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AWARENESS OF MENSTRUAL HYGIENE AMONG YOUNG WOMEN: A CROSS-SECTIONAL STUDY ON KNOWLEDGE, PRACTICES, AND BARRIERS

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ABSTRACT

Background: Menstrual hygiene is a fundamental aspect of women's health, yet remains poorly understood and heavily stigmatised, particularly among adolescent and young adult populations in low- and middle-income settings. This study investigates the level of awareness, prevailing practices, and perceived barriers to menstrual hygiene management (MHM) among young women aged 15–21 years.

Methods: A descriptive cross-sectional survey was conducted among 300 young women (schoolgirls and undergraduate students) using a pre-validated, structured questionnaire. Data was collected over a three-month period. Descriptive statistics, Chi-square tests, and binary logistic regression were employed to analyse associations between socio-demographic factors and MHM awareness.

Results: Only 54.3% of participants demonstrated adequate overall menstrual hygiene knowledge. Significant gaps were found in knowledge regarding safe pad-change frequency (47% correct), proper disposal (39% correct), and myths surrounding menstruation (41% correct). Urban residence (OR 2.14; 95% CI: 1.32–3.46), maternal education (OR 1.87; 95% CI: 1.10–3.18), and access to school health programmes (OR 3.02; 95% CI: 1.76–5.18) were significant predictors of adequate awareness.

Conclusion: There exists a critical, measurable gap between theoretical menstrual hygiene awareness and actual safe practice among young women. Structured pharmacy-led educational interventions, inclusive school health curricula, and accessible, affordable hygiene products are urgently needed.

KEYWORDS: Menstrual hygiene management, Adolescent health, Menstrual awareness, Young women, Sanitary products, Reproductive health, India.

1. INTRODUCTION

Menstruation is a normal, cyclical physiological process experienced by virtually every female-bodied individual between puberty and menopause. Despite being universal, it continues to be shrouded in silence, shame, and cultural taboo across many societies — especially in South Asia, sub-Saharan Africa, and parts of Latin America. This paradox — a natural bodily function rendered invisible by social stigma — has profound consequences for health, education, and gender equity.

Menstrual Hygiene Management (MHM) refers to the use of a clean, hygienic material to absorb or collect menstrual blood, the ability to change this material privately as often as needed, and access to soap and water for hand-washing and body cleansing. When these conditions are not met, the health consequences can range from reproductive tract infections (RTIs) to toxic shock syndrome (TSS) — both of which are largely preventable with accurate knowledge and affordable resources.

Young women aged 15–21 are particularly vulnerable. They are navigating puberty, academic environments, peer pressure, and shifting household dynamics all at once. Many receive their first information about menstruation from peers or social media rather than trained health professionals, leading to a patchwork of half-truths and persistent myths. As pharmacy students with a grounding in both clinical science and community health, we felt compelled to investigate just how wide this knowledge-practice gap really is — and, more importantly, what factors drive it.

Previous studies from India, Bangladesh, Nepal, and East Africa consistently report low awareness of safe menstrual practices, high rates of cloth reuse without adequate washing, and near-universal reluctance to discuss the subject openly with male teachers, pharmacists, or healthcare providers. However, most studies target either very young adolescents (under

15) or adult women. The 15–21 age bracket — a formative window for health behaviour consolidation — has received comparatively little focused attention.

The present study addresses this gap directly. Our primary objective is to assess current levels of menstrual hygiene knowledge among young women in the 15–21 age group, and to identify socio-demographic and contextual predictors of adequate awareness. Our secondary objective is to map the disconnect between stated knowledge and actual hygiene practice, and to recommend evidence-based, pharmacist-driven intervention strategies.

2. Literature Review

2.1 Global Burden of Inadequate MHM

The United Nations Population Fund (UNFPA) estimates that approximately 500 million women and girls globally lack adequate facilities and materials for menstrual hygiene management [1]. In low- and middle-income countries (LMICs), this translates directly into school absenteeism, reduced workforce participation, and disproportionate burdens of preventable gynaecological illness.

A landmark systematic review by Sommer et al. (2016) synthesising evidence from 40 countries found that girls in under-resourced schools miss 1–5 days of school per menstrual cycle due to inadequate sanitation and poor MHM knowledge [2]. Over an academic year, this can amount to nearly two months of lost schooling — a staggering educational and economic cost that falls almost exclusively on female students.

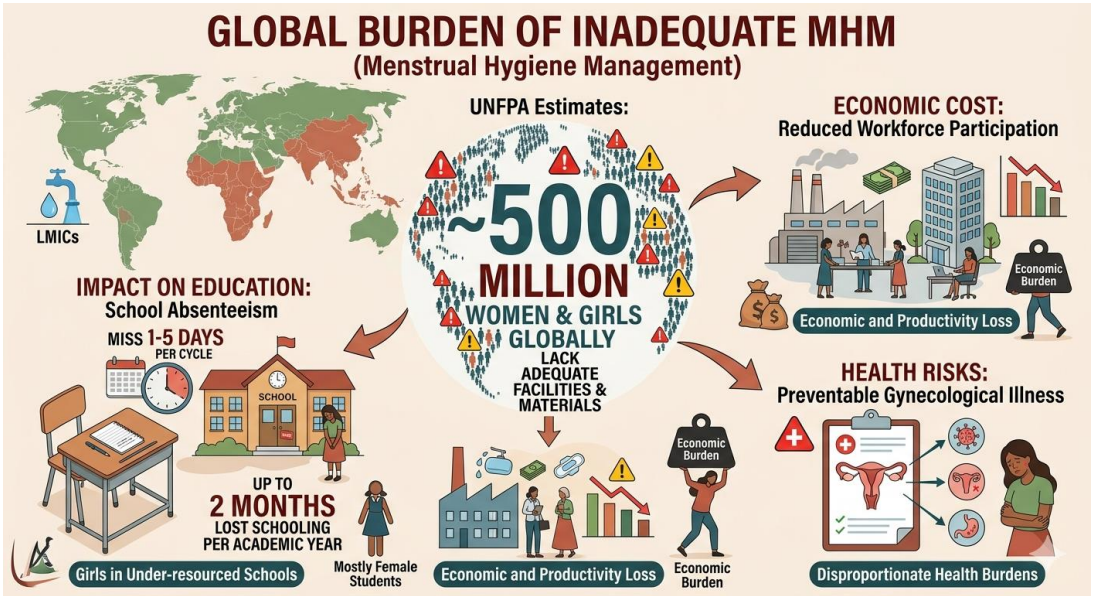

Image 1: Global Burden of Inadequate MHM.

2.2 Knowledge and Awareness

Multiple studies consistently document low baseline knowledge about menstrual physiology and safe hygiene among adolescents. Garg et al. (2012) surveyed 150 school-going girls in Delhi and found that only 43% were aware that menstruation was a normal physiological event before they first experienced it; the majority initially believed it indicated illness or injury [3].

Similarly, a Nigerian study by Ujah et al. (2020) involving 420 secondary school girls reported that fewer than half could correctly identify the safe duration for pad use, and only 29% understood the risk of genital infections from prolonged use of a single absorbent material [4]. These data echo findings from South East Asia: a cross-sectional study from Bangladesh by Akter and Rashid (2019) noted that 61% of rural adolescents believed bathing during menstruation was harmful — a myth with direct practical consequences for genital hygiene [5].

2.3 Cultural and Social Barriers

Beyond knowledge deficits, cultural and social norms erect powerful barriers to menstrual hygiene. In many Indian communities, menstruating women are restricted from entering kitchens, places of worship, or even common sleeping areas, effectively pathologising a normal bodily function [6]. These restrictions not only demean women but practically limit their ability to change and wash absorbent materials, bathe regularly, or access clean water during menstruation.

Bhattacharya (2018) documented how silence around menstruation in school settings forces girls to manage their cycles covertly, leading to prolonged use of inadequate materials and reluctance to report complications to teachers or school nurses [7]. The silence is self-perpetuating: teachers uncomfortable discussing it, girls unable to ask, and parents — including mothers — often defaulting to traditional rather than evidence-based guidance.

2.4 Role of Pharmacists and Health Education

The community pharmacist is frequently the most accessible health professional, particularly in LMICs where physician density is low. Despite this, menstrual health counselling in pharmacy settings remains minimal. Khan et al. (2021) found in a Pakistan-based study that fewer than 15% of young women had ever received structured MHM counselling from a pharmacist, despite frequently purchasing sanitary products from pharmacy outlets [8].

Pharmacy-led health promotion programmes in reproductive health have demonstrated measurable improvements in knowledge and practice [9]. The pharmacy setting is uniquely positioned — products are purchased there, anonymity is preserved, and clinical expertise is available. Integrating MHM counselling into routine pharmacy interactions represents an underutilised and high-potential public health lever.

3. Objectives

3.1 Primary Objectives

- To assess the baseline level of menstrual hygiene knowledge and awareness among young women aged 15–21 years.
- To identify socio-demographic predictors of adequate menstrual hygiene awareness.
- To measure the gap between stated knowledge and actual reported hygienic practice.

3.2 Secondary Objectives

- To catalogue perceived barriers to adopting safe menstrual hygiene practices.
- To explore sources of menstrual health information and their relative reliability.
- To propose actionable, pharmacy-integrated recommendations for improving MHM outcomes.

4. METHODOLOGY

4.1 Study Design and Setting

A descriptive, cross-sectional survey was conducted between September 2023 and November 2023 across three institutions: one higher secondary school and two co-educational undergraduate colleges located in a mid-sized city in South India. The choice of a cross-sectional design was appropriate for determining prevalence of knowledge, attitudes, and practices (KAP) at a single point in time.

4.2 Sample Size and Sampling

Using a 95% confidence interval, 5% margin of error, and an estimated prevalence of adequate MHM awareness of 55% based on prior literature [3,10], the minimum required sample size was calculated at 268. We enrolled 300 participants to account for potential incomplete responses, applying a stratified random sampling technique to ensure proportional representation across urban and rural sub-populations.

4.3 Inclusion and Exclusion Criteria

- Inclusion: Female students aged 15–21 years enrolled in the participating institutions; willing to provide informed assent/consent.
- Exclusion: Participants with known gynaecological disorders requiring active management; those who had not yet attained menarche; participants who declined consent.

4.4 Data Collection Instrument

A structured questionnaire was developed by the research team and validated through pilot testing with 30 participants (excluded from final analysis) and reviewed by two subject matter experts: a gynaecologist and a senior clinical pharmacist. The instrument comprised four sections:

- Section A: Socio-demographic details (age, residence, parental education, monthly household income).
- Section B: Menstrual history and product use (age at menarche, products used, frequency of change, source of first information).
- Section C: Knowledge assessment (20 true/false and multiple-choice items covering physiology, hygiene, myths, and infection risk; maximum score: 20).
- Section D: Attitude and barrier identification (5-point Likert scale items assessing social attitudes, privacy concerns, and access barriers).

Reliability was confirmed with a Cronbach's alpha of 0.79. Questionnaires were self-administered in vernacular and English versions, under researcher supervision, to ensure clarity and confidentiality.

4.5 Ethical Considerations

Institutional Ethics Committee clearance was obtained (Ref: GCP/IEC/2023/117). Written informed consent was taken from all participants aged 18 and above; assent from participants below 18 was supplemented with written parental/guardian consent. Anonymity was maintained throughout, and participation was entirely voluntary. No personally identifiable information was recorded on questionnaire forms.

4.6 Statistical Analysis

Data were entered and cleaned in Microsoft Excel and analysed using SPSS (v25.0). Descriptive statistics (frequencies, percentages, means, standard deviations) were computed for all variables. Associations between socio-demographic variables and adequate knowledge (defined as a score ≥ 60%, i.e., ≥12/20) were examined using Chi-square tests. Binary logistic regression was performed to identify independent predictors of adequate MHM awareness, with results expressed as odds ratios (ORs) with 95% confidence intervals. A p-value < 0.05 was considered statistically significant.

Image 2: Methodology for Menstrual Hygiene Management(MHM) awareness.

5. RESULTS

5.1 Demographic Profile

Of the 300 participants, 187 (62.3%) were from urban backgrounds and 113 (37.7%) from rural or peri-urban areas. The majority (67.3%) were aged 18–21 years, with 32.7% in the 15–17 age group. Mean age at menarche was 12.9 ± 1.1 years (range: 10–16 years), consistent with national norms. Table 1 summarises the demographic characteristics.

Table 1: Demographic Profile of Study Participants. (n = 300)

Table 1. Socio-demographic distribution of young women surveyed across three institutions (2023–24).

Characteristic	Frequency (n)	Percentage (%)	Remarks
Urban Background	187	62.3	–
Rural / Peri-urban Background	113	37.7	–
Age 15–17 years	98	32.7	Younger cohort
Age 18–21 years	202	67.3	Older cohort
Schoolgirls / undergraduates	300	100.0	All respondents

5.2 Source of Menstrual Information

When asked where they first learned about menstruation, 38.3% reported learning from their mothers, 24.7% from school teachers or health programmes, 21% from peers or friends, and 11.3% from social media or the internet. Only 4.7% mentioned a healthcare professional (including pharmacist) as their primary information source — a figure that is both telling and troubling from a clinical standpoint.

Key Observation: The mother remains the dominant information source, yet maternal knowledge itself is often shaped by tradition rather than evidence. Breaking this cycle requires reaching mothers and daughters simultaneously through community pharmacies, school health drives, and digital health platforms.

5.3 Knowledge Assessment Findings

The mean overall knowledge score was 11.4 ± 3.2 out of 20. Using our pre-defined threshold of ≥12/20, only 163 participants (54.3%) demonstrated adequate menstrual hygiene knowledge. Table 2 presents domain-specific knowledge scores.

Table 2: Domain-Wise Menstrual Hygiene Knowledge Scores. (n = 300)

Table 2. Knowledge scores across six MHM domains. 'Change frequency' and 'myths & misconceptions' showed the lowest correct response rates.

Knowledge Domain	Mean Score (/10)	Std. Dev.	Correct Response (%)
Basic menstrual physiology	6.8	1.42	68%
Safe absorbent material use	5.9	1.78	59%

Change frequency (every 4–6 h)	4.7	2.01	47%
Disposal & environmental impact	3.9	1.95	39%
Infection risk & genital hygiene	5.2	1.63	52%
Menstrual myths & misconceptions	4.1	2.20	41%

Notably, only 47% of respondents correctly identified that sanitary pads should be changed every 4–6 hours regardless of flow; 39% demonstrated correct knowledge of appropriate disposal practices; and 41% were able to reject common myths (such as avoiding bathing or exercise during menstruation). Awareness of reproductive tract infection risk from poor hygiene was moderate (52%), but practical application of that knowledge — as assessed in Section D — was far lower.

5.4 Knowledge-Practice Gap

Table 3 presents the gap between stated awareness of hygiene risks and reported adoption of correct practices. Despite 71% of participants knowing that pads should be changed regularly, only 49% consistently did so. The widest gap was observed for hand-washing before and after changing absorbent material (63% aware vs. 38% practiced — a 25-percentage-point gap).

Table 3: Knowledge-Practice Gap in MHM Behaviours (n = 300)

Table 3. Comparison of self-reported awareness vs. actual practice across five key MHM behaviours.

Practice	Aware of Risk (%)	Practised Correctly (%)	Gap (%)
Regular pad/cloth change	71	49	22
Hand-washing before & after change	63	38	25
Safe disposal of used products	55	44	11
Avoiding shared cloth	48	40	8
Seeking medical advice for pain	31	18	13

5.5 Predictors of Adequate Awareness

Binary logistic regression identified three independent statistically significant predictors of adequate MHM awareness:

- Urban residence: OR 2.14 (95% CI: 1.32–3.46; p = 0.002) — urban participants were more than twice as likely to have adequate knowledge, reflecting better access to information and sanitary infrastructure.
- Maternal education (secondary level or above): OR 1.87 (95% CI: 1.10–3.18; p = 0.021) — participants whose mothers had at least completed secondary education showed significantly higher awareness.
- Exposure to school health programmes: OR 3.02 (95% CI: 1.76–5.18; p < 0.001) — the strongest predictor; participants who reported attending a structured menstrual health session at school were three times more likely to demonstrate adequate knowledge.

Age group, household income, and type of absorbent material used (disposable pad vs. cloth) were not independently significant after adjusting for other variables, though they showed bivariate associations.

5.6 Perceived Barriers

Among participants reporting poor or inadequate practice (n = 137), the most commonly cited barriers were:

- Lack of privacy in school/college toilets (cited by 67.9% of poor-practice participants).
- Affordability of disposable sanitary pads (52.6%).
- Embarrassment purchasing hygiene products from a male pharmacist or shopkeeper (48.9%).
- Fear of social stigma from peers if menstruation is openly discussed (44.5%).
- Cultural restrictions at home during menstruation (bathing, movement) — 39.4%.

6. DISCUSSION

The findings of this study paint a picture that will likely resonate with anyone who has moved through the Indian educational system as a young woman: theoretical familiarity with menstrual hygiene, paired with widespread failure to translate that knowledge into consistent safe practice. The overall adequate knowledge rate of 54.3% is slightly higher than some older Indian studies [3,11] but lower than what we would hope to see in an educated, semi-urban sample. This suggests that incremental gains in awareness have not been matched by structural improvements in enabling environments.

The knowledge-practice gap documented in Table 3 is the most clinically significant finding of this study. It mirrors findings from Pakistan [8], Kenya [12], and Bangladesh [5] and suggests a consistent global pattern: awareness campaigns that increase theoretical knowledge without addressing environmental barriers (privacy, affordability, cultural shame) do not reliably translate into behaviour change. This is a fundamental lesson from health behaviour theory — the Health Belief Model, for instance, emphasises that perceived barriers are often the most powerful determinant of action, outweighing even high perceived susceptibility to harm [13].

The dominant role of the mother as an information source (38.3%) is both reassuring and concerning. Reassuring, because maternal transmission represents a form of intergenerational health socialisation; concerning, because if mothers themselves hold inaccurate or myth-laden beliefs — as many studies suggest [6,7] — they effectively perpetuate misinformation with the authority of a trusted figure. Interventions targeting mothers, or better yet, mother-daughter dyads, may therefore yield multiplicative benefits.

The finding that school health programme exposure was the single strongest predictor of adequate awareness (OR 3.02) carries enormous policy weight. It argues strongly for the mandatory integration of structured, biology-based menstrual health education into school curricula from Class 5 or 6, delivered not merely as a one-off awkward session but as a recurring, inclusive, and destigmatised component of health and physical education. Evidence from programmes in Uganda [14] and Bangladesh [15] confirms that well-designed school-based MHM interventions can produce sustained knowledge improvements and measurable reductions in school absenteeism.

From a pharmacy practice standpoint, the statistic that only 4.7% of participants identified a healthcare professional as their primary source of menstrual health information is a powerful call to action for our profession. Pharmacies are visited monthly by menstruating women for product purchase. Each transaction is an opportunity — a brief, private, expert interaction that could normalise menstrual health conversation and correct dangerous myths. The reluctance of participants to purchase products from male pharmacists (48.9%) further highlights the need for gender-sensitive pharmacy training and, where feasible, ensuring female pharmacy staff are available for reproductive health queries.

Reflection from the Research Team: As pharmacy students, conducting this research was as formative as it was humbling. Sitting with young women who described hiding bloodstained clothes or reusing cloth for days because they could not afford pads reminded us that pharmaceutical knowledge is most meaningful when it reaches those who need it most. The pharmacist's white coat should signal approachability, not clinical distance — especially for topics as personal as menstrual health.

7. Recommendations

7.1 For Educational Institutions

- Integrate comprehensive, science-based menstrual health curricula into school health education from Class 5 onwards, with annual revision at each grade.
- Establish dedicated, lockable toilet facilities for female students with private bins for safe pad disposal.
- Train school nurses and female teachers to serve as accessible, non-judgemental menstrual health resources.
- Implement anonymous 'question boxes' in school health rooms to allow girls to raise concerns without embarrassment.

7.2 For Pharmacists and the Pharmacy Profession

- Develop short, standardised menstrual hygiene counselling scripts for pharmacy practice — ideally as part of continuing professional development (CPD) modules.
- Display culturally sensitive MHM information materials (leaflets, posters) in pharmacy waiting areas and point-of-sale locations.
- Train all dispensing staff — regardless of gender — in non-stigmatising communication about reproductive health products.
- Advocate for subsidised or free pad provision through community pharmacy schemes, modelled on successful programmes in Scotland and Kenya.

7.3 For Policymakers and Public Health Authorities

- Implement 'Menstrual Hygiene Day' (28 May) activities at national and district level with community pharmacy participation.
- Expand the Menstrual Hygiene Scheme (currently available in select Indian states) to include semi-urban and peri-urban areas.

- Fund community-based research to track MHM knowledge and practice trends longitudinally and evaluate intervention impact.
- Remove or reduce GST on sanitary hygiene products and include them in essential commodities lists.

8. LIMITATIONS

Like all cross-sectional surveys, this study captures a snapshot in time and cannot establish causality between variables. Self-reported data are susceptible to social desirability bias — participants may have over-reported correct practices to appear favourably. The study was conducted in a single city, limiting generalisability to rural or tribal populations, where MHM challenges are likely more severe.

The exclusion of male perspectives (brothers, fathers, male teachers) is a recognised limitation: MHM stigma is co-produced and sustained by mixed-gender social environments, and future research should include male attitudes. Finally, the questionnaire, though validated, was not tested across diverse linguistic communities; cultural nuances in MHM understanding may have been missed.

9. CONCLUSION

This study confirms what community health workers and thoughtful pharmacists have long suspected: young women know more about menstrual hygiene than previous generations — but not nearly enough, and far too little of what they know is reflected in their daily practices. The 54.3% adequate knowledge rate and the dramatic knowledge-practice gaps documented here are not statistics to file away. They are a call for coordinated action across schools, pharmacies, families, and policy chambers.

Menstrual hygiene is not a luxury, a taboo topic, or a strictly 'women's issue.' It is a public health imperative with direct implications for infection prevention, school retention, gender equity, and economic participation. Pharmacists — as the most accessible and trusted health professionals in many communities — are uniquely positioned to bridge this gap. We have the knowledge, the access, and increasingly, the institutional mandate to move menstrual health from whisper to mainstream healthcare conversation.

This research, conducted by students who have lived through the very educational environments under study, is our small attempt to add one more piece to that conversation. We hope it is useful.

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