

# Understanding challenges related to menstrual hygiene management: Knowledge and practices among the adolescent girls in urban slums of Jaipur, India

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## ABSTRACT

**Objective:** This study aimed to determine the factors associated with knowledge and practices related to menstrual hygiene management among adolescent girls in urban slums in Jaipur, India. **Material and Methods:** A cross-sectional study among 417 adolescent girls was conducted. Descriptive statistics, Chi-square, and bivariate and multivariate logistic regression methods were used to analyze the data and determine the associated factors. **Findings:** Only 48.7% of girls had a correct understanding of menstruation. In addition, 55.1% of the menstruating girls had faced health problems related to menstruation in the last 6 months; however, only 47.6% visited a health facility for treatment. Educational status of the girl (AOR = 1.89, 95% CI = 0.88–4.06), mother’s education (AOR = 2.19, 95% CI = 1.30–3.67) and income (AOR = 1.89, 95% CI = 0.67–3.95), father’s income (AOR = 1.42, 95% CI = 0.76–2.95), and counseling by field health workers (AOR = 2.08, 95% CI = 1.23–3.51) were found to be associated with knowledge about menstruation. Girl’s education (AOR = 1.49, 95% CI = 0.74–2.95), mother’s education (AOR = 1.46, 95% CI = 0.7–2.84) and income (AOR = 1.314, 95% CI = 0.44–2.02), father’s education (AOR = 1.64, 95% CI = 0.55–3.08) and income (AOR = 2.0, 95% CI = 0.86–3.28), and counseling by field health workers (AOR = 1.48, 95% CI = 0.76–2.64) were found to be associated with the type of absorbents used. **Conclusion:** The findings from the study show that the awareness about menstruation and utilization of health services among adolescent girls is low. There is a need to create an enabling environment for girls to access knowledge and health services related to menstruation by creating awareness at the community level, strengthening outreach by field health workers, and ensuring privacy in healthcare facilities.

**Keywords:** Adolescent girls, menstrual hygiene management, menstruation, urban slums

## Introduction

Menstruation, though an integral part of the life of every girl and woman, continues to be associated with stigma, taboos, and misconceptions. While puberty is considered a period of rapid changes among adolescent girls and an important time for the formation of identity, harmful social norms, patriarchal

mindsets, and cultural taboos make menstruation a painful experience for hundreds of thousands of girls, especially in developing countries like India.<sup>[1]</sup> Several studies have highlighted that girls and women in India often find it difficult to manage the psychological and practical aspects related to menstruation, which has a negative effect on their self-esteem, confidence, and overall wellbeing.<sup>[1,2]</sup> Lack of access to information and services required for menstrual hygiene management (MHM) makes it a difficult experience for a large number of adolescent girls in the country.<sup>[2,3]</sup> A study done by Dasra found that 70% of mothers consider menstruation as dirty, 88% of menstruating women

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use homegrown alternatives, and women who use unhygienic products have a 70% higher prevalence of reproductive tract infections (RTIs).<sup>[4]</sup> Eijk *et al.*<sup>[5]</sup> (2016) performed a systematic review of 138 studies related to menstruation done in India and observed that only 25% of the girls were aware of the cause of bleeding and more than 50% were either unaware or misinformed.

MHM-related practices have been also found to be predictors of gynecological problems and RTIs among girls and women by different researchers.<sup>[5,6]</sup> There is an increased realization of the importance of menstrual health for adolescent girls' well-being and empowerment. Several studies have been done to understand the knowledge and practices related to menstruation among adolescent girls and women in rural areas.<sup>[5,7]</sup> However, studies on predictors of knowledge, attitude, and practices related to MHM among adolescent girls in urban slum settings are very few. Some studies that have been done among adolescent girls in urban slums primarily focused on assessing their nutritional status and menstrual hygiene.

This study was undertaken to identify the determinants of knowledge, attitude, and practices related to MHM among adolescent girls in urban slums. The findings presented in this paper will support health planners, service providers, and policymakers in improving MHM among adolescent girls in urban slums.

## Methods

### Study design

The study was conducted using mixed methods and was cross-sectional in design. Jaipur, the capital of Rajasthan, India was selected for this study. The total population of urban Jaipur is 3,471,847, with 22.4% of the total population (7,77,694 people) residing in slum areas.<sup>[8]</sup> Adolescent girls (10–19 years) constitute 8.8% of the urban population, and an estimated 68,438 adolescent girls live in urban slums.<sup>[9]</sup> The sample size for this study was calculated as 420 adolescent girls with a 95% confidence level, 5% error margin, and an estimated 10% non-response rate. Respondents were selected using a two-stage cluster sampling technique. Each slum was treated as a cluster, and adolescent girls were the primary sampling units. A list of 222 urban slums in Jaipur city was collected from the Department of Medical, Health, and Family Welfare, Government of Rajasthan, and 20 clusters were chosen at random. Within each slum, 21 adolescent girls were selected randomly from a list of adolescent girls (10–19 years). Of the 420 girls contacted for the study, 417 girls agreed to participate.

### Measurement variables

The study was primarily designed using the Andersen Healthcare Utilization framework to identify the factors that influence MHM among adolescent girls in Jaipur's urban slums.<sup>[10]</sup> There were two dependent variables in the study. First was the knowledge about menstruation among the girls, and the second was the

type of absorbents used by the girls during the menstruation. The independent variables for the study were finalized after reviewing the variables from the Anderson framework and similar studies done in India and other countries. The independent variables were categorized into two groups. The first included predisposing factors, which included the following variables: age, caste (scheduled caste [SC], scheduled tribe [ST], other backward classes [OBCs], and general population), education, and migration status. The second was enabling factors, which included the following variables: employment status, income level, and outreach by field health workers.

### Study tools and data collection

A structured questionnaire was used for collecting quantitative information, and seven FGDs (each with 12 girls) were done to get qualitative inputs. Two female investigators were engaged to collect the data, after comprehensive training. Consent was taken from the respondents and their parents (in case of minor girls) before starting the interviews/FGDs, and they were explained the purpose of the study, rules for data protection, and maintaining confidentiality.

### Data analysis

Quantitative data was analyzed using SPSS version 26. Descriptive statistics were used to analyze the frequencies and percentages of the dependent and independent variables. Chi-square and binary and multivariate logistic regressions were used to determine the association between the independent and dependent variables.

### Ethical considerations

The questionnaires developed for the study along with the methodology for data collection were approved by the Ethics Committee of IIHMR University, and the ethical guidelines for data collection and data protection by IIHMR were followed.

## Results

### Sociodemographic characteristics

Table 1 shows the sociodemographic characteristics of the respondents. A total of 417 adolescent girls participated in the study. The majority of the respondents (51.3%) were in the age group of 15–19 years and belonged to socially and economically backward communities, that is, SC and ST – 47%, OBC – 41.7%. The majority of the respondents studied between 6<sup>th</sup> to 10<sup>th</sup> class (71.7%); only 17.3% of respondents had completed education above 10<sup>th</sup> class, and 11% girls had studied till 5<sup>th</sup> class or lower. Most of the girls (94.2%) were unmarried, and 63.1% of respondents already reached menarche. Around two-thirds (66.9%) of menstruating girls were using sanitary pads during menstruation, while the remaining girls (33.1%) were using cloth.

### Knowledge about menstruation

Table 2 shows the association between awareness about menstruation and independent variables. Only 48.7% of

**Table 1: Sociodemographic characteristics of the respondents**

Demographic characteristics	Frequency	Percent
Age-wise participants		
Young adolescents (10–14 years)	203	48.7
Older adolescents (15–19 years)	214	51.3
Total	417	100.0
Category-wise participants		
Scheduled castes and Scheduled tribes	196	47.0
Other backward classes	174	41.7
General	47	11.3
Total	417	100
Education		
Up to 5 <sup>th</sup> class	46	11.0
6 <sup>th</sup> –10 <sup>th</sup> class	299	71.7
Higher than 10 <sup>th</sup> class	72	17.3
Total	417	100
Marital Status		
Unmarried	393	94.2
Married or marriage is fixed	24	5.8
Total	417	100
Total	90	100.0
Menstruation started		
Yes	263	63.1
No	154	36.9
Total	417	100.0
Absorbents used (n=263)		
Cloth	87	33.1
Sanitary napkin	176	66.9
Total	263	100
Source of information on menstruation (n=263)		
Mother or sister	227	86.2
Other relatives	24	9.1
Friends or others	13	4.8
Total	263	100

girls were able to explain menstruation correctly, while the remaining girls either did not know (20.9%) or had an incorrect understanding of menstruation (30.5%). Girls who studied above the 8<sup>th</sup> class were twice as likely to have a correct understanding of menstruation compared to the girls who studied till 8<sup>th</sup> class or less (AOR = 1.89, 95% CI = 0.88–4.06). The respondents' caste (SC and ST, OBC, and General) did not influence the awareness about menstruation ( $P = 0.444$ ). Girls whose mothers were educated above 8<sup>th</sup> class (AOR = 2.19, 95% CI = 1.30–3.67) and have an income of more than Rs 7501 (AOR = 1.89, 95% CI = 0.67–3.95) were twice as likely to have the correct understanding of menstruation. Father's education ( $P = 0.538$ ) was not found to be associated with knowledge about menstruation. The income level of the girl's father (AOR = 1.42, 95% CI = 0.76–2.95) and counseling by field health workers also had a significant relationship with the knowledge about menstruation (AOR = 2.08, 95% CI = 1.23–3.51).

### Menstrual hygiene management

Table 3 shows the relationship between the type of absorbents used during the menstruation and the independent variables.

The parents' income significantly influenced the type of absorbents used by respondents. Girls whose fathers were earning more than Rs 7501 per month used sanitary pads twice as much (AOR = 2.0, 95% CI = 0.86–3.28). The income of the respondent's mother also had a significant impact on the use of sanitary pads during menstruation (AOR = 1.314, 95% CI = 0.44–2.02). The education level of girls (AOR = 1.49, 95% CI = 0.74–2.95), their mother (AOR = 1.46, 95% CI = 0.7–2.84), and father (AOR = 1.64, 95% CI = 0.55–3.08) also significantly impacted the type of absorbents used during menstruation. The girls counseled by field health workers at least once were 1.5 times more likely to use sanitary pads (AOR = 1.48, 95% CI = 0.76–2.64) than the girls who were never counseled.

### Challenges faced related to the menstruation

Table 4 shows the challenges/health issues faced by the respondents related to menstruation and the type of treatment availed; 55.1% of the menstruating girls had faced health problems related to menstruation in the last 6 months, and the most common problems were dysmenorrhea, abdominal pain/cramp (62.2%), white discharge/burning during urination (25.2%), and irregular menstruation (18.11%). A major cause of concern was that only 47.6%, who had menstruation-related problems, visited health facilities for treatment, and other respondents either tried home remedies or bought medicines from the pharmacy without consultation with a service provider (52.4%). Even among the respondents who visited health facilities for treatment, the majority (76.9%) had first tried home-based or other treatments and delayed the visit to health facilities by 3 days or more (43.6%) after the onset of symptoms. Furthermore, 56.4% of respondents who visited health facilities were not comfortable sharing their problems with the service providers, which highlights the need to give increased attention toward improving the quality of services and privacy in health facilities.

### Girl's perspective on challenges faced during menstruation and in availing treatment

During the FGDs, girls shared that they had received very little information before starting of menarche, and different myths and taboos related to menstruation are prevalent in their communities, which results in negative coronation against menstruation. Girls also shared that they primarily depend upon their mother and elder sisters, followed by friends and other elder female relatives, for information related to menstruation due to the trust and comfort level they have with them. Girls do not feel comfortable talking about menstruation and related health problems with frontline health workers. The role of schools in creating awareness about menstruation is also negligible. Many girls also shared that they have faced different menstruation-related problems, including irregular menstruation, heavy bleeding, and abdominal pain. However, most of them have not visited health facilities/service providers for treatment and availed home-based treatment only. Several of the girls also shared that they missed school for a few days due to heavy bleeding or abdominal pain.

**Table 2: Knowledge about menstruation and associated factors**

Categories	Correct knowledge (%)	Incorrect Knowledge (%)	Unadjusted OR (95% CI)	Adjusted OR (95% CI)	Chi-Sq (P)
Girl's Age					
10–14 years	73 (36%)	130 (64%)	1	1	15.62 (0.000)
15–19 years	130 (60.7%)	84 (39.3%)	2.002 (1.380–3.840)	2.077 (1.228–3.514)	
Girl's education					
Up to 8 <sup>th</sup> grade	104 (41.6%)	146 (58.4%)	1	1	12.5 (0.000)
Above 8 <sup>th</sup> grade	99 (59.3%)	68 (40.7%)	1.675 (0.814–2.322)	1.888 (0.877–4.064)	
Category					
ST & SC	92 (46.7%)	105 (53.3%)	1	1	0.586 (0.444)
General & OBC	111 (50.5%)	109 (49.5%)	0.781 (0.506–1.411)	0.814 (0.519–1.276)	
Mother's education					
Up to 8 <sup>th</sup> grade	175 (47.4%)	194 (52.6%)	1	1	2.02 (0.035)
Above 8 <sup>th</sup> grade	32 (66.7%)	16 (33.3%)	2.121 (1.486–3.904)	2.187 (1.303–3.669)	
Father's education					
Up to 8 <sup>th</sup> grade	125 (47.5%)	138 (52.5%)	1	1	0.38 (0.538)
Above 8 <sup>th</sup> grade	78 (50.6%)	76 (49.4%)	0.962 (0.486–1.904)	0.986 (0.339–2.151)	
Mother's income					
Rs. 7500 or less	157 (46%)	184 (54%)	1	1	5.22 (0.022)
Rs. 7501 or more	46 (60.5%)	30 (39.5%)	1.770 (0.843–3.719)	1.878 (0.672–3.947)	
Father's income					
Rs. 7500 or less	131 (46.1%)	153 (53.9%)	1	1	2.325 (0.027)
Rs. 7501 or more	72 (54.1%)	61 (45.9%)	1.234 (0.777–1.962)	1.419 (0.760–2.954)	
Ever counseled by field health workers					
No	75 (42.4%)	102 (57.6%)	1	1	4.899 (0.027)
Yes	128 (53.3%)	112 (46.7%)	1.362 (0.895–2.074)	2.077 (1.228–3.514)	

**Table 3: Type of absorbents used and associated factors**

Categories	Cloth (%)	Sanitary pad (%)	Unadjusted OR (95% CI)	Adjusted OR (95% CI)	Chi-Sq (P)
Girl's Age					
10–14 years	37 (45.7%)	44 (54.3%)	1	1	8.393 (0.004)
15–19 years	50 (27.5%)	132 (72.5%)	1.162 (0.580–2.325)	1.326 (0.486–2.682)	
Girl's Education					
Up to 8 <sup>th</sup> grade	51 (44%)	65 (56%)	1	1	11.109 (0.001)
Above 8 <sup>th</sup> grade	36 (24.5%)	111 (75.5%)	1.276 (0.442–2.684)	1.488 (0.738–2.947)	
Category					
ST & SC	41 (34.7%)	77 (65.3%)	1	1	0.268 (0.604)
General & OBC	46 (31.7%)	99 (68.3%)	1.004 (0.438–1.578)	0.930 (0.569–2.360)	
Mother's education					
Up to 8 <sup>th</sup> grade	79 (35.3%)	145 (64.7%)	1	1	3.267 (0.031)
Above 8 <sup>th</sup> grade	8 (20.5%)	31 (79.5%)	1.131 (0.389–2.730)	1.456 (0.704–2.844)	
Father's education					
Up to 8 <sup>th</sup> grade	62 (40.5%)	91 (59.5%)	1	1	9.154 (0.002)
Above 8 <sup>th</sup> grade	25 (22.7%)	85 (77.3%)	1.469 (0.756–2.852)	1.641 (0.547–3.081)	
Mother's income					
Rs. 7500 or less	72 (34.4%)	137 (65.6%)	1	1	1.863 (0.023)
Rs. 7501 or more	15 (27.8%)	39 (72.2%)	1.013 (0.542–1.886)	1.314 (0.436–2.017)	
Father's income					
Rs. 7500 or less	66 (37.9%)	108 (62.1%)	1	1	5.466 (0.019)
Rs. 7501 or more	21 (23.6%)	68 (76.4%)	1.798 (0.935–3.460)	2.004 (0.862–3.281)	
Ever counseled by field health workers					
No	35 (35.7%)	63 (64.3%)	1	1	1.490 (0.484)
Yes	52 (31.5%)	113 (68.5%)	1.299 (0.631–2.082)	1.483 (0.758–2.643)	

Several girls, especially out-of-school girls, shared that they use both sanitary pads and clothes as sometimes they do not have money to buy sanitary pads. Generally, they change pads twice

a day, and the lack of clean toilets at home and in schools is a major challenge for girls. Girls who use clothes shared that they generally dry those clothes in a secluded area within the

**Table 4: Challenges related to menstruation and treatment availed**

	Frequency	Percent
Problem related to menstruation in last 6 months		
Yes	145	55.1
No	118	44.9
Total	263	100
Type of problem (multiple responses)		
Irregular mensuration	26	18.11
Dysmenorrhea, Abdominal pain/cramp	90	62.2
Heavy bleeding	21	14.17
White discharge/burning during urination	37	25.2
Type of treatment availed		
Visited health facility for treatment	69	47.6
Home-based treatment or bought medicines from a pharmacy without consultation with a qualified service provider	76	52.4
Total	145	100
Felt comfortable sharing problems with a service provider		
Yes	30	43.6
No	39	56.4
Total	69	100
Reason for not visiting health facilities		
Family members don't feel the need	33	43.2
Uncomfortable in sharing the problem/lack of privacy in health facilities	18	23.9
Cost of the treatment/visiting health facilities	15	19.3
Inconvenience (distance to the facility/timings)	10	13.6
Total	76	100
When the respondents visited a health facility after starting of symptoms		
Same day	5	7.7
1–2 days	34	48.7
3–5 days	19	28.2
6–10 days	11	15.4
Total	69	100
Treatment prior to visiting the health facility		
Nothing	16	23.1
Home remedies	37	53.8
Took medicine as per the advice of a pharmacist at a pharmacy	16	23.1
Total	69	100

household, while some girls also shared that they dry the clothes under other garments. Girls also faced challenges in disposing of pads; they generally wrap soiled pads in a newspaper before disposing. They also felt quite embarrassed if someone saw them disposing of the pads.

Girls shared that there are many taboos related to menstruation that restrict their movement and freedom during the menstruation. Some of these taboos are related to not entering into the kitchen, not touching the water pot, not visiting places of worship, and not participating in any religious activities while they are menstruating. In addition, as menarche is linked with puberty and sexual maturity, different restrictions are put to restrict their mobilities, including playing or going outside of their homes, especially for extended hours or during late evening or night time.

## Discussion

This cross-sectional study aimed to examine adolescent girls' knowledge and practice of menstrual hygiene management and

tried to identify factors associated with it. The findings from the study will be very useful in designing appropriate strategies and programs for addressing the challenges faced by adolescent girls related to MHM.

The findings from the study highlight the low level of awareness about menstruation among adolescent girls; only 48.7% of girls had the correct knowledge of menstruation. It was a little higher than the findings from some of the other studies done among adolescent girls in the country, including studies done in Bangalore (44%) and Meerut (39%), which may be due to increased exposure of the girls over the period.<sup>[11,12]</sup> A study done among adolescent girls in Delhi found a higher percentage of girls with correct knowledge at 64%, which may be because of higher literacy levels among girls in Delhi.<sup>[13]</sup> Around 87% of the girls shared that mothers, elder sisters, or friends were the primary source of information related to menstruation. Other studies have also highlighted similar findings, including a study done in Delhi (86%), Bangalore (84%), and Meerut (91%).<sup>[11-13]</sup>



Girls have shared dysmenorrhea/abdominal pain/cramps as one of the most common problems (62.2%) during menstruation. Other studies have also reported a high prevalence of dysmenorrhea/abdominal pain/cramps, ranging from 50% to 80%.<sup>[14,15]</sup> Furthermore, 66.9% of girls shared they were using sanitary pads, while 33.1% were using cloth. The usage of sanitary pads was similar to findings from PMA2020 at 67%; however, it was much lower than the usage of pads among girls in Delhi (sanitary pads – 97.9%, and both cloths and pads – 2.1%) which could be explained by higher literacy level and better socioeconomic conditions in Delhi.<sup>[16,17]</sup>

The findings also show that most of the respondents who visited health facilities first tried either home remedies (51%), bought medicines from the pharmacy, or visited a non-qualified service provider (26.5%) without consulting the qualified service provider. The delay in seeking treatment may lead to the progression of disease, increase in cost, and health problems to the girls. Hence, there is a need to create understanding among girls and their families about early treatment-seeking behavior.

The findings from the study show that education of girls and their mothers along with the income of their parents and outreach by community-level health workers were positively associated with the correct knowledge about menstruation and the type of absorbents used. Studies undertaken in different cities in India and in other countries have also highlighted similar relationships.<sup>[18,19]</sup>

## Conclusion

Considering that menstruation is an integral part of every woman's life and a natural biological process, the lack of correct information, prevalence of taboos, absence of a supporting environment for girls to practice hygienic methods, and negligence toward menstrual health problems are quite alarming. The findings from the study highlight the need to adopt a comprehensive approach toward creating awareness among the girls about menstruation; building a supportive environment for them to practice hygienic methods through engaging family, community members, and schools; and addressing barriers to utilization of health services. The low treatment-seeking behavior in case of menstrual problems requires addressing both demand and supply side barriers through awareness generation and ensuring the availability of quality services in an environment where girls are comfortable and their privacy is maintained.

## Author contributions

Mr Rajnish Ranjan Prasad has conceptualized the study, facilitated data collection, supported in paper writing. Mr. Hemant Dwivedi has provided inputs in study design, development of tools and data analysis. Dr. Mrunal Shetye has contributed in literature review, data analysis and paper writing.

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## Conflicts of interest

There are no conflicts of interest.

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