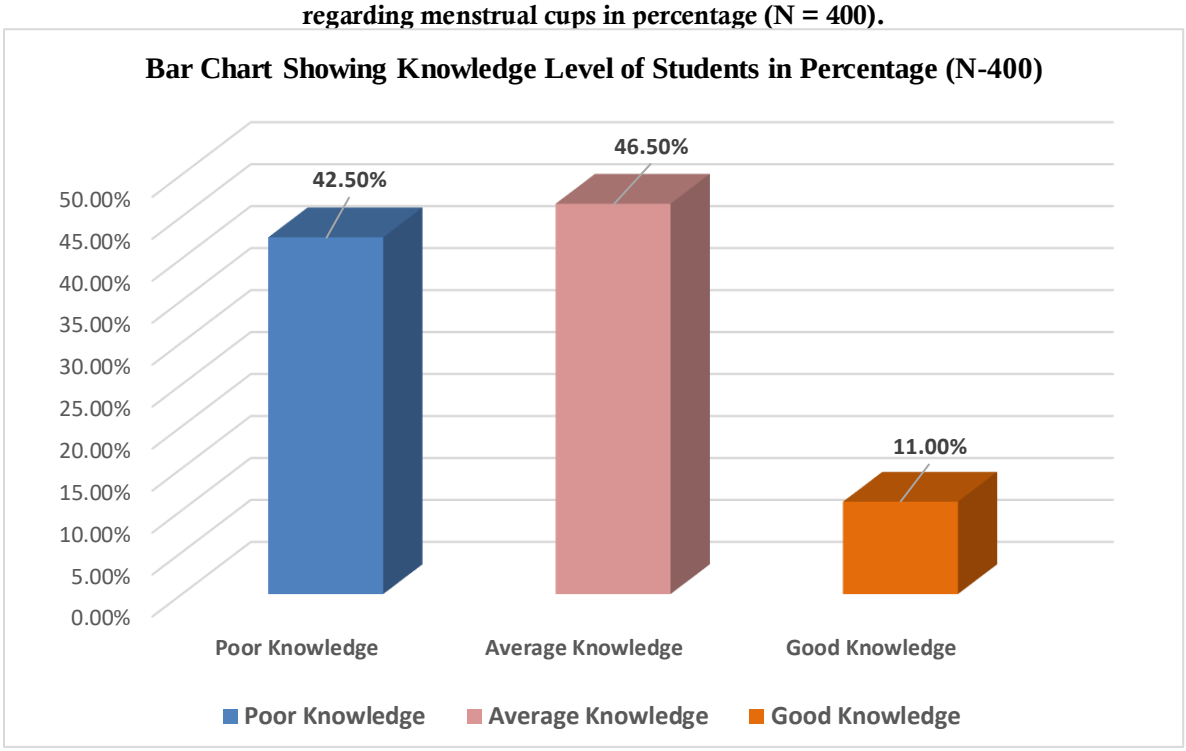
		Urban	219	54.8
4	Previous Knowledge About Menstrual Cups	Yes	265	66.3
		No	135	33.8
5	Source of Information on Menstrual Cups	Friends / Peers	53	20
		Family Members	82	30.9
		Internet / Social Media	53	20
		Nursing Curriculum	44	16.6
		Healthcare Professionals	33	12.5
6	Usage of Menstrual Cups	Yes	254	63.5
		No	146	36.5
7	Comfort Level in Discussing Menstrual Hygiene	Comfortable	149	37.3
		Somewhat Comfortable	71	17.8
		Not Comfortable	34	8.5
8	Family Monthly Income	Below ₹10,000	17	4.3
		₹10,000–₹20,000	174	43.5
		₹20,000–₹30,000	112	28
		Above ₹30,000	97	24.3

Analysis of family monthly income revealed that the largest proportion of participants (43.5%) belonged to the ₹10,000–₹20,000 income group, followed by 28.0% in the ₹20,000–₹30,000 category and 24.3% above ₹30,000. Only a small proportion (4.3%) reported a monthly family income below ₹10,000. Overall, the demographic profile indicates a predominantly young, urban-based nursing student population with moderate prior awareness and usage of menstrual cups, providing an appropriate context for assessing knowledge levels and associated factors.

Level of Knowledge on Good Touch and Bad Touch in Pre-Test and Post-Test

Figure 1 illustrates the distribution of nursing students based on their level of knowledge regarding menstrual cups. The findings indicate that the largest proportion of students (46.5%) had an average level of knowledge, followed closely by those with poor knowledge (42.5%). In contrast, only a small proportion of the participants (11.0%) demonstrated good knowledge regarding menstrual cups.

Figure 1 | Bar chart showing the distribution of nursing students according to their level of knowledge regarding menstrual cups in percentage (N = 400).



This distribution suggests that while a majority of nursing students possess some basic awareness, a substantial number lack adequate or comprehensive knowledge. The relatively low percentage of students with good knowledge

highlights the need for structured educational interventions and enhanced curricular emphasis on menstrual cup usage, benefits, and safety among nursing students.

Association Between Knowledge and Selected Demographic Variables

Table 2 shows the association between knowledge regarding menstrual cups and selected demographic variables among nursing students. The analysis indicates that there was no statistically significant association between knowledge levels and any of the selected demographic variables. The findings demonstrate that differences in age, program of study, residence, previous knowledge about menstrual cups, source of information, usage of menstrual cups, comfort level in discussing menstrual hygiene, and family monthly income did not have a significant influence on the knowledge scores of the participants.

Table 2 | Association Between Knowledge Regarding Menstrual Cups and Selected Demographic Variables (N = 400)

Sr. No.	Variables	χ^2 Value	df	p-value	Inference	
1	Age (Years)	2.773	4	0.596	N.S.	
2	Program of Study	5.749	8	0.675	N.S.	
3	Residence	0.686	2	0.71	N.S.	
4	Previous Knowledge About Menstrual Cups	0.369	2	0.832	N.S.	
5	Source of Information on Menstrual Cups	0.663	10	0.76	N.S.	
6	Usage of Menstrual Cups	3.756	2	0.153	N.S.	
7	Comfort Level in Discussing Menstrual Hygiene	8.6	6	0.197	N.S.	
8	Family Monthly Income	5.04	6	0.539	N.S.	

As all the p-values were greater than the level of significance, the null hypothesis (H_0), which states that there is no significant association between knowledge regarding menstrual cups among nursing students and selected demographic variables, was accepted. Consequently, the alternative hypothesis (H_1) was rejected.

DISCUSSION

The findings of the present study indicate that the majority of nursing students had poor to average knowledge regarding menstrual cups, with only a small proportion demonstrating good knowledge. This suggests that although menstrual cups are increasingly promoted as a safe, economical, and environmentally friendly menstrual hygiene option, comprehensive understanding among nursing students remains limited. The results highlight existing gaps in awareness, practical knowledge, and clarity regarding usage, benefits, and safety aspects of menstrual cups, underscoring the need for structured and systematic menstrual health education within nursing training programs. Further analysis showed that knowledge regarding menstrual cups was not significantly associated with any of the selected demographic variables. This uniform pattern suggests that knowledge deficits are widespread across the student population rather than restricted to specific subgroups.

The present study revealed that a majority of nursing students possessed poor to average knowledge regarding menstrual cups, indicating inadequate depth of understanding despite being enrolled in professional nursing education. These findings are in line with the study conducted by Priya Mary Stella among nursing students in Kannur, Kerala, which reported that only a small proportion of students had excellent knowledge, while most demonstrated adequate to moderately adequate knowledge regarding menstrual cups[10]. Similarly, a descriptive study conducted by Suvarna et al. among women of reproductive age in Bangalore found that awareness of menstrual cups was present; however, detailed knowledge and confidence in usage were limited, highlighting persistent gaps even among educated populations. These comparable findings suggest that menstrual cups are still inadequately addressed in formal health education, resulting in partial awareness rather than comprehensive understanding[11].

The findings of the present study revealed no statistically significant association between knowledge regarding menstrual cups and selected demographic variables among nursing students. This result is supported by a study conducted by Soumya Pankaj, which reported that socio-demographic variables such as age, educational status, residence, family income, and source of information did not show a significant association with knowledge regarding menstrual cups. The authors concluded that knowledge gaps existed uniformly across the study population, irrespective of demographic characteristics[12]. Similar to the present study, these findings suggest that inadequate knowledge regarding menstrual cups is a widespread issue rather than being

influenced by specific socio-demographic factors. This consistency across studies emphasizes the need for universal, curriculum-based educational interventions targeting all nursing students to improve awareness, correct misconceptions, and strengthen their role in menstrual health education.

Implications For Policy and Practice

The findings of the study highlight the need to strengthen menstrual health education within nursing curricula. Policy makers and academic authorities should ensure inclusion of comprehensive content on menstrual cups, focusing on usage, safety, and benefits. Nursing institutions should promote skill-based training through demonstrations and practical sessions. Improving knowledge among nursing students will enhance their confidence in counseling women and adolescents. This can help in addressing myths and misconceptions related to menstrual cups. Ultimately, such initiatives can promote safe, sustainable, and informed menstrual hygiene practices in the community.

CONCLUSION

The study concludes that most nursing students had poor to average knowledge regarding menstrual cups. Knowledge levels were not significantly associated with selected demographic variables. This indicates that awareness gaps are widespread among students. As future healthcare providers, nursing students require adequate knowledge to promote safe menstrual hygiene practices. Structured educational interventions are therefore essential to improve awareness and acceptance of menstrual cups.

Limitations Of The Study

The study was limited to nursing students from selected nursing colleges of Jamui district, which restricts the generalizability of the findings. The use of a self-reported questionnaire may have introduced response bias. The study assessed knowledge only and did not evaluate attitudes or actual practices related to menstrual cup use. As a cross-sectional design was adopted, causal relationships could not be established. Time and resource constraints also limited the scope of the study.

Recommendations

- Menstrual cup education should be incorporated into the nursing curriculum.
- Awareness programs and workshops should be conducted regularly for nursing students.
- Practical demonstrations should be included to improve understanding and correct usage.
- Educational materials should be developed to address myths and misconceptions.
- Further studies with larger and diverse samples are recommended.

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REFERENCES

1. Critchley HOD, Babayev E, Bulun SE, Clark S, Garcia-Grau I, Gregersen PK, et al. Menstruation: science and society. American Journal of Obstetrics and Gynecology [Internet]. 2020 Jul 21;223(5):624–64. Available from: https://doi.org/10.1016/j.ajog.2020.06.004
2. Khound M, Bhattacharyya H, Ghosh S. Menstruation and Menstrual Hygiene: Analyzing the gaps in knowledge, perception and practices in a rural area of North East India. Indian Journal of Community Medicine [Internet]. 2025 Apr 17;50(5):849–53. Available from: https://doi.org/10.4103/ijcm.ijcm_513_24
3. Kaur R, Kaur K, Kaur R. Menstrual Hygiene, Management, and Waste Disposal: Practices and challenges faced by Girls/Women of Developing Countries. Journal of Environmental and Public Health [Internet]. 2018 Jan 1;2018:1–9. Available from: https://doi.org/10.1155/2018/1730964
4. Van Eijk AM, Jayasinghe N, Zulaika G, Mason L, Sivakami M, Unger HW, et al. Exploring menstrual products: A systematic review and meta-analysis of reusable menstrual pads for public health internationally. PLoS ONE [Internet]. 2021 Sep 24;16(9):e0257610. Available from: https://doi.org/10.1371/journal.pone.0257610
5. Pednekar S, Some S, Rivankar K, Thakore R. Enabling factors for sustainable menstrual hygiene management practices: a rapid review. Discover Sustainability [Internet]. 2022 Aug 31;3(1). Available from: https://doi.org/10.1007/s43621-022-00097-4
6. Divakar H, Singh R, Narayanan P, GV D, Suvarna R. Menstrual Health and Hygiene-Study of knowledge attitudes and practices of ObGyns on usage of menstrual cups. Journal of Evidence Based Medicine and Healthcare [Internet]. 2020 Feb 24;7(8):372–6. Available from: https://doi.org/10.18410/jebmh/2020/80
7. Shanmugham V, Murugesan A, G V. Usage of menstrual cups among the doctors of reproductive age group in a tertiary care centre in Kancheepuram, Tamil Nadu, India- An observational study. Clinical

Epidemiology and Global Health [Internet]. 2023 Nov 30;25:101473. Available from: https://doi.org/10.1016/j.cegh.2023.101473

8. Citta SP, Uehara T, Cordier M, Tsuge T, Asari M. Promoting menstrual cups as a sustainable alternative: a comparative study using a labeled discrete choice experiment. Frontiers in Sustainability [Internet]. 2024 Jun 24;5. Available from: https://doi.org/10.3389/frsus.2024.1391491
9. Abraham R, Rajan MP, Sajithamony, John A. Knowledge, Acceptability and Misconceptions Regarding Menstrual Cup among College Students of Kerala: A Cross-Sectional Study. Indian Journal of Public Health Research & Development [Internet]. 2023 Mar 15;14(2):399–406. Available from: https://doi.org/10.37506/ijphrd.v14i2.19139
10. Stella PM. Knowledge Regarding Menstrual Cup among Nursing Students. International Journal of Innovative Science and Research Technology. 2022 Sep;7(10):1607–8.
11. N S. A study to assess the level of knowledge regarding menstrual cup among women of reproductive age group In a view to develop an information pamphlet in a selected hospital, Bangalore. Women S Health Science Journal [Internet]. 2023 Jan 1;7(1):1–12. Available from: https://doi.org/10.23880/whsj-16000177
12. Pankaj S. A Quatitative Study is to evaluate the Effectiveness of Planned Teaching Programme on Knowledge regarding the use of Menstrual Cup among Adolescent girls in a selected high school at Kollam District. International Journal of Nursing Education and Research [Internet]. 2025 May 20;81–7. Available from: https://doi.org/10.52711/2454-2660.2025.00017

