

# Period Poverty among Females in Reproductive Age Group of Lucknow: Cross-Sectional Study

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**How to cite this article:** Swati Singh, Rajesh Kunwar, Meghna Athwani. Period Poverty among Females in Reproductive Age Group of Lucknow: Cross-Sectional Study. Indian Journal of Public Health Research and Development / Vol. 16 No. 1, January-March 2025.

## Abstract

**Background:** Period poverty or inadequate access of menstrual hygiene and education can be debilitating to women of reproductive age. The objective of present study was to have an insight into period poverty as well as determine association between last-year period poverty, menstrual knowledge and menstrual hygiene management (MHM) with socio-demographic variables.

**Methods:** This analytical study was cross-sectional in design included females of reproductive age (20-49 years). Study was carried at a primary health centre in urban Lucknow. Data was collected on a pre-validated semi-structured questionnaire. The data was collected and entered in M.S Excel. Chi-square was applied for analysis.

**Results:** Prevalence of last year period poverty, poor menstrual knowledge and poor menstrual hygiene management was 29.7%, 17.7% and 42.3%, respectively. Significant association exists between period poverty and socio-demographic variables.

**Conclusion:** Period poverty continues to be a challenging issue among females of reproductive age group. Increasing awareness about menstrual hygiene and MHM practices, and taking action to ensure adequate supply of period product is need of the hour.

**Keywords:** menstrual knowledge, menstrual hygiene management, period poverty, reproductive age

## Introduction

Period poverty means not only inadequate access of safe and hygienic menstrual materials and education, but also inaccessibility to menstrual

hygiene management.<sup>1-3</sup> It is a neglected public health problem.

According to a report, 500 million females suffer from inadequate access to menstrual materials and

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**Submission date:** May 16, 2024

**Revision date:** June 28, 2024

**Published date:** December 28, 2024:

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MHM facilities.<sup>4</sup> In India, as reported by National Family Health Survey- 5, only 77.3% females between ages 15 to 24 have adequate access to hygienic methods for protection at time of their menstruation period; that is 22.7% females suffer from period poverty.<sup>5</sup> Inadequate access to menstrual materials can lead to adverse physical health and emotional wellbeing in females. Many less well-described economic, socio-cultural, and political issues exist in our country that reduce accessibility of menstrual materials.<sup>6</sup> In present study, we therefore tried to have an insight into period poverty and determine the association between last-year period poverty, menstrual knowledge, and MHM practice with socio-demographic variables.

### Materials and Methods

The present cross-sectional analytical study was under aegis of Community Medicine Department at an affiliated urban primary health centre Saadatganj, Lucknow. The study period was from 2022 November till July 23.

Study population consisted of all the females of reproductive age group between 20-49 years, who came as attendant or patient other than those having any gynaecological ailments. Those who refused to give consent for study and pregnant females were excluded.

Data collection: A semi-structured, pre-validated questionnaire was applied for interview of study participants. Information about socio-demographic determinants, last one-year period poverty, knowledge on menstrual and menstrual hygiene management were covered in the questionnaire. Data included in study comprised of-

Socio-demographic determinants such as the age, religion, area of residence, participant's education, parent's education, participant's occupation and family income.

Last year period poverty considered as inability to afford menstrual products in past one year.<sup>7</sup>

Menstrual knowledge including knowledge on menstruation before the menarche, age at which menstruation commence, reason for menstruation, menstrual blood source, duration of menstruation,

menstrual cycle length, unhygienic nature of menstrual blood and foods that can be avoided during menstruation.<sup>8</sup>

MHM techniques such as regular genital cleaning after pad change, cleaner applied during menstruation, regular bathing, material that was used, number of times sanitary material was changed per day, menstrual hygiene material was properly disposed and hand washing practise during menstruation.<sup>9</sup>

Menstrual knowledge and MHM practices were scored on a scale of zero to eight and zero to seven respectively. Subject having menstrual knowledge score of not more than 4 was grouped as poor in menstrual knowledge. Similarly, subject having MHM practices score not more than 4 was grouped into having MHM practice poor.

In present study multi-stage sampling method was used. Of the four health care centres - Chinhat, Malihabad, Kakori and Saadatganj - affiliated for internship training programme, Saadatganj was chosen for the purpose of study, by applying simple random technique of sampling. Study population, that is, females of reproductive age who attended health care centre, were chosen by census method.

For the purpose of study, sample size was estimated using the formula:

$$n = 4pq/L^2, 10 \text{ where}$$

$$n = \text{sample size,}$$

p = proportion of population possessing characteristic of interest,

$$L = \text{absolute error and}$$

$$q = (1-p)$$

95% confidence interval was considered. Prevalence of period poverty as 27.4%.<sup>5</sup> Taking "L", absolute error in the estimate of "p" 5%, the sample size calculated was 308. Hence, total of 310 females of reproductive age were in the study.

Statistical analysis: The data was collected, entered in Microsoft Excel 2013 and was analysed using version 17.0 of STATA. Categorical variables

presented as frequency and percentage. Association was determined by Chi-square test. P-values < 0.05 were considered statistically significant.

Ethical approval: Study was carried after the approval of Institute ethical committee (Letter no. TSMHC&H/ IEC/ NOV22/61)

## Results

The present study revealed that period poverty in last year was present in 29.7 % of participants, 17.7% participants had poor knowledge on menstruation, MHM practice score was poor in 42.3% of participants.

Demographic factor association with last year period poverty, knowledge on menstruation and MHM practice:

In present study most of the participants were in less than 30 years age group. There existed statistically significant association between participants age group with last year period poverty (P- value= 0.000) and poor menstrual knowledge (P- value= 0.032). Last year period poverty and poor menstrual knowledge were significantly higher in Muslim and other religion. Caste had no association with last year period poverty, menstrual knowledge and MHM practices. Last year period poverty was more in married females (P- value= 0.001) and females

living in joint family. Last year period poverty and menstrual knowledge were associated with rural residence. (Table 1)

Socio-economic determinants associated with last year period poverty, menstrual knowledge and MHM practice:

Education of participants was associated with all the three variables, period poverty (P- value= 0.000), poor menstrual knowledge (P- value= 0.000) and poor MHM practice (P- value= 0.024). Statistically significant association was observed between participants occupation and last year period poverty (P= 0.020) and poor menstrual knowledge (P- value= 0.008). Education of father was associated with last year period poverty (P- value= 0.000), poor menstrual knowledge (P- value= 0.006) and poor MHM practice (P- value= 0.009). Occupation of father had significant association with period poverty and poor menstrual knowledge. Mother's education had significant association with last year period poverty (P- value= 0.000) and poor menstrual knowledge (P- value= 0.000). Socio-economic status had association with last year period poverty (P- value= 0.047), poor menstrual knowledge (P- value= 0.012) and poor MHM practice (P- value= 0.003). (Table 2 and 3)

**Table 1: Association between last year period poverty, menstrual knowledge and MHM with demographic variables**

| Demographic determinants | Sample N (%) | Last year period poverty n=92 (29.7) | Chi-square, df, P-value | Menstrual knowledge Poor n=55 (17.7) | Chi-square, df, P-value | MHM Poor n=131 (42.3) | Chi-square, df, P-value |
|--------------------------|--------------|--------------------------------------|-------------------------|--------------------------------------|-------------------------|-----------------------|-------------------------|
| Age                      |              |                                      |                         |                                      |                         |                       |                         |
| 20-29 years              | 207 (66.8)   | 47 (22.7)                            | 15.231, 2, 0.000        | 29 (14.0)                            | 6.902, 2, 0.032         | 78 (37.7)             | 5.762, 2, 0.056         |
| 30-39 years              | 81 (26.1)    | 37 (45.7)                            |                         | 22 (27.2)                            |                         | 43 (53.1)             |                         |
| 40-49 years              | 22 (7.1)     | 8 (36.4)                             |                         | 4 (18.2)                             |                         | 10 (45.5)             |                         |
| Religion                 |              |                                      |                         |                                      |                         |                       |                         |
| Hindu                    | 256 (82.6)   | 67 (26.2)                            | 8.654, 1, 0.003         | 36 (14.1)                            | 13.633, 1, 0.000        | 102 (39.8)            | 3.511, 1, .061          |
| Muslim and others        | 54 (17.4)    | 25 (46.3)                            |                         | 19 (35.2)                            |                         | 29 (53.7)             |                         |
| Caste                    |              |                                      |                         |                                      |                         |                       |                         |
| General                  | 169 (54.5)   | 55 (32.5)                            | 2.648, 2, 0.266         | 29 (17.2)                            | 0.858, 2, 0.651         | 75 (44.4)             | 0.849, 2, 0.654         |
| OBC                      | 76 (24.5)    | 17 (22.4)                            |                         | 16 (21.1)                            |                         | 29 (38.2)             |                         |
| SC/ST                    | 65 (21.0)    | 20 (30.8)                            |                         | 10 (15.4)                            |                         | 27 (41.5)             |                         |

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| Place of residence |            |           |                     |           |                    |           |                    |
|--------------------|------------|-----------|---------------------|-----------|--------------------|-----------|--------------------|
| Rural              | 171 (55.2) | 59 (34.5) | 4.255, 1,<br>0.039  | 38 (22.2) | 5.245, 1,<br>0.022 | 71 (41.5) | 0.085, 1,<br>0.771 |
| Urban              | 139 (44.8) | 33 (23.7) |                     | 17 (12.2) |                    | 60 (43.2) |                    |
| Type of family     |            |           |                     |           |                    |           |                    |
| Nuclear            | 183 (59.0) | 41 (22.4) | 11.322, 1,<br>0.001 | 29 (15.8) | 1.099, 1,<br>0.294 | 71 (38.8) | 2.192, 1,<br>0.139 |
| Joint              | 127 (41.0) | 51 (40.2) |                     | 26 (20.5) |                    | 60 (47.2) |                    |
| Marital status     |            |           |                     |           |                    |           |                    |
| Married            | 173 (55.8) | 72 (41.6) | 26.746, 1,<br>0.000 | 34 (19.7) | 0.980, 1,<br>0.322 | 84 (48.6) | 6.361, 1,<br>0.012 |
| Unmarried          | 137 (44.2) | 20 (14.6) |                     | 21 (15.3) |                    | 47 (34.3) |                    |

**Table 2: Association of last year period poverty, menstrual knowledge and MHM with Socio-economic status of participants**

| Socio-economic factors     | Sample n=310 N (%) | Last year period poverty n=92 (29.7) | Chi-square, df, P-value | Menstrual Knowledge Poor n=55 (17.7) | Chi-square, df, P-value | MHM Poor n=131(42.3) | Chi-square, df, P-value |
|----------------------------|--------------------|--------------------------------------|-------------------------|--------------------------------------|-------------------------|----------------------|-------------------------|
| Participants education     |                    |                                      |                         |                                      |                         |                      |                         |
| Graduation and above       | 87 (28.1)          | 8 (9.2)                              | 52.657, 5,<br>0.000     | 4 (4.6)                              | 44.330, 5,<br>0.000     | 24 (27.6)            | 12.911, 5,<br>0.024     |
| Intermediate               | 93 (30.0)          | 21 (22.6)                            |                         | 17 (18.3)                            |                         | 44 (47.3)            |                         |
| High school                | 43 (13.9)          | 13 (30.2)                            |                         | 2 (4.7)                              |                         | 19 (44.2)            |                         |
| Middle school              | 29 (9.3)           | 15 (51.7)                            |                         | 8 (27.6)                             |                         | 12 (41.4)            |                         |
| Primary school             | 22 (7.1)           | 13 (59.1)                            |                         | 6 (27.3)                             |                         | 13 (59.1)            |                         |
| Illiterate                 | 36 (11.6)          | 22 (61.1)                            |                         | 18 (50.0)                            |                         | 19 (52.8)            |                         |
| Occupation of participants |                    |                                      |                         |                                      |                         |                      |                         |
| Working                    | 104 (33.5)         | 22 (21.2)                            | 5.448, 1,<br>0.020      | 10 (9.6)                             | 7.082, 1,<br>0.008      | 38 (36.5)            | 2.098, 1,<br>0.147      |
| Not working/<br>housewife  | 206 (66.5)         | 70 (34.0)                            |                         | 45 (21.8)                            |                         | 93 (45.1)            |                         |
| Socio-economic status      |                    |                                      |                         |                                      |                         |                      |                         |
| Upper                      | 30 (9.7)           | 2 (6.7)                              | 9.641, 4,<br>0.047      | 1 (3.3)                              | 12.854, 4,<br>0.012     | 8 (26.7)             | 16.197, 4,<br>0.003     |
| Upper-middle               | 40 (12.9)          | 12 (30.0)                            |                         | 2 (5.0)                              |                         | 27 (67.5)            |                         |
| Lower-middle               | 86 (27.7)          | 27 (31.4)                            |                         | 18 (20.9)                            |                         | 39 (45.3)            |                         |
| Upper-lower                | 96 (31.0)          | 29 (30.2)                            |                         | 26 (27.1)                            |                         | 38 (39.6)            |                         |
| Lower                      | 58 (18.7)          | 22 (37.9)                            |                         | 8 (13.8)                             |                         | 19(32.8)             |                         |

**Table 3: Association of last year period poverty, menstrual knowledge and MHM with education and occupation of parents**

| Socio-economic factors   | Sample n=310 N (%) | Last year period poverty n=92 (29.7) | Chi-square, df, P-value | Menstrual Knowledge Poor n=55 (17.7) | Chi-square, df, P-value | MHM Poor n=131(42.3) | Chi-square, df, P-value |
|--------------------------|--------------------|--------------------------------------|-------------------------|--------------------------------------|-------------------------|----------------------|-------------------------|
| Father Education         |                    |                                      |                         |                                      |                         |                      |                         |
| Intermediate and above   | 178 (57.4)         | 28 (15.7)                            | 50.822, 3,<br>0.000     | 21 (11.8)                            | 12.375, 3,<br>0.006     | 66 (37.1)            | 11.603, 3,<br>0.009     |
| High school              | 41 (13.2)          | 14 (34.1)                            |                         | 8 (19.5)                             |                         | 21 (51.2)            |                         |
| Middle school            | 33 (10.6)          | 13 (39.4)                            |                         | 8 (24.2)                             |                         | 10 (30.3)            |                         |
| Primary school and below | 58 (18.8)          | 37 (63.8)                            |                         | 18 (31.0)                            |                         | 34 (58.6)            |                         |

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| Occupation of father       |            |            |                     |           |                     |            |                    |
|----------------------------|------------|------------|---------------------|-----------|---------------------|------------|--------------------|
| Clerical and above         | 100 (32.3) | 18 (18.0)  | 18.454, 3,<br>0.000 | 3 (3.0)   | 35.194, 3,<br>0.000 | 41 (41.0)  | 5.536, 3,<br>0.136 |
| Skilled                    | 70 (22.6)  | 16 (22.9)  |                     | 8 (11.4)  |                     | 26 (37.1)  |                    |
| Semi-skilled               | 49 (15.7)  | 23 (46.9%) |                     | 14 (28.6) |                     | 28 (57.1)  |                    |
| Unskilled                  | 91 (29.4)  | 35 (38.5%) |                     | 30 (33.0) |                     | 36 (39.6)  |                    |
| Education status of mother |            |            |                     |           |                     |            |                    |
| Intermediate and above     | 101 (32.6) | 11 (10.9)  | 27.952, 3,<br>0.000 | 5 (5.0)   | 32.319, 3,<br>0.000 | 34 (33.7)  | 7.087, 3,<br>0.069 |
| High school                | 44 (14.2)  | 13 (29.5)  |                     | 2 (4.5)   |                     | 25 (56.8)  |                    |
| Middle school              | 35 (11.3)  | 13 (37.1)  |                     | 8 (22.9)  |                     | 16 (45.7)  |                    |
| Primary school and below   | 130 (41.9) | 55 (42.3)  |                     | 40 (30.8) |                     | 56 (43.1)  |                    |
| Occupation of mother       |            |            |                     |           |                     |            |                    |
| Working                    | 32 (10.3)  | 6 (18.8)   | 2.042, 1,<br>0.153  | 2 (6.3)   | 2.411, 1,<br>0.121  | 8 (25.0)   | 4.356, 1,<br>0.037 |
| Housewife                  | 278 (89.7) | 86 (30.9)  |                     | 53 (19.1) |                     | 123 (44.2) |                    |

## Discussion

Information on menstruation and MHM is very important for females to manage their periods with veneration. Menstrual insecurity can lead to school absenteeism, workplace leave and inability of females to perform household duties. Literacy of participants and parents plays major role in period poverty and MHM practices. In the present study last year period poverty was present in 29.7% of study participants, 17.7% had inadequate menstrual knowledge and 42.3% had poor MHM practices. In a study from Bhutan menstrual knowledge was found to be low in 35.5 % of participants. 11 Period poverty in our study was more than that found in a study conducted in United States by Cardoso et al., where 14.2% females suffered from last one year period poverty. 7 High period poverty could be attributed to fact that India is lower-middle income country and, hence, purchasing sanitary products can cause financial strain on females.

Females in higher age group had significant association with last year period poverty and poor menstrual knowledge. In study of Cardoso et al. there was no association of period poverty with age. 7 Last year period poverty and menstrual knowledge was poor in females from rural area. Females residing in rural area could suffer from inadequate accessibility and availability of sanitary materials which can be linked as a cause of period poverty. Females in rural area also have low literacy which could be the cause of poor knowledge on menstruation.

Education of both participant and mother was associated with last year period poverty, poor menstrual knowledge and inadequate menstrual hygiene management practices. Mother is first source of information to daughter, and daughter also feel more secure in discussing physical and physiological health with her. Study conducted by Mohammed S. et al. mothers' education was associated ( $p = 0.023$ ) with poor menstrual knowledge of daughter. 8 In a study of Kumar G et al. participants' education was associated with poor MHM practice. 12 Lack of knowledge creates a gap, leading to poor menstrual hygiene management practices, which can lead to period poverty.

Low income menstruating females had association with last year period poverty, menstrual knowledge and MHM practice. Socio-economic status not only creates difficulty in accessing sanitary products, but also produces dearth of soap and other materials needed for basic hygiene. In a study by Rossouw L et al. it was observed females of age more than 35 years, lower socio-economic status and poor education and belonging to rural background persistently suffered inadequate accessibility of sanitary pads. 13 In study by Kumar, et al. economic status had association that was statistically significant with poor practice of menstrual hygiene. 12 Because of period poverty women find themselves unable to participate in economic activities, are uncomfortable, absent more often from workplace and face embarrassment. 14

**Conclusion:** For women to have menstrual period with veneration, it is important to overcome period poverty. The present study revealed that both demographic and social factors play a very important role in menstrual knowledge, MHM practices and last year period poverty. Of these, education and income plays the most crucial role. Findings of present study, however, may be verified by a larger multi-centric study.

**Ethical approval:** Study was carried after the approval of Institute ethical committee (Letter no. TSMHC&H/ IEC/ NOV22/61)

**Conflicts of interest:** Nil

**Source of funding:** None

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