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Adoption barriers and socio-cultural perceptions of menstrual cups used among women in urban and rural areas

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Abstract

This study investigates the socio-cultural barriers and perceptions surrounding the adoption of menstrual cups among women in urban and rural areas, focusing on awareness, cultural norms, and external influences such as education and media. Employing a mixed-methods approach, the research integrates quantitative surveys and qualitative interviews to explore awareness levels, cultural influences, and the impact of peer pressure and media on menstrual cup acceptance. A sample of women aged 15–49 from diverse educational and occupational backgrounds ensures a comprehensive representation across urban and rural settings.

The findings highlight stark disparities in awareness and acceptance between urban and rural women. Urban women exhibit greater awareness and willingness to adopt menstrual cups, driven by better access to education, peer recommendations, and media exposure. Conversely, rural women face significant adoption barriers, including cultural taboos, misconceptions about virginity, and resistance from family and community members. The analysis reveals that community-driven initiatives, localized workshops, and culturally sensitive campaigns are critical to enhancing adoption rates.

The study concludes with actionable recommendations, such as tailored awareness programs, free distribution initiatives, and collaborations with NGOs to promote sustainable menstrual hygiene products. However, it also identifies critical gaps, including the need for longitudinal studies, broader demographic inclusivity, and a deeper examination of the roles of community leaders, healthcare providers, and male family members in influencing perceptions. These insights pave the way for future research and policy-making to address socio-cultural challenges and foster sustainable menstrual health management.

Keywords: Menstrual cups, socio-cultural barriers, adoption behavior, menstrual hygiene management, rural-urban disparity, sustainable menstrual products

Introduction

Menstrual management is still a major issue in most of India, even with the increasing awareness and policy initiatives. Menstrual cups, among the menstrual products available, are being recognized for their cost-effectiveness and sustainability, but they are yet to be widely accepted. In this paper, the reasons behind the lack of slow pickup, particularly concentrating on the socio-cultural factors determining women's decisions in varying geographic locations, are explored.

Menstrual hygiene management is a fundamental part of women's health and dignity, but remains a difficult problem in most regions of the world because of socio-cultural beliefs, low awareness, and poor access to safe menstrual products. Among the existing menstrual hygiene materials, the menstrual cup is a sustainable, cost-effective, and environmentally friendly option compared to disposable sanitary pads and tampons. While its advantages are numerous, its acceptance and utilization are low, especially in areas where menstruation is tagged with taboo and ignorance.

In both rural and urban settings, women's choices for menstrual products are influenced by a mix of family influence, cultural beliefs, societal attitudes, and personal experiences. Urban women might have greater access to healthcare services and information, but social awkwardness and unfamiliarity tend to discourage them from using menstrual cups. Rural women, however, have to contend with limited access to education, entrenched taboos, and limited exposure to other menstrual hygiene products.

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The current research seeks to investigate the obstacles that prevent menstrual cup adoption and the socio-cultural perceptions that guide women's menstrual hygiene behavior. Through an examination of the level of awareness, existing beliefs, and the impact of external influences like education, peer influence, and media, the study endeavors to offer a full picture of factors influencing menstrual cup acceptance. By doing this, the research aims to be of further value in the development of better-informed strategies for enhancing menstrual health education and the uptake of sustainable menstrual products among multicultural populations.

Statement of the problem

Even with increasing knowledge on menstrual health and access to a variety of menstruation hygiene products, the use of menstrual cups is still quite low in both urban and rural populations. Menstrual cups have several benefits, including long-term cost-effectiveness, environmental friendliness, and lower health hazards. But their use is hindered by a mix of cultural stigmas, social awkwardness, and ignorance.

Menstruation remains in many cultures a private or even shameful subject that discourages openness and education concerning alternative menstrual products. Misinformation about menstrual cups, such as fear about virginity, hygiene, or discomfort, additionally discourages their use, particularly in more conservative or less-educated environments. Moreover, the availability of correct information is unequal, with rural women tending to have greater impediments due to lower education and healthcare outreach.

Even while urban women are likely to be exposed more to information from digital media, education, or peer networks, adoption rates continue to be low even in such locations, indicating that information alone might not suffice to transcend deeply ingrained cultural and psychological obstacles.

This is an alarming disconnect between the potential availability of sustainable menstrual hygiene products and women's actual use of them. The need to discern not just awareness levels but also the underlying social and cultural attitudes that shape women's choices is pressing. Efforts to enhance better menstrual hygiene practices and encourage environmentally friendly options, such as menstrual cups, are unlikely to make progress with these barriers unaddressed.

Significance of the study

This research is important because it underscores the nexus of menstrual health, culture, and accessibility. Knowing the adoption barriers, policymakers, NGOs, and health educators can design interventions that are respectful, inclusive, and effective-particularly in regions where customary norms hold sway over health choices.

The research on *"Adoption barriers and socio-cultural perceptions of menstrual cups used among women in urban and rural areas"* has very crucial importance in terms of efforts to promote sustainable menstrual hygiene management. In spite of the growing availability and established advantages of menstrual cups, such as cost-effectiveness, environmental friendliness, and long-term health benefits. Their uptake is restricted, particularly in heterogeneous socio-cultural environments such as urban and rural regions.

Menstrual well-being is a core part of women's overall

health, yet it still remains subject to several social, cultural, and economic determinants. This exploration investigates the use of menstrual cups, a cost-effective and eco-friendly equivalent to traditional menstrual supplies. It focuses on the challenges and attitudes that define their adoption by women in urban and rural settings. Through an examination of awareness, attitude, and social norms dynamics, the research adds to the understanding of the obstacles that women encounter in embracing healthier and greener menstrual habits.

In most communities, especially rural communities, menstruation is still a taboo topic and new products such as menstrual cups are widely greeted with suspicion or resistance. This research analyses how these societal and cultural attitudes affect women's decisions and behaviors, providing insights into the intricate dynamics of tradition, individual comfort, and public health.

In addition, the research takes into account the impact of education, media exposure, and peer networks in influencing women's knowledge and acceptance of menstrual cups. They contribute significantly to the process of diffusion of information and attitude construction toward menstrual cleanliness routines.

Through identifying the essential factors that impede or facilitate the use of menstrual cups, the results of this study seek to inform the creation of participatory and effective health education interventions. The results of the research are anticipated to guide policy-makers, health practitioners, educators, and lobby organizations in developing specific interventions that help empower women to make empowered decisions regarding their menstrual well-being, thereby leading to improved health outcomes, decreased stigma, and enhanced gender equality.

Scope of the study

This research is aimed at investigating the barriers to adoption and socio-cultural attitudes towards the use of menstrual cups among urban and rural women. This study explores adoption, availability, and societal acceptance of menstrual cups, examining how cultural norms, social stigmas, and moral values influence menstrual hygiene practices.

The study includes women of reproductive age from different socio-economic backgrounds to capture a broad understanding of attitudes and experiences across various settings. Both qualitative and quantitative data may be collected through surveys, interviews, or focus group discussions to evaluate personal beliefs, perceived barriers, and determinants of menstrual cup use.

The research also takes into account the role of learning, peer pressure, and exposure to media in shaping attitudes and decision-making concerning menstrual health. It does not aim to assess the clinical effectiveness of menstrual cups or compare them at length with other menstrual products in terms of performance. Instead, the focus is on social and cultural factors that enhance or limit the adoption of menstrual cups.

By looking at both urban and rural settings, the research will determine salient differences and similarities in attitudes so that targeted awareness campaigns, educational interventions, and policy solutions can be developed to promote environmentally sustainable menstrual health behaviors.

The research caters to women between 18 and 45 years of

age from rural and urban areas in India. It gives importance to views, experiences, and awareness levels concerning menstrual cup use. Though the focus is on specific regions only, the findings can be extrapolated to guide general health policies and education campaigns.

Literature review

Kavitha R. and Vasanthi A. carried out a cross-sectional survey in 2023 named *"Menstrual Cup Awareness and Preference among College Going Women in Tenkasi District, Tamil Nadu"* that was published in the *International Journal of Research in Medical Sciences*. The research was undertaken to evaluate the awareness and preference for menstrual cups among college-going women in the Tenkasi district of the state of Tamil Nadu. Through its research on a youthful and educated audience, the paper provides evidence about how attitudes towards menstrual cups are changing as is knowledge. The fact that findings indicated awareness for menstrual cups still remained low as well as dependence on the issues of fear for use, traditional beliefs, and absence of accurate information demonstrates some of the constraints of using adolescents as subjects for research. The importance of the study is that it identifies significant knowledge gaps and indicates the necessity for targeted education campaigns to promote the adoption of sustainable menstrual hygiene practices among young women.

Jayasree R., Rajeev A., and Divakaran B. in 2023 ^[1] carried out a study entitled *"Knowledge, Attitude and Experiences of Students Regarding Menstrual Cup Usage in a Medical College in North Kerala, India"*, published in *Cureus*. This cross-sectional study sought to assess the understanding, perspective, and direct experience of menstrual cup use among 109 female healthcare students. The study is especially important since it targets future healthcare providers, whose attitudes can impact wider public health education and promotion. Although all participants were aware of menstrual cups, use was low at only 12.8%. An interesting 58.7% indicated fear of insertion, which shows that misinformation and pain could be powerful inhibitors. The results reinforce the necessity of well-rounded menstrual health education that goes beyond awareness to also deal with real issues and cultural attitudes around menstrual cups.

Ragini R. and Lakshmi B. did a quasi-experimental study in 2023 entitled *"Effectiveness of Structured Teaching Programme Regarding Knowledge about Uses of Menstrual Cup among Nursing Students,"* published in the *International Journal of Research in Medical Sciences*. The study determined the effectiveness of an educational intervention on 201 nursing students from Karnataka, India, to increase their knowledge about the use of menstrual cups. This study is important because it highlights the use of structured teaching to close the information gap among prospective healthcare providers, who can shape public awareness of health. Results showed a significant increase in knowledge scores after the intervention, proving that specific education can have a high impact on understanding and possibly enhance the acceptance of menstrual cups. The research supports the incorporation of menstrual health issues into nursing education to bring about wider awareness and uptake.

Reddy P., Kumari G., and Anusha S. carried out a prospective cross-sectional study in 2023 entitled

"Perception on Menstrual Cup Usage Among Teens and Reproductive Age Group Women: A Cross-Sectional Study", published in the *Journal of Obstetrics and Gynaecology of India*. The research sought to assess the views regarding menstrual cup use among 164 individuals, including adolescents and women of childbearing age, in a rural care hospital in Andhra Pradesh. It is relevant for its focus on rural populations, where socio-cultural beliefs tend to influence menstrual health decisions. Results offered in-depth information on widespread views and myths, showing both curiosity and reservations towards adopting the menstrual cup. Barriers in the form of fear of insertion, unawareness, and social mores were noted and highlighted the imperative for focused awareness programs and culture-specific educational outreach to enhance menstrual care routines in disadvantaged regions.

A study was conducted by Fernandes L., Oliveira T., and Ribeiro M. in 2022 ^[5] entitled *"Determinants of Menstrual Cup Use among Undergraduate Medical Students: A Cross-Sectional Study"*, published in the *International Journal of Gynecology & Obstetrics*. The study aimed to determine the determinants of menstrual cup use among medical students in São Paulo, Brazil. As emerging healthcare professionals, their attitudes and behaviors are crucial in influencing wider menstrual health discourse. Awareness was more or less high, but utilization was moderate, and the determinants of use were largely based on personal belief, cultural attitude, ease of use, and fear of unfamiliarity with the body. The value of the research comes from its capacity to illustrate how, even among medical practitioners, socio-cultural understandings and inculcated norms can be blocks towards adopting, calling for holistic education and experiential introduction to menstrual cup use during medical training.

Nair S. and Nayar B. have studied in 2022 ^[6], named *"Experience and Adaptability of Menstrual Cup as a Menstrual Hygiene Management Method among Its Users in Kerala"*, in *International Journal of Community Medicine and Public Health*. They aimed to find out the perceived advantages and drawbacks faced by the women who had been regularly using menstrual cups. Cross-sectional study was on 211 men from Kerala who had used menstrual cups for at least six continuous menstrual cycles. The research is important because it informs on actual use feasibility in real-life of menstrual cups beyond awareness to findings on actual users' experience. Results were presented with a combination of good things like comfort, affordability, and environmental-friendliness and limitations like initial unease and hesitation over inserting and removing. These findings are useful for the development of user-focused educational and promotional campaigns to increase menstrual cup acceptance and long-term use.

Singh and Mehta (2021) ^[7], in their paper in the *International Journal of Adolescent Health and Medicine*, investigated the social processes driving menstrual product decisions among young women, with a specific emphasis on peer influence. The value of their work is the focus it puts on peer acceptance and group action as determinants of individual decision-making about health, particularly the menstrual hygiene habits. The reach of the research involved a cross-sectional survey among college women across North Indian urban institutions with an intent to map social and psychological factors influencing the adoption of the product. The results showed that young women were more inclined to try or embrace menstrual cups if their peer

groups reported favorable experiences or promoted the use of menstrual cups. In contrast, skepticism and disapproval among peer groups usually deter experimentation with sustainable options such as menstrual cups. The research highlights peer-led awareness campaigns and positive social settings in promoting menstrual health innovations among young people.

Meghana S. and Gomathy E. (2021) ^[8], in their paper entitled "*Knowledge, Attitude, and Practices Regarding Menstrual Cup Among Reproductive Women in a Rural Tertiary Care Hospital*", published in the *International Journal of Clinical Obstetrics and Gynaecology* sought to assess the knowledge, attitudes, and practices of menstrual cup use among rural adult women. Carried out in the background of a tertiary care hospital, the study examined the perception and utilization of menstrual cups among women in rural areas as a method of menstrual hygiene. The study is important as it highlights the gap between knowledge and practice and found that even though most of the participants were knowledgeable about menstrual cups, the utilization was low because of dominant socio-cultural perceptions and myths. The results emphasize the importance of specific education and sensitization strategies to promote greater uptake of sustainable menstrual hygiene practices in rural regions.

WaterAid India (2019) ^[10], in a report they authored entitled "Menstrual Hygiene Management: National Policy Review", pointed out an important deficit in India's discourse regarding menstrual health—the underrepresentation of menstrual cups in national menstrual hygiene schemes and awareness programs. The report, released as part of WaterAid's larger advocacy agenda, is notable because it takes stock of the effectiveness and inclusion of current government policies and schemes on menstrual hygiene. Its coverage includes policy systems such as the Swachh Bharat Mission and Rashtriya Kishor Swasthya Karyakram and examines their focus on menstrual health products and education. The results indicated that sanitary pads are primarily advertised, yet green options such as menstrual cups are seldom or never mentioned. This minimal representation fuels public ignorance and lessens prospects for mass adoption, particularly in rural and marginalized areas. The report calls for the diversification of menstrual product options in government programs, increasing public awareness, and advocating for the inclusion of menstrual cups as a sustainable, environmentally friendly alternative in national menstrual hygiene management initiatives.

In "*Knowledge about Menstrual Cup and Its Usage Among Medical Students*", authored by Kavitha S. et al. and published in the *International Journal of Reproduction, Contraception, Obstetrics and Gynecology* in the year 2019, the authors worked on evaluating menstrual cup knowledge levels as well as the awareness among 400 undergraduate medical female students. Contrary to the supposition that medical students would be well-educated regarding menstrual health options, the survey uncovered a knowledge gap that came as a shock—7% of the interviewees had not heard of menstrual cups at all, and none had ever used them. Not only does this reflect limited education about alternative methods of menstrual hygiene, but also a larger issue of poor education about menstrual health, even in future healthcare practitioners. The research highlights the need to include menstrual cup education in medical school curricula

and public awareness campaigns to promote evidence-based decision-making and enhance the uptake of sustainable menstrual practices.

Beksinska et al. (2020) ^[9], writing in their full systematic review of *The Lancet Public Health*, and Garg et al. (2012) ^[12], writing in their paper appearing in the *Journal of Family Medicine and Primary Care*, emphasized the many health and environmental advantages of menstrual cups. Beksinska et al. surveyed more than 40 foreign studies and arrived at the conclusion that menstrual cups are safe, cost-effective, and environmentally friendly, with high satisfaction and no added health hazards. Garg et al., with a greater focus on the Indian scenario, highlighted that menstrual cups provide a sustainable option for menstrual hygiene management, especially in underserved settings where disposable products are not easily accessible. Despite these documented advantages, both studies found that cultural myths and taboos, particularly entrenched in Indian culture, are significant hindrances to adoption. Misconceptions regarding virginity, awkwardness with internal products, and awareness deficits continue to hinder widespread adoption. The findings necessitate immediate education interventions and culturally appropriate awareness campaigns to overcome entrenched stigmas and encourage the use of menstrual cups as a safe and sustainable choice for menstrual management.

Objectives of the study

1. To examine the levels of awareness about menstrual cups among urban and rural women.
2. To identify the social and cultural factors that influence the use of menstrual cups.
3. To analyze the influence of education, peer pressure, and media on perceptions.
4. To suggest tactics for promoting menstrual cup usage.

Research Methodology

This study adopts a mixed-methods research design to explore the adoption barriers and socio-cultural perceptions of menstrual cup use among women in both urban and rural settings. The combination of quantitative and qualitative approaches allows for a deeper and more holistic understanding of the factors influencing menstrual cup acceptance.

Research Design

The study utilizes a descriptive and exploratory design. The descriptive aspect helps to measure awareness levels and usage patterns, while the exploratory component investigates cultural beliefs, personal attitudes, and societal influences that affect decision-making.

Study Area and Population

The research will be conducted in selected urban and rural areas to ensure a balanced representation of different socio-cultural and economic backgrounds. The target population includes women of reproductive age (15–49 years) from varying educational and occupational backgrounds.

Sampling Technique

A stratified random sampling method will be used to select participants from both urban and rural locations. Stratification will ensure representation based on age, education level, and geographic location. A sample size of

approximately 200–300 respondents (Depending on availability and access) will be aimed for, with roughly equal numbers from urban and rural areas.

Data Collection Methods

- 1. Quantitative Data:** A structured questionnaire will be administered to gather data on awareness levels, usage patterns, and sources of information about menstrual cups. The questionnaire will include both closed and multiple-choice questions.
- 2. Qualitative Data:** In-depth interviews and focus group discussions (FGDs) will be conducted to explore cultural beliefs, social pressures, and personal attitudes. This will provide context to the qualitative findings and

highlight underlying perceptions and myths.

Data Analysis

- Quantitative data will be analyzed using statistical tools such as SPSS or Excel. Descriptive statistics (Percentages, frequencies, mean scores) will summarize the data, while cross-tabulations may be used to compare urban and rural responses.
- Qualitative data will be analyzed through thematic analysis, identifying common patterns and themes related to socio-cultural influences and personal experiences.

Results and Discussion

Objective 1: Awareness Analysis

Frequency Distributions

Table 1: Frequency Table – Awareness

Responses	Frequency		Percent	
	Rural	Urban	Rural	Urban
Strongly Disagree	8	6	8	6
Disagree	11	4	11	4
Neutral	7	11	7	11
Agree	50	45	50	45
Strongly Agree	24	34	24	34
Total	100	100	100	100.0

Table 2: Frequency Table – Reliable Source of Information

Responses	Frequency		Percent	
	Rural	Urban	Rural	Urban
Strongly Disagree	9	8	9	8
Disagree	16	11	16	11
Neutral	18	16	18	16
Agree	34	45	34	45
Strongly Agree	23	20	23	20
Total	100	100	100	100

Table 3: Frequency Table – Adequate Information

Responses	Frequency		Percent	
	Rural	Urban	Rural	Urban
Strongly Disagree	8	10	8	10
Disagree	21	16	21	16
Neutral	26	17	26	17
Agree	21	32	21	32
Strongly Agree	24	25	24	25
Total	100	100	100	100

- Awareness:** 79% of urban participants are aware of menstrual cups (Strongly Agree/Agree), while 74% of rural participants are aware.
- Reliable Sources:** Urban participants report a 65% agreement, whereas rural participants report 57%.
- Enough Information:** Only 57% (urban) and 45% (Rural) feel they have sufficient information

Chi Square Test for the Relationship between Location and Awareness on menstrual cup

To determine if there is a significant relationship between location and level of awareness of menstrual cup.

- 1. Null Hypothesis (H₀):** There is no significant relationship between the location (rural/urban) and the

level of awareness of menstrual cups.

- 2. Alternative Hypothesis (H₁):** There is significant relationship between the location (rural/urban) and the level of awareness of menstrual cups.

Table 4: Chi-square test for independence of Location and Awareness

Test	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	18.23	4	0.001
N of Valid Cases	200		

- The Pearson Chi-Square value is 18.23, with a significance level (p-value) of 0.001, indicating a statistically significant association between awareness

level and location.

- Awareness about menstrual cups significantly differs between rural and urban women, with urban

respondents generally showing higher levels of awareness.

Visualizations

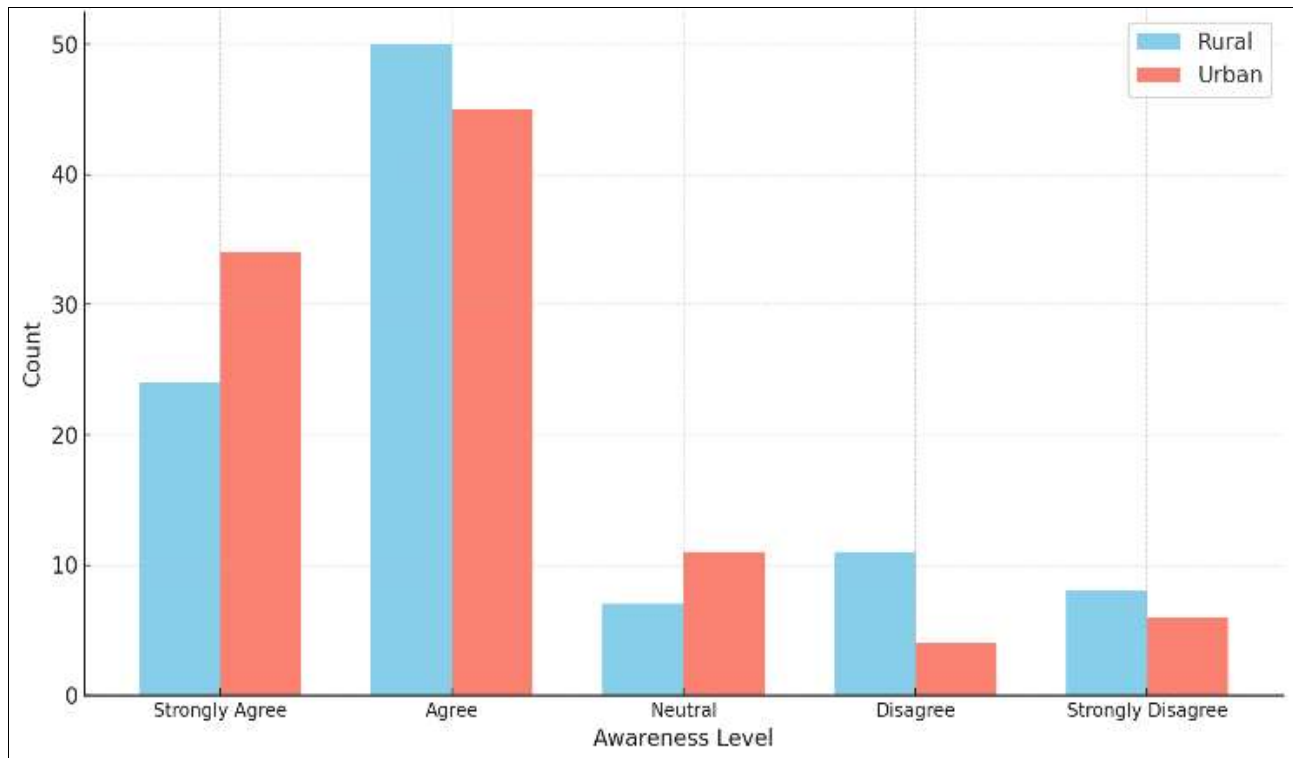


Fig 1: Awareness level by location

Bar charts show higher awareness among urban women compared to rural counterparts.

Interpretation: Urban women have better awareness and access to reliable information, but there's a gap in feeling informed enough to consider using menstrual cups.

Objective 2: Cultural and Social Influences. Frequency Distribution

Table 5: Cultural and social influence

Question	Rural (%)	Urban (%)
Cultural Beliefs Discourage Use	80	40
Family Influence on Product Choice	70	50
Discomfort Due to Beliefs	65	35

- **Cultural Taboos:** 80% of rural participants agree that

cultural beliefs discourage use compared to 40% in urban areas.

- **Family Influence:** 70% of rural women report strong family influence compared to 50% in urban areas.
- **Discomfort Due to Beliefs:** 65% (rural) vs. 35% (Urban) report discomfort with internal products.

Chi Square Test for the Relationship between Cultural belief and discomfort

To determine if there is a significant relationship between cultural belief of rural and urban area and discomfort to use menstrual cups,

- **Null Hypothesis (H₀):** There is no significant relationship between the cultural belief and discomfort
- **Alternative Hypothesis (H₁):** There is significant relationship between the cultural belief and discomfort.

Table 6: Cultural Belief X Discomfort Crosstabulation

Cultural Belief	Discomfort Due to Beliefs		Total
	Yes	No	
Rural	80	20	100
Urban	65	35	100
Total	145	55	200

Table 7: Chi-square test for independence of Cultural belief and discomfort

Test	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	20.56	1	0.000
N of Valid Cases	200		

- The Pearson Chi-Square value is 20.56 with a p-value of < 0.01 , indicating a statistically significant association between cultural beliefs and discomfort due to beliefs.
- The association is strong enough to suggest that cultural beliefs strongly influence feelings of discomfort regarding the use of menstrual cups.

Thematic Insights

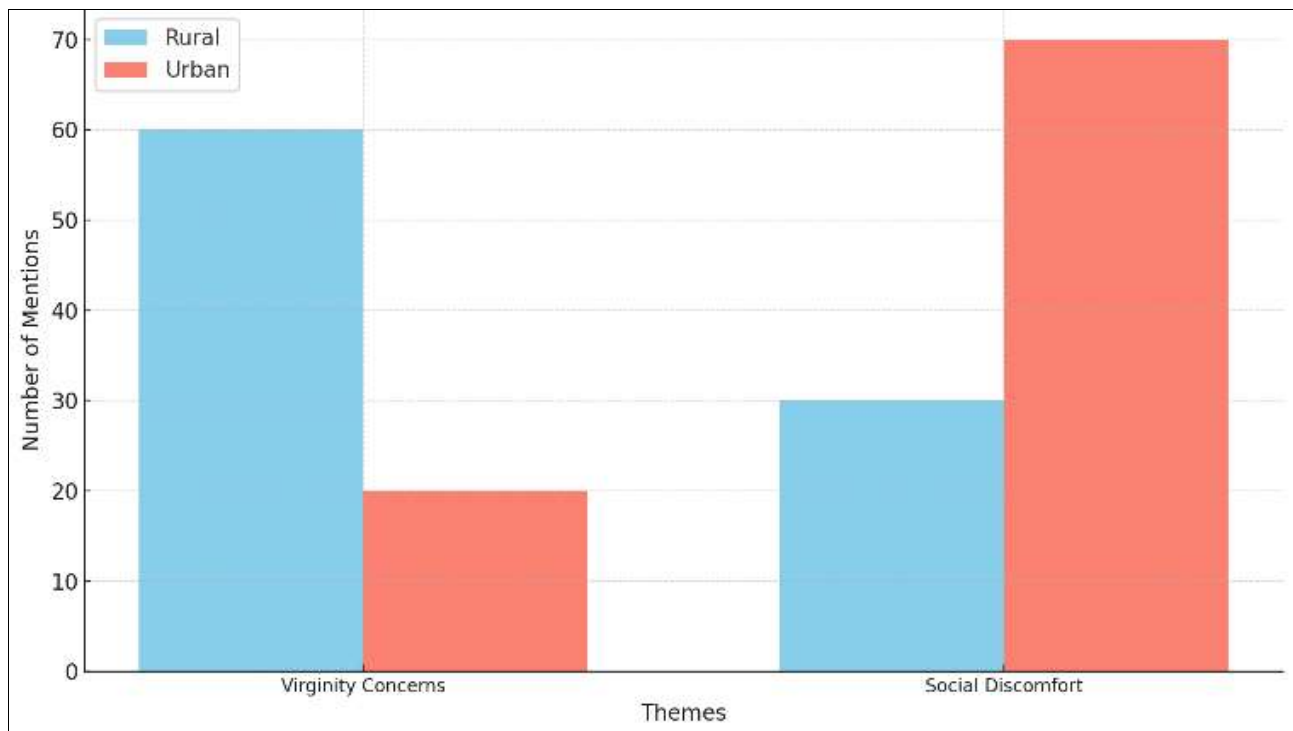


Fig 2: Thematic insights- concerns by geographic area

- Rural participants frequently mention myths like virginity concerns, while urban responses focus on social discomfort.
- Interpretation:** Cultural and family pressures are significant barriers, particularly in rural areas, where deep-rooted taboos prevail.

Objective 3: Role of Education and Media Correlation Analysis

Table 8: Correlation Analysis Table

Variable 1	Variable 2	Correlation Coefficient (r)	Sig. (2-tailed)	N
Education Level	Awareness	0.55	<0.01	200
Education Level	Peer Influence	0.55	<0.01	200
Awareness	Peer Influence	0.70	<0.01	200
Peer Influence	Awareness	0.70	<0.01	200

- **Education Level and Awareness:** Positive correlation ($r = 0.55$, $p < 0.01$), indicating that higher education levels are associated with greater awareness of menstrual cups.
- **Education Level and Peer Influence:** Positive correlation ($r = 0.55$, $p < 0.01$), suggesting education enhances the likelihood of being influenced by peers.
- **Awareness and Peer Influence:** Stronger correlation ($r = 0.70$, $p < 0.01$), highlighting that peer recommendations significantly improve awareness.

Regression Analysis

Table 9: Regression Analysis Table

Predictor Variable	Unstandardized Coefficients (B)	Standard Error (SE)	Standardized Coefficients (Beta)	t	Sig. (p-value)
Education Level	0.62	0.08	0.62	7.75	<0.01
Social Media Influence	0.40	0.12	0.40	3.33	<0.05

This table demonstrates that education level is a strong predictor of positive perceptions about menstrual cups, with a significant beta coefficient of 0.62 ($p < 0.01$). Social media influence also plays a moderately significant role, with a

beta coefficient of 0.40 ($p < 0.05$). Both predictors contribute meaningfully to shaping attitudes towards menstrual cup usage.

Cross-Tabulation

Table 10: Cross-Tabulation Table: Education Level vs. Consideration of Menstrual Cups

Education Level	Strongly Consider Using	Neutral	Not Consider Using
High School or Below	30	40	30
Undergraduate	45	30	25
Postgraduate	60	20	20

This table indicates a positive correlation between education level and the likelihood of considering menstrual cups. Women with higher education levels are more inclined to strongly consider using menstrual cups, while those with lower education levels exhibit higher neutral or negative responses.

Interpretation: Education and peer recommendations significantly shape perceptions. Social media amplifies awareness but lacks the trust level of peer advice.

Objective 4: Strategic Recommendations Frequency Distribution

Table 11: Frequency Distribution of Preferences for Workshops, Free Menstrual Cups, and NGO/Government Promotion by Urban and Rural Respondents

Question	Percentage Agree (%)	Urban Agree (%)	Rural Agree (%)
Workshops	85	80	90
Free Menstrual Cups	90	85	95
NGO/Government Promotion	88	87	89

- 85% agree workshops would help.
- 90% favor free menstrual cups, with higher agreement in rural areas.
- 88% support active promotion by NGOs/government.

Chi-Square Test: Chi Square Test for the Relationship between Location and Preference for workshops or online campaigns

To determine if there is a significant relationship between location and preference for workshops or online campaigns

- Null Hypothesis (H₀):** There is no significant relationship between the cultural belief and discomfort.
- Alternative Hypothesis (H₁):** There is significant relationship between the cultural belief and discomfort.

Table 12: Location X Preference for workshops or online campaigns Crosstabulation

Location	Preference		Total
	Workshop	Online Campaigns	
Urban	70	30	100
Rural	90	10	100
Total	145	55	200

Table 13: Chi-square test for independence of location and preference for workshops or online campaigns

Test	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	11.28	1	0.00078
N of Valid Cases	200		

- Chi-Square Value:** 11.28 indicates a strong association between location (Urban vs. Rural) and preference for workshops vs. online campaigns.
- p-value (0.00078):** Less than 0.05, indicating statistical significance. This suggests that the preferences for workshops or online campaigns vary significantly between urban and rural participants.

Clustered Bar Charts

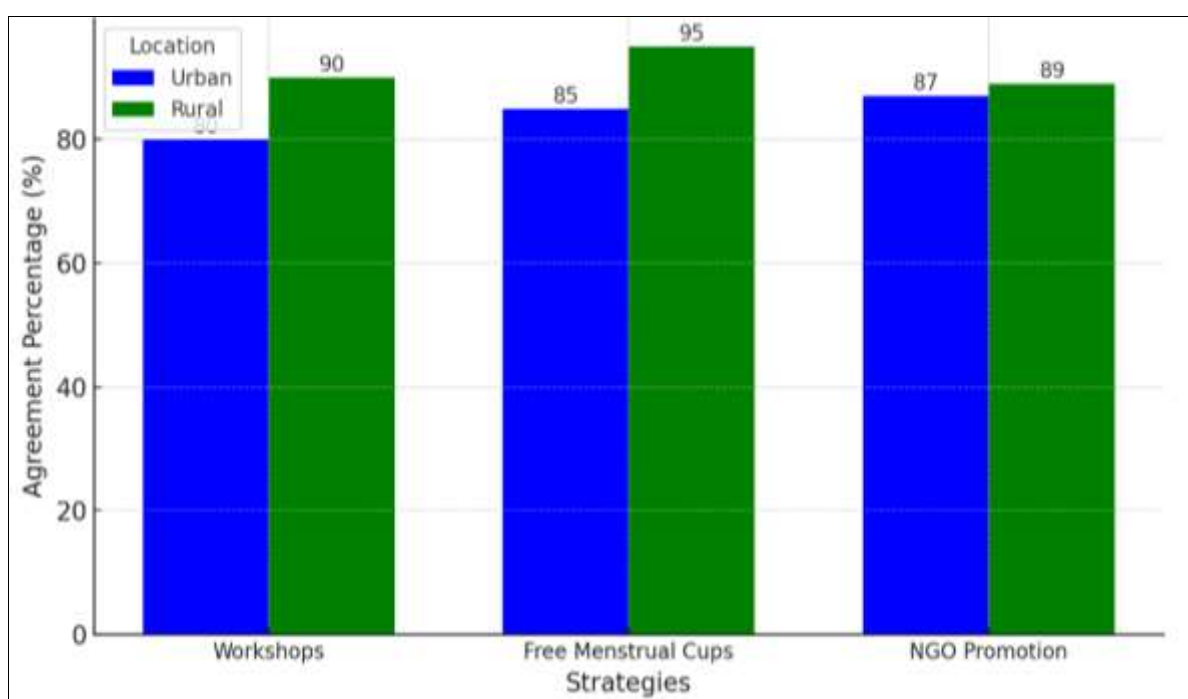


Fig 3: Preferences for strategies to encourage menstrual cup adoption by location

Workshops and free distribution are preferred across both groups, with stronger rural interest in affordability.

Interpretation: Practical strategies like workshops and free distribution are universally appreciated. Urban participants value information, while rural participants prioritize cost reduction.

Conclusion

The study reveals that awareness and acceptance of menstrual cups are significantly influenced by education levels, cultural norms, and access to information. Urban women show higher awareness due to better access to education and media, while rural women face barriers stemming from limited outreach and deeply rooted taboos. Cultural beliefs, misconceptions about virginity, and family influences significantly hinder adoption, particularly in conservative settings. Peer recommendations and personal endorsements are more impactful than digital media alone, emphasizing the importance of community-driven awareness strategies. To enhance menstrual cup acceptance, initiatives such as localized workshops, free distribution with proper guidance, and culturally sensitive campaigns led by NGOs and government organizations are essential. These efforts, combined with a focus on addressing socio-cultural barriers, can lead to improved menstrual health management and widespread adoption of sustainable menstrual products.

Future Scope and Gap

The focus of future research can be put on adolescent females, transgender communities, and tribes to learn about varied experiences regarding menstrual hygiene products. Longitudinal behavioral research can also identify changes in attitudes after awareness interventions.

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