

## A Study on Menstrual Hygiene and Its Association with Perceived Reproductive Morbidity in Adolescent Girls of Slum Region

Sudiksha Rana<sup>1</sup>, Sumit Kumar Singh<sup>2</sup>, Himanshu Mamgain<sup>3</sup>, Anupama Arya<sup>4</sup>, Shalini Rawat<sup>5</sup>, Shivani Dhyani<sup>6</sup>

<sup>1</sup>Assistant Professor, Department of Community Medicine, Government Doon Medical College, Dehradun, Uttarakhand, India

<sup>2</sup>Assistant Professor, Department of Community Medicine, Government Doon Medical College, Dehradun, Uttarakhand, India

<sup>3</sup>Assistant Professor, Department of Community Medicine, Government Doon Medical College, Dehradun, Uttarakhand, India

<sup>4</sup>Professor & Head, Department of Community Medicine, Government Doon Medical College, Dehradun, Uttarakhand, India

<sup>5</sup>Assistant Professor, Department of Community Medicine, Government Doon Medical College, Dehradun, Uttarakhand, India

<sup>6</sup>Medical Officer, SPS Hospital, Rishikesh, Dehradun, Uttarakhand, India

---

Received: 09-11-2025 / Revised: 08-12-2025 / Accepted: 09-01-2026

Corresponding Author: Dr. Sudiksha Rana

Conflict of interest: Nil

---

### Abstract:

**Objectives:** The present study was to evaluate the various factors of menstruation hygiene and to assess reproductive morbidities of adolescent girls in slum area of Dehradun, Uttarakhand, India.

**Methods:** Data was collected by house-to-house survey in the community, and girls were asked questions using a predesigned questionnaire. The questionnaire consisted of sociodemographic details, knowledge about menstruation, menstrual patterns and practices, hygiene followed, and associated serious ill-health ranging from Dysmenorrhea, genital tract infections, urinary tract infections, and bad odour etc.

**Results:** Out of 250 adolescent girls, most of girls were in age group of 14-16 years. Mean age of menarche was 12.7 years. Most of the mothers 136(54.4%) were illiterate and belonged from lower socioeconomic strata 170(68%). Non disposable linen was used by 55.2% girls. 67.6% girls were used 2-3 pad per day. 78.8% girls were reused of pad. Out of 250 girls, 188(75.2%) girls had reproductive morbidities. Most common morbidities were dysmenorrhoea 84(33.6%), menstrual irregularities 55(22%), itching in genitalia 18(7.2%) and burning micturition 13(5.2%). 35.2% girls were taken health care services.

**Conclusions:** Reproductive morbidities are more common in adolescent girl of slum region. Dysmenorrhea and menstrual irregularities are the most common morbidities. Illiterate mother, lower socioeconomic strata and lack of awareness of menstruation and its hygiene are the most common factors of reproductive morbidities in adolescent girls. Hence, we should organise regular health check-up camp in slum area to diagnose and treatment of reproductive morbidities in adolescent girls as well as to educate the mothers and adolescent girls for menstruation hygiene and prevention from morbidities.

**Keywords:** Slum Area, Adolescent Girls, Menstrual Hygiene, Reproductive Morbidity.

**DOI:** 10.25258/ijcpr.18.1.36

---

This is an Open Access article that uses a funding model which does not charge readers or their institutions for access and distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/4.0>) and the Budapest Open Access Initiative (<http://www.budapestopenaccessinitiative.org/read>), which permit unrestricted use, distribution, and reproduction in any medium, provided original work is properly credited.

---

### Introduction

Menstruation is a natural biological process but it is still a taboo in many societies including the Indian society as it is considered an unclean and dirty process. This is one of the biggest problems faced by adolescent girls and it is still a neglected issue in lower socio-economic groups of the society [1].

The term adolescence comes from Latin word meaning "to grow to maturity" [2]. WHO has defined adolescence as a period between 10-19 years. This

is the period of transition from childhood to adulthood which are formative years when maximum amount of physical, psychological and behavioral changes takes place [3].

Menstruation is surrounded by various psychological and religious barriers due to lack of knowledge about the scientific process of menstruation. Many girls residing in slum areas are unaware of what actually happens during menstrual

cycle. Although menstruation is a natural process, it is linked with several perceptions and practices within the community, which sometimes may result in adverse health outcomes [4].

Hygiene during menstruation is an inevitable part of woman's life. Various aspects such as physiology, pathology and psychology of menstruation have been found to associate with health and well-being of women; hence, it is an important issue concerning morbidity and mortality of female population [5]. It is during this period a woman is regarded most vulnerable for developing any kind of reproductive tract infections, urinary tract infections, and various sexually transmitted diseases. Menstrual hygiene deals with special healthcare needs and requirements of women during monthly menstruation or menstrual cycle [6]. Therefore, increased knowledge about menstruation right from childhood may escalate safe practices and may help in mitigating the suffering of millions of women [4]. Objectives of the present study was to assess the knowledge, attitude and practice of menstrual hygiene and evaluate the relation between menstrual hygiene and reproductive morbidities in adolescent girls of slum area of Dehradun district, Uttarakhand, India.

#### Material & Methods

The present study was conducted in slum area of Uttarakhand, India during a period from January 2025 to August 2025.

**Methods:** Data was collected by house-to-house survey in the community, and girls were asked questions using a predesigned questionnaire specially designed for this purpose.

Before the interview, a verbal informed consent was taken from the parent or guardian of the adolescent

girl and ascent was taken from adolescent girl. All the respondents were assured that the information collected would be confidential throughout the study.

**Questionnaire:** The questionnaire consisted of sociodemographic details, knowledge about menstruation, menstrual patterns and practices, hygiene followed, and associated serious ill-health ranging from dysmenorrhea, menorrhagia, genital tract infections, urinary tract infections, and bad odour.

Socio-economic status was measured by modified B. G. Prasad Socioeconomic classifications. According to this classification, Class I: Upper class, Class II: Upper middle class, Class III: Middle class, Class IV: Lower, and Class V: Lower bellow class (BPL).

At the end of the interview, the girls were educated about facts of menstruation and explained about cleanliness during menses. In addition, all their queries were answered satisfactorily.

**Statistical Analysis:** Data was analysed by using simple statistical methods with the help of MS-Office software. All the data was tabulated and percentages were calculated.

#### Results

In the study, we were interviewed 250 adolescent girls with age group 11 to 20 years in slum of Dehradun district of Uttarakhand. Most of the adolescent girls 176(70.4%) were in age 14 to 16 years. Mean age of age was 14.8 years. Education of majorities of girls 159(63.6%) were secondary. Mothers 136(54.4%) of most of the girls were illiterate.

**Table 1: Showing the demographic profile of adolescent girls**

| Demographic distributions                             | Frequency (N=250) | Percentage |
|---|-------------------|------------|
| <b>Age (Years)</b>                                    |                   |            |
| 11-13 (early adolescent)                              | 1                 | 10.4%      |
| 14-16 (Adolescent)                                    | 176               | 70.4%      |
| >16 (Late Adolescent)                                 | 48                | 19.2%      |
| <b>Education</b>                                      |                   |            |
| No schooling  | 13                | 5.2%       |
| Primary   | 50                | 20%        |
| Secondary   | 159               | 63.6%      |
| Higher secondary                                      | 28                | 11.2%      |
| <b>Mother's Education</b>                             |                   |            |
| Illiterate  | 136               | 54.4%      |
| Primary   | 80                | 36.36%     |
| Secondary   | 29                | 11.6%      |
| Higher secondary                                      | 5                 | 2%         |
| <b>Family Income (Rs.)/month (BG Prasad Modified)</b> |                   |            |
| Class V   | 170               | 68%        |
| Class IV  | 66                | 26.4%      |
| Class III   | 14                | 5.6%       |
| Class II  | 00                | 00         |
| Class I   | 00                | 00         |

According to modified BG Prasad classification, Class V was the socio-economic status of family of

most of the girls 170(68%) i. e most of the family were in BPL categories.

**Table 2: Showing the age at menarche and pattern of menstruation cycle.**

| Variables                                | Frequency | Percentage |
|--|-----------|------------|
| <b>Age at menarche (years)</b>           |           |            |
| 11-13                                    | 171       | 68.4%      |
| 14-16                                    | 70        | 28%        |
| ≥16                                      | 9         | 3.6%       |
| <b>Menstrual cycle</b>                   |           |            |
| Regular                                  | 177       | 70.8%      |
| Irregular                                | 73        | 29.2%      |
| <b>Duration of menstrual flow (days)</b> |           |            |
| ≤3                                       | 165       | 66%        |
| 4-5                                      | 66        | 26.4%      |
| >5                                       | 19        | 7.6%       |

Out of 250 girls, most of the girls 171(68.4%) were attained menarche at the age of 11-13 years. Mean menarche age was 12.7 years. Most of the girls 177(70.8%) had regular menstrual cycle. 73(29.2%)

had irregular. And majorities of girls 165(66%) had less than 3 days of menstrual flow. 66(26.4%) had 4-5 days of menstrual flow.

**Table 3: Showing the practices of hygiene during menstruation cycle.**

| Hygienic Practices                  | Frequency | Percentage |
|-------------------------------------|-----------|------------|
| <b>Material used</b>                |           |            |
| Non-disposable linen                | 138       | 55.2%      |
| Sanitary napkins                    | 112       | 44.8%      |
| <b>No. of pads / day</b>            |           |            |
| 1                                   | 57        | 22.8%      |
| 2-3                                 | 169       | 67.6%      |
| >3                                  | 24        | 9.6%       |
| <b>Re-use of pads</b>               |           |            |
| Yes                                 | 197       | 78.8%      |
| No                                  | 53        | 21.2%      |
| <b>Washed with material</b>         |           |            |
| Water only                          | 180       | 72%        |
| Water and detergent                 | 70        | 28%        |
| Other methods                       | Nil       |            |
| <b>Drying</b>                       |           |            |
| Inside house                        | 36        | 14.4%      |
| Outside house in sunlight           | 214       | 85.6%      |
| <b>Disposal of pads / clothes</b>   |           |            |
| Throw in public dust bin            | 55        | 22%        |
| Indiscriminate through              | 187       | 74.8%      |
| Flush it                            | 8         | 3.2%       |
| <b>Bath during Menstrual period</b> |           |            |
| Yes                                 | 239       | 95.6%      |
| No                                  | 11        | 4.4%       |
| <b>Cleaning of external genital</b> |           |            |
| Yes                                 | 237       | 94.8%      |
| No                                  | 13        | 5.2%       |

In this present study, majorities of girls 138(55.2%) were using non-disposable linen (household non-disposable, non-adsorbent cloth materials) during menstrual flow. Only 112(44.8%) girls were used sanitary napkins. Majorities of girls 169(67.6%) were used 2-3 pad per day during flow period.

Higher percentage 197(78.8%) of girls were reused of pad during menstrual period.

Majorities of girls 180(72%) were cleaned washed material only used of water. Only 70(28%) were used soap (detergent) and water to clean the cloth material. 214(85.6%) girls were dried cloth material

in sunlight. majorities of girls 187(74.8%) were practiced an insanitary method of disposal of materials. Majorities of girls 239(95.6%) were

bathed and 237(94.8%) cleaned external genital parts during menstruation period.

**Table 5: Showing the reproductive health problem in adolescent girls (N=250).**

| Reproductive health problems | Frequency | Percentage |
|------------------------------|-----------|------------|
| Dysmenorrhoea                | 84        | 33.6%      |
| Menorrhagia                  | 7         | 2.8%       |
| Menstrual irregularities     | 55        | 22%        |
| Burning micturition          | 13        | 5.2%       |
| White discharge per vagina   | 11        | 4.4%       |
| Itching in genitalia         | 18        | 7.2%       |
| Total                        | 188       | 75.2%      |

In this present study, out of 250 adolescent girls, 84(33.6%) girls had dysmenorrhea, menstrual irregularities were in 55(22%) girls, burning

micturition was seen in 13(5.2%) girls, 11(4.4%) girls had white discharge and 7(2.8%) girls had menorrhagia. 18(7.2%) girls had itching in genitalia.

**Table 6: Showing the utilization of health care and ICDS facilities.**

| Facilities                                 | Frequency | Percentage |
|--|-----------|------------|
| <b>Health care services</b>                |           |            |
| No   | 162       | 64.8%      |
| Yes  | 88        | 35.2%      |
| <b>Type of health care services (N=88)</b> |           |            |
| Private                                    | 22        | 25%        |
| Public                                     | 46        | 52.27%     |
| Traditional                                | 20        | 22.73%     |
| <b>ICDS scheme</b>                         |           |            |
| No   | 198       | 79.2%      |
| Yes  | 52        | 20.8%      |

In this present study, out of 250 adolescent girls, most of the girls 162(64.8%) were not taken health care services. Only 88(35.2%) girls were utilised health care services for menstruation related problem. Among them 46(52.27%) were visited public Government hospital and 22(25%) were visited private hospital for menstrual related problem. And 20(22.73%) girls were taken traditional treatment in menstrual difficulties. Health services of ICDS scheme were utilized by only 52(2.8%) girls. And majorities of girls 198(79.2%) were not utilized ICDS scheme.

### Discussions

Menstrual hygiene management (MHM) is essential for the health and well-being of adolescent girls, particularly in developing countries [7]. Menstruation, though a natural process, is often surrounded by taboos and stigmas, impacting both physical and psychological health. The onset of menstruation coincides with significant changes in an adolescent girl's life, making proper MHM crucial for dignity, comfort, and preventing infections [8]. In India, adolescent girls face numerous challenges during menstruation, including inadequate sanitation facilities, insufficient menstrual products, and poor education on menstrual health [9]. Cultural taboos exacerbate

these issues, leaving many girls unprepared for menarche, which leads to confusion and poor hygiene practices, increasing the risk of infections [10].

Acharya et al [11], in their study on nutritional status and menarche in adolescent girls in an urban colony of South Delhi found that 64.40% of the adolescent girls had attained menarche. In the study it was observed that 37.5% and 96.70% of the adolescent girls had attained menarche in the age group of 10-14 years and 15-19 years respectively. The variations in mean age at attainment of menarche are the result of genetic and environmental factors. Difference between rural urban groups or between poor and better off girls within given areas are primarily due to differences in health-related concomitants of socioeconomic status, nutrition, hygiene, health care etc [12].

In the present study, we were interviewed 250 adolescent girls regarding menstrual hygiene in slum area of Dehradun. We were seen that most of the adolescent girls 176(70.4%) were in age 14 to 16 years. Mean age of age was 14.8 years. Out of 250 girls, most of the girls 171(68.4%) were attained menarche at the age of 11-13 years. Mean menarche age was 12.6 years. Other study from Meerut, Uttar Pradesh [13] have observed mean age at menarche

of 13.15 and 13.16 years respectively. These differences could be due to differences in geographical, environmental, nutritional, socio-economic factors and general health status of the study subjects. The age of menarche is determined by general health, genetic factors, socioeconomic and nutritional status but with improvement in the nutritional status and general health, it has declined in many populations.

In the present study, most of the girls 170(68%) were belonged to lower socio-economic strata (class V) according modified BG Prasad classifications. 177(70.8%) girls had history of regular menstrual cycle. Hygiene during menstruation is an inevitable part of woman's life. Various aspects such as physiology, pathology and psychology of menstruation have been found to associate with health and well-being of women; hence, it is an important issue concerning morbidity and mortality of female population. In the study, we were seen that majorities of girls 138(55.2%) were used non disposable linen during menstruation period and only 112(44.8%) girls were used sanitary napkins.

In the present study, reuse of material was practiced by 197(78.8%) girls. This indicates that the awareness about menstrual hygiene is poor could be due to unauthorized habitations, low literacy, negative attitude of community as well as poor establishment and access of health care services.

The present study revealed, 70(28%) girls were used soap (detergent) and water to clean the cloth material. This difference in reports could be due to poverty, illiteracy both in girls as well mothers, poor awareness, dominance of cultural, religious and traditional practices, poor access of services from public as well as private sector.

In the present study, practices of personal hygiene including bath during menstruation and cleaning of external genital parts were 239(95.6%) girls. 45% was reported by Devi K from Andhra Pradesh [14].

This present study revealed, 88(35.2%) adolescent girls from slum area were utilized health care services for menstruation related problems. Among them, only 22(25%) were visited private health care services. And 46(52.27%) girls were visited public Government hospital for menstrual related problem. Our government has also established Anganwadi (ICDS) but the in the present study, only 52(20.8%) girls were utilised services form there in this study.

Menstruation is a natural biological process but it is still a taboo in many societies including the Indian society as it is considered an unclean and dirty process. This is one of the biggest problems faced by adolescent girls and it is still a neglected issue in lower socio-economic groups of the society.

Culturally in many parts of India, menstruation is still considered to be dirty and impure [17]. Being a dirty occurrence, a menstruating girl is isolated or forced to drop out of school as access to sanitary napkins in rural/slum areas is low. This cycle is handed over from mother to daughter but the taboo on menstruation remains among them. Lack of awareness resulted in a major problem in India's menstrual hygiene scenario [15].

Other health problems associated with menstrual hygiene are anaemia, prolonged or short periods, infections of the reproductive tract, as well as psychological problems such as anxiety, embarrassment, and shame [15]. Menstruation is considered taboo by many women who feel ashamed even to seek medical advice if they face any health problems related to menstruation. Unhygienic menstrual condition often results in women developing health problems which are further aggravated due to their inability to seek medical help on time. Educating adolescent girls regarding menstrual hygiene is necessary so that their needs are taken into account [16].

### Conclusions

This present study concluded that the reproductive morbidities are more common in adolescent girl of slum region. Dysmenorrhea and menstrual irregularities are the most common morbidities. Illiterate mother, lower socioeconomic strata and lack of awareness of menstruation and its hygiene are the most common factors of reproductive morbidities in adolescent girls. Hence, we should organise regular health check-up camp in slum area to diagnose and treatment of reproductive morbidities in adolescent girls as well as to educate the mothers and adolescent girls for menstruation hygiene and prevention from morbidities.

### References

1. Hiyeswar Borah, Mousumi Krishnatreya, Nibir Nath Sarma. Awareness and Practices Related to Menstrual Hygiene and Associated Problems in Adolescent Girls Residing in Tea Garden Areas of Jorhat, Assam, India. *Indian Journal of Youth and Adolescent Health* 2024; 11(2): 9-14.
2. Bansal RD, Mehra M. Adolescent girls an emerging priority. *Indian J Public Health* 1998; 22(1): 1-2.
3. Ramya V, Reddy MR, Sridevi BK . A Study on Reproductive Morbidity and Menstrual Hygiene among Adolescent Girls of Urban Slum Area of Chitra-durga. *Ntl J Community Med* 2016; 7(3):180-183.
4. Yasmin S, Manna N, Mallik S, Ahmed A, Paria B. Menstrual hygiene among adolescent school students: An in-depth cross-sectional study in

- an urban community of West Bengal, India. *IOSR J Dent Med Sci* 2013; 5:22-6.
5. Bachloo T, Kumar R, Goyal A, Singh P, Yadav SS, Bhardwaj A, et al. A study on perception and practice of menstruation among school going adolescent girls in district Ambala Haryana, India *Int J Community Med Public Health* 2016;3:931-7.
  6. Barathalakshmi J, Govindarajan PK, Ethirajan N, Felix AJ. Knowledge and practice of menstrual hygiene among school going adolescent girls. *Natl J Res Commun Med* 2014; 3:138-42.
  7. Kuhlmann AS, Henry K, Wall LL. Menstrual hygiene management in resource-poor countries. *Obst Gynecol Sur.* 2002;72(6):356-76.
  8. Deshpande TN, Patil SS, Gharai SB, Patil SR, Durgawale PM. Menstrual hygiene among adolescent girls-A study from urban slum area. *Journal of family medicine and primary care.* 2019;7(6):1439-45.
  9. Sivakami M, Maria van Eijk. Effect of menstruation on girls and their schooling, and facilitators of menstrual hygiene management in schools: surveys in government schools in three states in India. *Journal of global health.* 2015;9(1):104-8.
  10. Kuhlmann AS, Henry K, Wall LL. Menstrual hygiene management in resource-poor countries. *Obst Gynecol Sur.* 2005;72(6):356-76.
  11. Sarmukaddam SB, Garad SG. On validity of assumptions while determining the sample size. *Indian Journal of Community Medicine.* 2004; 29(2): 87-91.
  12. Acharya A, Reddaiah VP, Baridalyne N. Nutritional status and menarche in adolescent girls in an urban resettlement colony of South Delhi. *Indian Journal of Community Medicine.* 2006; 31(4): 302-303.
  13. Omidvar S, Begum K. Menstrual pattern among unmarried women from south India. *J Nat Sci Biology Med* 2011; 2:174.
  14. Jaikhani SM, Naik JD, Thakur MS, Langre SD, Pandey VO. Patterns & problems of menstruation amongst the adolescent girls residing in the urban slum. *Sch J App Med Sci* 2014; 2:529-34.
  15. Kaur R, Kaur K, Kaur R. Menstrual hygiene, management, and waste disposal: practices and challenges faced by girls/women of developing countries. *J Environ Public Health.* 2018 Feb 20; 2018:1730964.
  16. Schooler D, Ward LM, Merriwether A, Caruthers AS. Cycles of shame: menstrual shame, body shame, and sexual decision-making. *J Sex Res.* 2005;42(4):324-34.
  17. Patil R, Agarwal L, Khan MI, Gupta SK, Vedapriya DR, Raghavia M, Mittal A. Beliefs about menstruation: a study from rural Pondicherry. *Indian J Med Spec.* 2011;2(1):23-6.