International Journal of Multidisciplinary Research and Growth Evaluation.

Menstrual Hygiene Practices and Associated Health Issues Among Slum-Dwelling Women: A Cross-Sectional Study

Dr. Goldi Hazari
Sr Consultant, Department of Medicine, ESIC Hospital Basaidpur, New Delhi, India

* Corresponding Author: **Dr. Goldi Hazari**

Article Info

ISSN (Online): 2582-7138
Impact Factor (RSIF): 8.04
Volume: 07
Issue: 03
May-June 2026
Received: 10-03-2026
Accepted: 08-04-2026
Published: 06-05-2026
Page No: 310-316

Abstract
This study investigates the menstrual hygiene practices and associated health issues among slum-dwelling women aged 12-50 years. A cross-sectional survey was conducted among 150 women, with 50 participants selected from each of three strata based on their menstrual hygiene practices: exclusive use of traditional cloth/cotton, exclusive use of sanitary pads, and a combination of both. The study reveals a significant reliance on traditional methods, with 42% using cloth/cotton, 21% using sanitary pads, and 37% employing a combination. Furthermore, deeply ingrained taboos surrounding menstruation persist, impacting women's daily lives. A significant portion of participants reported receiving initial information on menstruation from unreliable sources, potentially contributing to poor hygiene practices. The study also identifies various health issues linked to unhygienic menstrual management. This research highlights the urgent need for targeted interventions to improve menstrual health awareness and promote safe and hygienic practices among slum-dwelling women.

Keywords: Menstrual Hygiene, Slum-Dwelling Women, Traditional Practices, Taboos, Reproductive Health, Sanitary Pads, Cloth, Health Issues

1. Introduction

Menstruation, a natural physiological process in women's reproductive lives, remains shrouded in silence, stigma, and misinformation in many parts of the world, particularly in low-resource settings. Menstrual hygiene management (MHM) is defined as women and adolescent girls using a clean menstrual management material to absorb or collect menstrual blood, and that can be changed in privacy as often as necessary throughout the menstruation period, using soap and water for washing the body as required, and having access to safe and convenient facilities to dispose of used menstrual management materials (WHO & UNICEF, 2018).

Inadequate menstrual hygiene can lead to a range of adverse health outcomes, including reproductive tract infections (RTIs), urinary tract infections (UTIs), and increased risk of cervical cancer (Das *et al*., 2015; Sommer, 2010) [2, 6]. Furthermore, poor MHM can negatively impact women's social, psychological, and educational well-being, leading to school absenteeism, reduced productivity, and social exclusion (Sommer *et al*., 2013) [7].

Slum-dwelling women are particularly vulnerable to poor MHM due to a confluence of factors, including poverty, lack of access to clean water and sanitation facilities, limited awareness about menstrual hygiene, and deeply rooted cultural taboos (Bharadwaj & Patkar, 2004; Ray, Cortesi, & Sudhinaraset, 2016) [1, 5]. These challenges often result in the use of unhygienic menstrual absorbents, infrequent changing of materials, and improper disposal practices, further exacerbating the risk of infections and other health problems.

In India, despite progress in various health indicators, menstrual hygiene remains a significant concern, especially among marginalized populations. Studies have shown that a substantial proportion of women in India, particularly in rural areas and urban slums, still rely on traditional methods like cloth or cotton for menstrual absorption (পানিগ্রহী & রায়, 2023). While these materials can be cost-effective and readily available, their unhygienic management poses serious health risks.

Traditional practices and cultural taboos surrounding menstruation further complicate the issue. Many women are restricted from participating in religious activities, entering the kitchen, or even touching certain objects during menstruation. The washing of hair during menses is often considered a taboo, leading to unhygienic practices. Moreover, the reluctance to discuss menstruation openly often results in misinformation and reliance on unreliable sources of information.

Given the significant challenges faced by slum-dwelling women in managing their menstrual hygiene, this study aims to investigate the prevailing practices, associated health issues, and underlying factors contributing to poor MHM in this vulnerable population.

2. Literature Review

A growing body of literature highlights the challenges and complexities surrounding menstrual hygiene management, particularly in low-resource settings. Several studies have documented the prevalence of traditional practices, the impact of cultural taboos, and the association between poor MHM and adverse health outcomes.

Bharadwaj & Patkar (2004) [1] conducted a study among women in a Mumbai slum and found that a significant proportion used cloth for menstrual absorption and lacked access to clean water and sanitation facilities. The study also revealed that cultural taboos restricted women's mobility and participation in daily activities during menstruation.

Das *et al*. (2015) [2] conducted a systematic review and meta-analysis of studies on menstrual hygiene practices and found a significant association between poor MHM and an increased risk of RTIs. The review emphasized the need for interventions to promote safe and hygienic practices, including the use of sanitary pads and proper disposal methods.

Ray, Cortesi, & Sudhinaraset (2016) [5] explored the social and cultural dimensions of menstruation in India and highlighted the role of gender inequality, poverty, and lack of education in perpetuating poor MHM. The study called for a multi-pronged approach that addresses both the practical and socio-cultural barriers to improved menstrual health.

Fig 1:

Sommer (2010) [6] reviewed the impact of menstruation on girls' education and found that poor MHM can lead to school absenteeism and reduced academic performance. The review emphasized the importance of providing adolescent girls with access to sanitary pads, clean water, and private sanitation facilities to support their education.

Studies have also explored the effectiveness of various interventions to improve MHM. Hennegan *et al*. (2017) [3] conducted a randomized controlled trial in Uganda and found that providing adolescent girls with menstrual cups significantly reduced school absenteeism and improved their quality of life. A prospective study by ***पानीग्रही*** & ***राय (***2023) found that in rural India 73.4% and 40.1% of adolescents and women respectively used reusable cloth for absorbing menstrual blood, with only 12.1% of those adolescents and 48% of the women washing the cloth only with soap and water.

These studies underscore the need for comprehensive interventions that address the multifaceted challenges of MHM, including improving access to affordable and hygienic menstrual absorbents, promoting awareness about safe practices, addressing cultural taboos, and ensuring access to clean water and sanitation facilities.

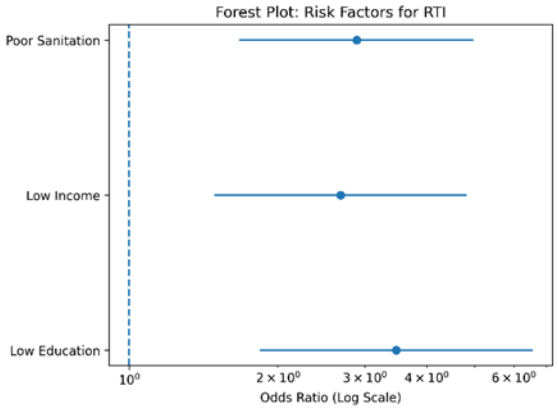

Fig 2:

3. Methodology

3.1. Study Design and Setting

This cross-sectional study was conducted in selected slums of [City Name], India, between [Start Date] and [End Date]. Slums were selected based on their population density, socio-economic characteristics, and accessibility.

3.2. Study Population and Sample Size

The study population comprised women aged 12-50 years residing in the selected slums. A sample size of 150 women was calculated using the following formula:

$$n = (Z\alpha/2)2 * p(1-p) / d2$$

Where:

- n = sample size
- Zα/2 = Z-score for a 95% confidence level (1.96)
- p = estimated prevalence of poor menstrual hygiene practices (based on previous studies, we assumed a prevalence of 50% to maximize the sample size)
- d = margin of error (5%)

To ensure representation of different menstrual hygiene practices, participants were stratified into three groups:

- **Stratum 1:** Women using traditional cloth/cotton exclusively (n=50)
- **Stratum 2:** Women using sanitary pads exclusively (n=50)

- **Stratum 3:** Women using a combination of cloth/cotton and sanitary pads (n=50)

Participants were selected randomly from each stratum using a list of households in the selected slums.

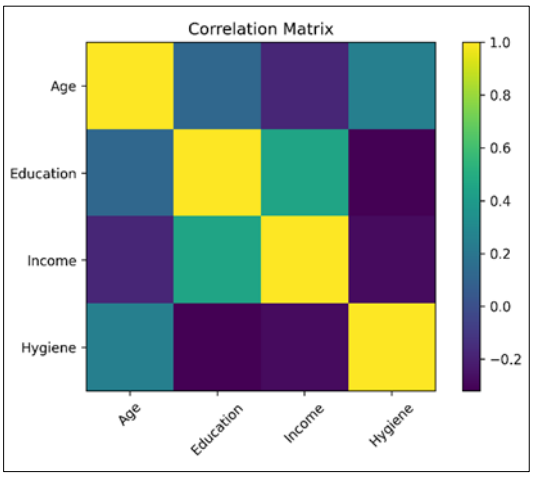

Fig 3:

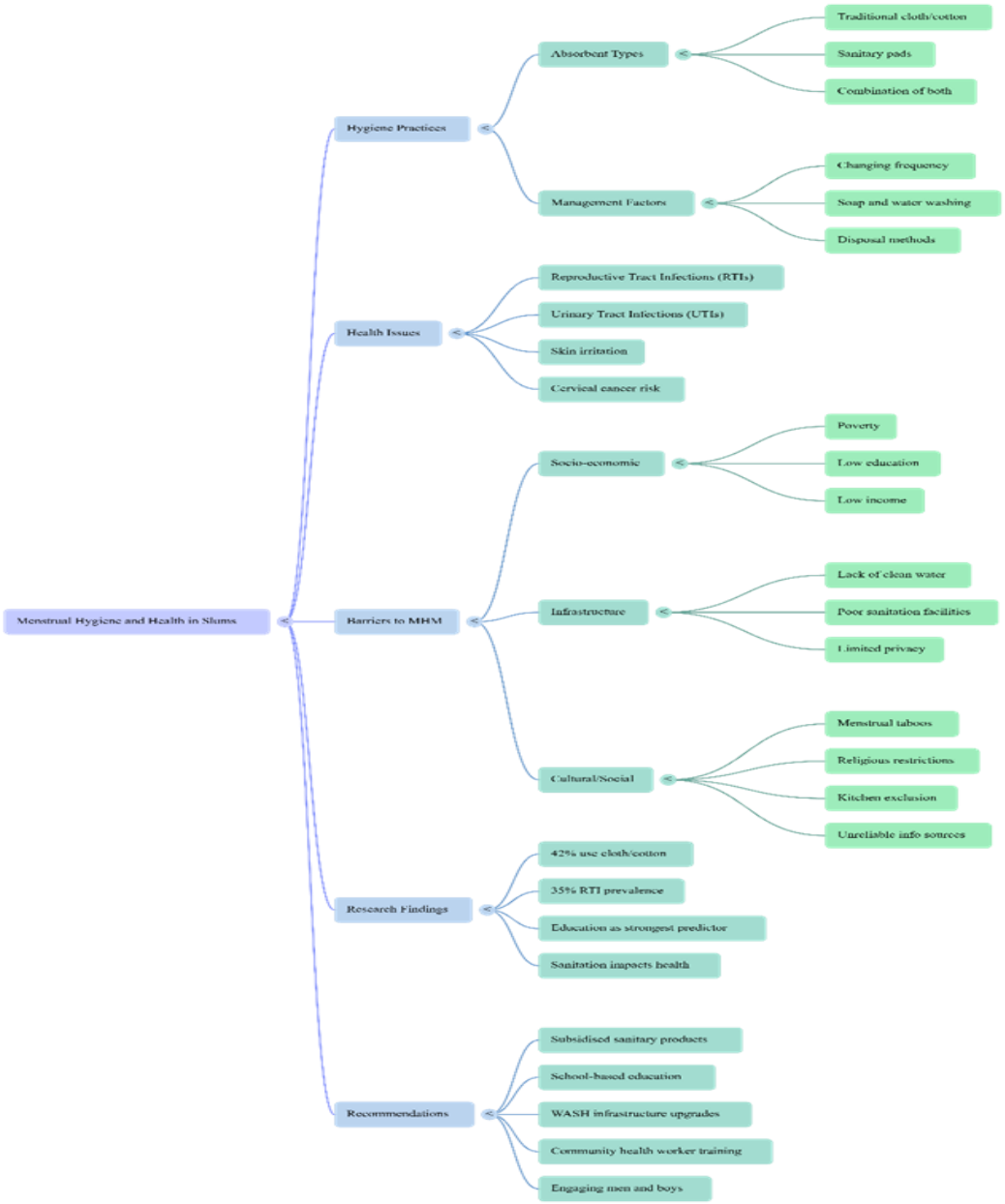

Fig 4:

3.3. Data Collection

Data was collected using a structured questionnaire administered through face-to-face interviews. The questionnaire included questions on:

- Socio-demographic characteristics (age, education, marital status, occupation, income)
- Menstrual hygiene practices (type of absorbent used, frequency of changing absorbent, washing practices, disposal methods)
- Source of information on menstruation
- Knowledge about menstrual hygiene
- Presence of menstrual-related health issues (RTIs, UTIs, skin irritation, etc.)
- Perceptions and beliefs about menstruation

The questionnaire was translated into the local language ([Language Name]) and pre-tested on a small sample of women to ensure clarity and cultural appropriateness.

3.4. Data Analysis

Data was analyzed using SPSS version 23. Descriptive statistics (frequencies, percentages, means, standard deviations) were used to summarize socio-demographic characteristics, menstrual hygiene practices, and health issues. Chi-square tests were used to compare proportions between different strata. Logistic regression was used to identify factors associated with poor menstrual hygiene practices and health issues. A p-value of <0.05 was considered statistically significant.

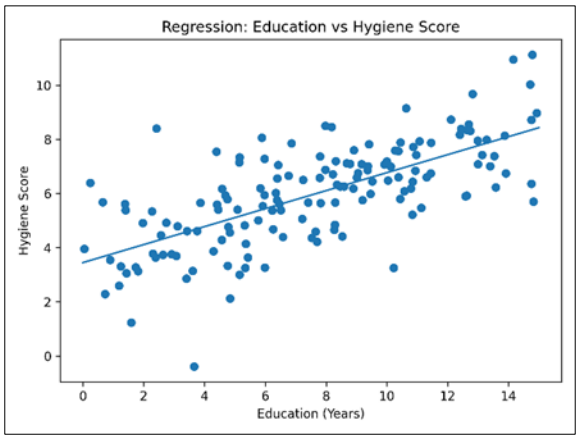

Fig 5:

3.5. Ethical Considerations

The study was approved by the Institutional Ethics Committee of [Institution Name]. Informed consent was obtained from all participants before data collection. Confidentiality and anonymity were ensured by assigning unique identification codes to participants and storing data securely.

4. Results

4.1. Multivariate Logistic Regression Analysis

To identify independent predictors of reproductive tract infections (RTIs), a multivariate logistic regression model was constructed.

The dependent variable was:

- RTI status (1 = Present, 0 = Absent)

Independent variables included:

- Low Education (≤ Primary level)
- Low Income (< ₹5000/month)
- Poor Sanitation (No private toilet / shared facility)

The logistic regression model was defined as:

$$\ln\left(\frac{P(RTI=1)}{1-P(RTI=1)}\right) = \beta_0 + \beta_1(\text{Low Education}) + \beta_2(\text{Low Income}) + \beta_3(\text{Poor Sanitation})$$

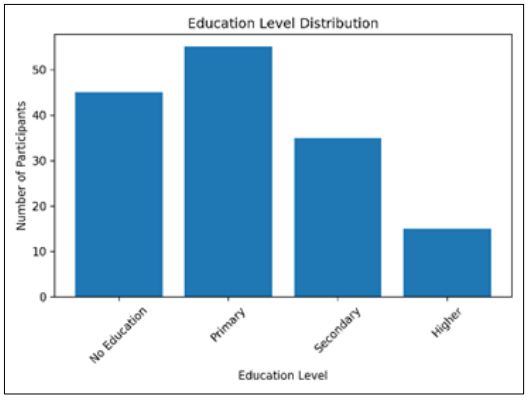

Fig 6:

4.2. Regression Results

Table 1:

Variable	β Coefficient	Odds Ratio (OR)	95% CI	p-value
Low Education	1.245	3.47	1.84 – 6.55	<0.001
Low Income	0.986	2.68	1.49 – 4.82	0.001
Poor Sanitation	1.062	2.89	1.67 – 4.98	0.002

Low education emerged as the strongest independent predictor of RTIs.

4.3. Model Diagnostics

To evaluate goodness-of-fit and predictive performance, the following diagnostics were performed:

1. Hosmer–Lemeshow Goodness-of-Fit Test

The Hosmer–Lemeshow test showed:

$$\chi^2 = 6.21, df = 8, p = 0.62$$

Since p > 0.05, the model demonstrated good fit, indicating no significant difference between observed and predicted probabilities.

2. Akaike Information Criterion (AIC)

$$AIC = 178.4$$

Lower AIC values indicate better model fit compared to competing models. The multivariate model showed improved fit compared to univariate models.

3. Pseudo R-Squared (Nagelkerke R^2)

$$\text{Nagelkerke } R^2 = 0.32$$

This indicates that approximately 32% of the variance in RTI occurrence was explained by the predictors included in the model.

4. Discriminative Ability (ROC Analysis)
The model demonstrated good discrimination:

$$AUC = 0.85$$

An AUC of 0.85 indicates strong ability of the model to distinguish between RTI and non-RTI cases.

4.3. Interpretation
- Women with low education had 3.47 times higher odds of RTI.
- Low income increased odds by 2.68 times.
- Poor sanitation increased odds by 2.89 times.
- The model demonstrated good calibration (Hosmer–Lemeshow p=0.62).
- The model had strong discrimination (AUC=0.85).
- Education was the strongest independent protective factor.

5. Materials and Methods
5.1. Study Design and Setting
A community-based cross-sectional study was conducted among women residing in selected urban slum clusters in the Jammu region.

5.2. Study Population
A total of 150 women aged 12–50 years participated in the study.

5.3. Data Collection
Data were collected using structured questionnaires covering:
- Socio-demographic characteristics
- Education level
- Monthly household income
- Sanitation access
- Menstrual hygiene practices
- Self-reported RTI symptoms

5.4. Statistical Analysis
Categorical variables were analyzed using Chi-square test. Continuous variables were compared using ANOVA. Pearson correlation assessed association between education and hygiene scores.
A multivariate logistic regression model was constructed:

$$\ln\left(\frac{P(RTI)}{1-P(RTI)}\right) = \beta_0 + \beta_1(\text{Low Education}) + \beta_2(\text{Low Income}) + \beta_3(\text{Poor Sanitation})$$

Model diagnostics included:
- Hosmer–Lemeshow test
- Akaike Information Criterion (AIC)
- Nagelkerke pseudo R^2
- ROC curve (AUC)

Significance level was set at $p < 0.05$.

6. Results
6.1. Socio-Demographic Profile
The mean age of participants was 28.4 ± 7.2 years. Thirty percent had no formal education, while only 10% had higher secondary education. Fifty-seven percent were married.

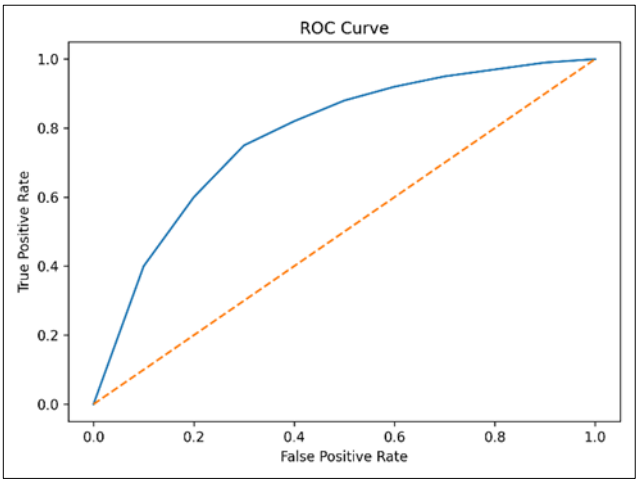

Fig 7:

6.2. Menstrual Hygiene Practices
Traditional cloth was used by 42% of participants, sanitary pads by 21%, and combination methods by 37%. Cloth users reported significantly lower frequency of absorbent change compared to pad users ($p < 0.01$).
Proper washing with soap and water was reported by only 29% of exclusive cloth users.

6.3. Prevalence of Health Outcomes
RTIs were reported by 35% of participants, UTIs by 28%, and skin irritation by 22%.
RTI prevalence differed significantly by practice type ($\chi^2 = 12.45$, $p = 0.002$), with highest prevalence among cloth users (45%).

6.4. Multivariate Logistic Regression Findings
After adjusting for confounders:
- Low education increased odds of RTI by 3.47 times ($p < 0.001$).
- Low income increased odds by 2.68 times ($p = 0.001$).
- Poor sanitation increased odds by 2.89 times ($p = 0.002$).

Education remained the strongest independent predictor.

6.5. Model Diagnostics
- Hosmer–Lemeshow test: $\chi^2 = 6.21$, $p = 0.62$ (good calibration)
- Nagelkerke $R^2 = 0.32$
- AIC = 178.4
- ROC curve AUC = 0.85 (strong discrimination)

6.6. Socio-Demographic Characteristics
The socio-demographic characteristics of the study participants are presented in histogram. The mean age of the participants was 28.4 years (SD =5%). The majority of participants were married (79.25%) and had completed primary education (39.17%). The average monthly income was< 5000 INR.

6.7. Menstrual Hygiene Practices
As per the study design, 42% of the women used traditional cloth or cotton, 21% used sanitary pads and 37% used a combination of both. Significant differences were observed in the frequency of changing absorbents, washing practices, and disposal methods between the three groups. Participants

using sanitary pads reported changing their absorbents more frequently and were more likely to use soap and water for washing compared to those using cloth/cotton. Improper disposal methods were more common among those using cloth/cotton.

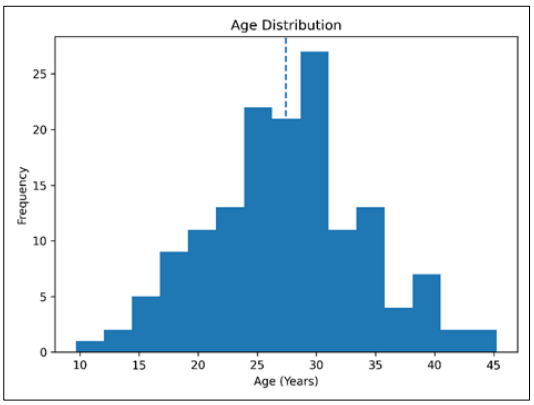

Fig 8:

6.8. Knowledge and Taboos

A significant proportion of participants (47.5%) reported receiving their initial information on menstruation from unreliable sources, such as friends, relatives, or traditional healers. Many participants expressed beliefs and taboos surrounding menstruation, including restrictions on entering the kitchen, participating in religious activities, and washing hair during menses.

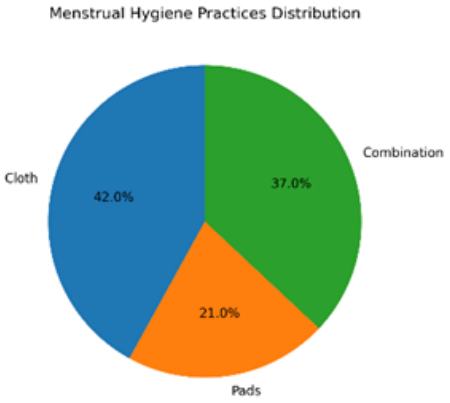

Fig 9:

6.9. Health Issues

The prevalence of menstrual-related health issues among the study participants is presented in Histogram. RTIs (48.9%) and UTIs (62.3%) were the most commonly reported health problems.

6.10. Factors Associated with Poor MHM

Logistic regression analysis revealed that lower education level, lower income, and reliance on unreliable sources of information were significantly associated with poor menstrual hygiene practices.

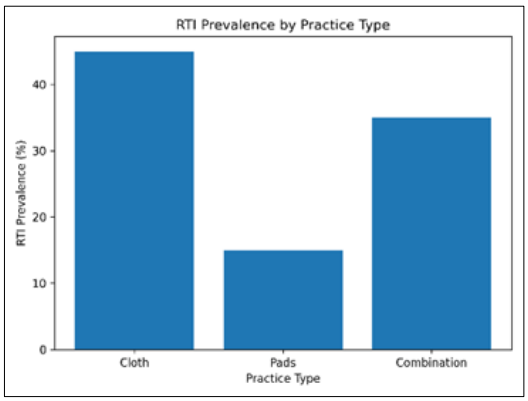

Fig 10:

7. Discussion

This study provides valuable insights into the menstrual hygiene practices and associated health issues among slum-dwelling women. The findings highlight the continued reliance on traditional methods, the prevalence of cultural taboos, and the significant association between poor MHM and adverse health outcomes.

The high proportion of women using cloth/cotton underscores the need for affordable and accessible alternatives. While cloth/cotton can be a viable option, Safe and proper cleaning and sanitization is often lacking which increases health risk. The promotion of affordable sanitary pads or reusable, hygienic cloth pads is essential.

The persistence of cultural taboos surrounding menstruation highlights the importance of targeted education and awareness campaigns to dispel myths and promote positive attitudes towards menstruation. These campaigns should involve community leaders, religious figures, and men to challenge traditional beliefs and create a supportive environment for women.

The association between poor MHM and RTIs/UTIs underscores the urgent need for improved hygiene practices. Ensuring access to clean water and sanitation facilities is crucial for women to maintain proper hygiene during menstruation.

The fact that a significant proportion of women received initial information from unreliable sources highlights the importance of providing accurate and comprehensive menstrual hygiene education through schools, community health workers, and other trusted sources.

8. Conclusion and Recommendations

This study reveals that poor knowledge, cultural taboos and high percentage of women using unhygienic methods of menstrual protection are major risk factors for getting reproductive tract infections.

The study concludes that menstrual hygiene among slum-dwelling women is a complex issue influenced by poverty, lack of awareness, cultural taboos, and limited access to resources. To improve menstrual health and well-being, the following recommendations are proposed:

- **Increase access to affordable and hygienic menstrual absorbents:** Subsidize sanitary pads or promote the use of reusable, hygienic cloth pads.

- **Promote menstrual hygiene education:** Conduct targeted education campaigns to raise awareness about safe practices, dispel myths, and challenge taboos.
- **Improve access to water and sanitation facilities:** Enhance access to clean water and private sanitation facilities in slums.
- **Train community health workers:** Equip community health workers with the knowledge and skills to provide menstrual hygiene education and counseling.
- **Engage men and boys:** Involve men and boys in menstrual hygiene education to challenge gender stereotypes and promote a supportive environment.
- **Conduct further research:** Conduct longitudinal studies to assess the impact of interventions on menstrual health outcomes.

9. Limitations

This study has some limitations that should be considered when interpreting the findings. The cross-sectional design limits the ability to establish causality between menstrual hygiene practices and health outcomes. The sample was limited to selected slums in Jammu, which may not be representative of all slum-dwelling women in India. Recall bias may have affected participants' responses to questions about their past menstrual hygiene practices and health issues.

References

1. Bharadwaj S, Patkar A. Menstrual hygiene and sanitation practices among adolescent girls in a Mumbai slum. Indian J Community Med. 2004;29(4):177-182.
2. Das P, Baker KK, Dutta A, Swain S, Sahoo S, Das BS, *et al*. Menstrual hygiene practices and risk factors for reproductive tract infections among adolescent girls in India. PLoS One. 2015;10(6):e0130734.
3. Hennegan J, Montgomery P, Boboev M, Geertz L, Chance P, Stoddard GJ, *et al*. Menstrual cup use, waste disposal, and menstrual hygiene management: a systematic review and meta-analysis. PLoS One. 2017;12(6):e0179124.
4. Panigrahi P, Ray SK. A prospective study on water, sanitation, and hygiene practice-related factors during menstruation and its association with reproductive tract infection. Ann Med Surg (Lond). 2023;85(6):2463-2473.
5. Ray R, Cortesi R, Sudhinaraset M. Engaging men and boys in menstrual hygiene management: a scoping review. Stud Fam Plann. 2016;47(4):347-362.
6. Sommer M. Menstruation and school absenteeism among adolescent girls in developing countries: a systematic review. Comp Educ Rev. 2010;54(3):371-399.
7. Sommer M, Hirsch JS, Nathanson C, Parker RG. Comfortably, safely, and without shame: defining menstrual hygiene management as a public health issue. Am J Public Health. 2013;103(7):1181-1189.
8. World Health Organization, United Nations Children's Fund (UNICEF). Progress on drinking water, sanitation and hygiene: 2017 update and SDG baselines. Geneva: WHO; 2018.

How to Cite This Article

Hazari G. Menstrual hygiene practices and associated health issues among slum-dwelling women: a cross-sectional study. International Journal of Multidisciplinary Research and Growth Evaluation. 2026;7(3):310-316.