

Original research article

Menstrual Hygiene Practices among College Attending Girls: An Observational Study

Dr Nisha Arya¹, Dr Monika Gupta², Dr Rashmi Tripathi³,
Dr Malini Bhardwaj⁴

¹ Third Year, Resident, Department of Obstetrics and Gynaecology, LN Medical College, Bhopal

² Associate Professor, Department of Obstetrics and Gynaecology, LN Medical College, Bhopal

³ Associate Professor, Department of Obstetrics and Gynaecology, LN Medical College, Bhopal

⁴ Professor, Department of Obstetrics and Gynaecology, LN Medical College, Bhopal

Corresponding Author: Dr Malini Bhardwaj

E-mail: dr.malinibharadwaj@gmail.com

Abstract

Introduction: Menstruation is the visible manifestation of cyclic physiological uterine changes secondary to the shedding of the endometrium caused by changes in the blood levels of the hormones. Today, women have several hygienic methods available to them viz. sanitary pads, tampons, menstrual cups etc., for hygiene maintenance during menses.

AIM: (i) To assess the method(s) of Menstrual Hygiene Management (MHM) preferred by young college going girls.

Material and Methods: This was a single centre, hospital (out-patient) based cross-sectional study. The study participants were 128 college-going girls attending the OPD at JK Hospital, Bhopal for any reason(s). The duration of data collection was three months. We collected data on age, menstrual history, socioeconomic status, educational status, and current & past methods of MHM.

Results: The mean age of the participants was 22.6 (± 2.8) years. The single most preferred/used method of MHM was sanitary pads used by 56% of girls and 30% of girls used ordinary household clothes. The menstrual cups were used only by 6% of girls. Lastly, only 3.1% of girls ever used a reusable sanitary pad. The satisfaction was highest among women using sanitary napkins and dissatisfaction was highest among girls using clothes. Lastly, about 82% of women using clothes for MHM expressed their desire to try/change other methods of the menstrual hygiene management.

Conclusion: Most young girls in our study were using hygienic methods for hygiene management during menstruation, however, the use of reusable methods for menstrual hygiene management was very low.

Introduction

Among females, menstruation is a natural physiological process starting around mid-adolescent age and continuing for most of adult life. Nevertheless, in several cultures and societies especially the conservative ones, menstruation is linked to several misconceptions, taboos, stigma, negative attitudes, and punitive practices(1,2). Consequently, many of the traditional methods of hygiene maintenance during menstruation are unhygienic and ineffective(1,2). Hence, for centuries, women must compromise on a variety of social roles during menstruation secondary to the use of unhygienic products for the management of

menstruation. Collectively, all these factors result in adverse health outcomes(3), especially among adolescent girls and young women(4). Lack of good menstrual hygiene has adverse consequences, including an increased risk of reproductive and urinary tract infections(3,5). Unhygienic methods of menstrual hygiene management including lack of water, sanitation, and hygiene (WASH) facilities have social and economic consequences for women and their families (6). These include absenteeism from work and dropouts from school(7). Insufficient opportunities to practice healthy menstrual hygiene is a well-recognized barrier to education (and work) for girls in low- and middle-income countries(6). A recent systematic review conducted by van Eijk AM et al. (2015) concluded that one in four adolescent girls in India has missed school during periods of menstruation because of poor hygienic practices(5). Further, a qualitative study regarding school absenteeism showed that 24.7% of schoolgirls knew one or more girls who had dropped out of school due to menstruation-related issues(8). Recognizing the impact of MHPs on the health and socio-economic conditions of the women, United Nation (UN) have incorporated targets related to menstrual hygiene into the Sustainable Development Goals (SDGs)(9).

To reduce the negative impact of unhygienic menstrual practices, governments, not-for-profit organizations, and private companies have devised various strategies(10,11). Private companies have designed and developed a variety of products that can be used for the hygienic management of menstruation. Several not-for-profit organizations including self-help groups have been involved in the production of low-cost products for MHM. The government of India have devised a multi-pronged strategy for dealing with MHM(10,11). This includes increasing awareness among adolescent girls and young women regarding MHM. Secondly, the government also provides subsidies on a variety of products used for MHM e.g., sanitary pads (both reusable & disposable)(10,11). Despite the availability of diverse types of products for MHM, a woman might not use these products because of multiple reasons(5,12). Before a local strategy can be devised to increase the uptake of recommended methods of MHM, it is prudent to determine the prevailing practices and awareness among adolescent girls and young women regarding MHM. Hence, this study was designed to determine the methods of menstrual hygiene management currently employed by college going girls/women in Bhopal City, Madhya Pradesh. We tried to answer the following two research questions by the means of this study.

1. What is the preferred method of menstrual hygiene management among college-going girls ?
2. What is the level of awareness about the different methods of MHM?

2 Material and Methods:

2.1 Study Design: This was a single centre, hospital (out-patient) based, cross-sectional, observational study.

2.2 Study Settings: The present study was conducted at the Department of Obstetrics & Gynaecology, LN Medical College, Bhopal. It is a tertiary care institute. The data collection for the present study was initiated after the research protocol was approved by the Institute's Ethical Committee on Human Research.

2.3 Study Duration: The total duration of the study was 3 months.

2.4 Study Outcomes: Primary Outcome: The type of product used for Menstrual Hygiene Management (MHM). **Secondary Outcome:** (i) Absenteeism from college during menstruation (ii) Satisfaction with the current method of the MHM method. (iii) Awareness of various methods of MHM.

2.5 Sample Size Calculation: Using the prescribed formula for prevalence, the minimum required sample size for this study was calculated as 110(13). All participants who fulfilled the selection criteria were recruited into the present study until the desired sample size was completed.

2.6 Participants' recruitment: The participants were recruited into the study after verifying that they fulfilled the following selection criteria.

2.6.1 Inclusion Criteria:

- College going girls attending the OPD of JK Hospital ,Bhopal and giving consent to participate in the study.

2.6.2 Exclusion Criteria:

- Girl's refusal to participate in the study.

2.7 Sampling Methodology: We employed a systematic random sampling method to recruit participants for the preferred study(14). Girls coming to the OPD department of the JK Hospital was approached for recruiting participants for the study. All women were screened using the selection criteria algorithm. Those agreeing to participate in the study were recruited in the study.

2.8 Informed Consent: All the questions from participants about the study procedure, risk, and data privacy were answered. The participants were informed and explained that they have the right to withdraw from the study at any point in time. A bi-lingual (Hindi & English) consent form was drafted following the prescribed guidelines for research on human participants to obtain written informed consent for the study.

2.9 Data Collection: The data were collected in a paper-based questionnaire. For the present study, the author adopted the "instrument development model" as suggested by *Schifferdecker & Reed* (2009) for a mixed-method study(15). The questionnaire was designed following an in-depth interview conducted with 25 women. The questionnaire had 4 parts as follows:

- Part 1: Demographics detail
- Part 2: Menstrual History.
- Part 3: Current practices regarding MHM.
- Part 4: Knowledge about different methods of MHM

2.10: Source of Data: one to one, face-to-face, quantitative questionnaire-based interview. The data were collected in an enclosed chamber ensuring the privacy of the participants. The data were collected by the principal investigator.

2.11 End Point of Study: The study was terminated if: (i) A participant decided to withdraw from the study. (ii) After completion of the data collection.

2.12 Statistical analysis plan: The primary outcome was the prevalence of different methods of Menstrual Hygiene Management currently used by participants. The coded data were imported into Stata 16.1 version for analysis. For the continuous data, the author calculated the mean, median, mode, standard deviation, and inter-quartile range. For discrete data, the author calculated and reported frequency, proportion, and percentage. Continuous variables in the two comparison groups were analyzed using a student's t-test. Categorical variables were analyzed using chi-square (χ^2) tests. A P -value < 0.05 was considered statistically significant.

2.13 Funding: There was no funding for this study. The participants were not paid any type of fees/incentives/freebees to participate in the study.

RESULTS:

To recruit the participants for the present study, we approached a total of 160 women: 20 women were excluded following selection criteria, 12 women refused to participate in the study, and the remaining 128 women were enrolled in the present study. The mean age of the participants was 22.6 (± 2.8) years. Most women were enrolled in an undergraduate course at a college (Table 1). About 88% of the participants were single (unmarried) and the remaining 11% were married.

Table 1: Demographic details of participants (n=128)

Variable	n	%
Age group		
18-21	78	60.9
22-25	34	26.7
26-30	16	12.5
Education Level		
UG	75	58.6
PG	53	41.4
Marital Status		
Single	114	89.1
Married	14	10.9

Table 2 gives details about the menstrual history of the participants. The mean age of menarche was 13.7 years. The mean duration of the menstrual cycle was 31.2 days. The median duration of menses flow during the menstrual cycle was 4 days (Inter Quartile Range =3-5 days). In the last 12 months, about 30% of participants reported absenteeism from college secondary to menstrual issues.

Table 2: Menstrual history of the participants (n=128)

Variable	Value	
Age at Menarche	13.7 years	
Duration of a normal menstrual cycle	31.2	
Duration of menses flow (Median)	4 days	
College Absenteeism due to Menses in the last 12 months		
Yes	38	29.7
No	90	70.3
Knowledge about menstruation before Menarche		
Yes	82	64.1
No	46	35.9

Figure 1 illustrates the current menstrual hygiene practices among study participants. The most common method used for MHM was disposable sanitary pads (56%) followed by simple cloth (30%) and menstrual cups were the least commonly used method (6%).

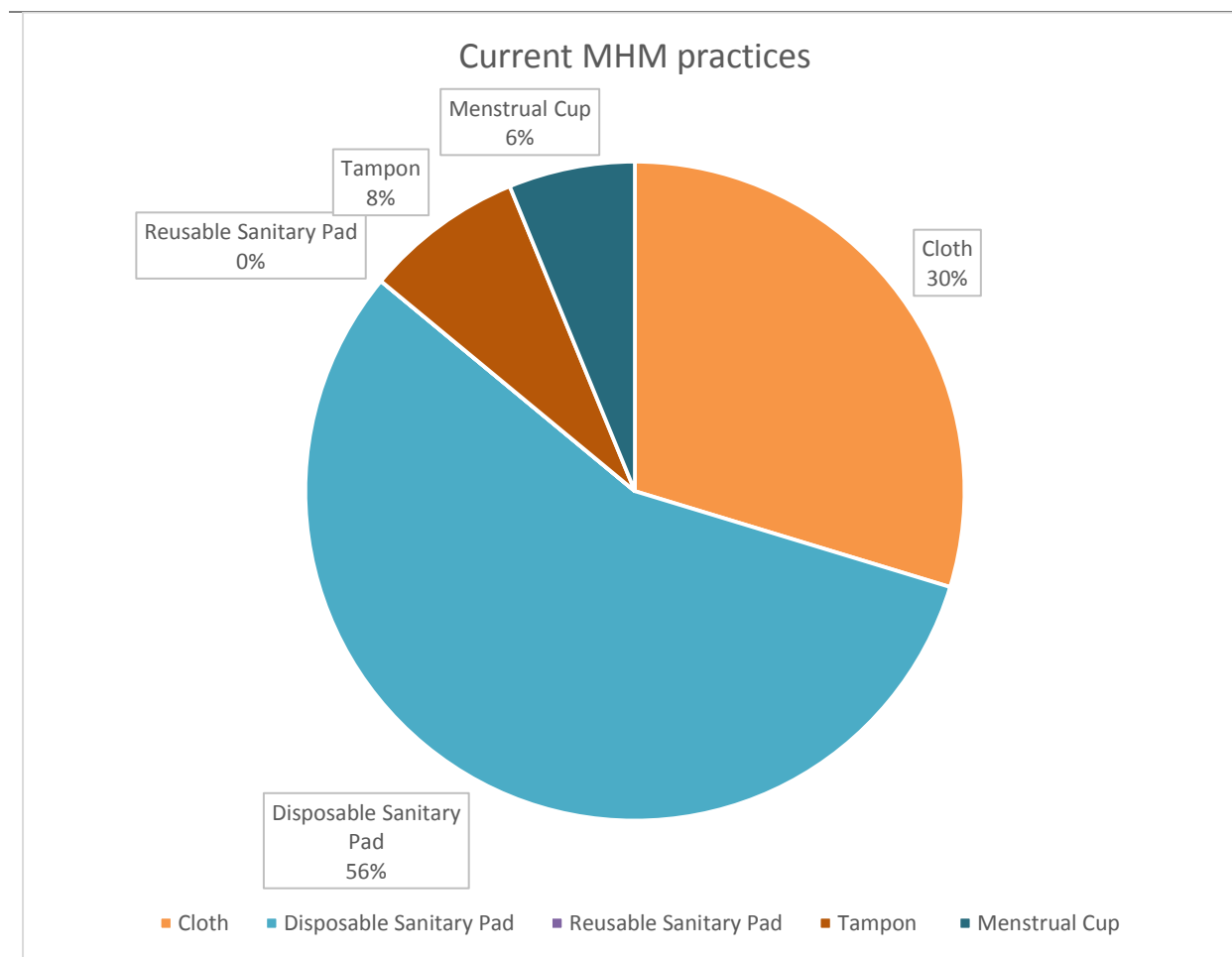


Figure 1: Current Menstrual Hygiene Management

Table 3 shows the degree of satisfaction and desire to try other methods of menstrual hygiene. The satisfaction was highest among women using disposable sanitary pads (77%) and dissatisfaction was highest among women using cloth (66%). Further, the desire to try/change to another method of MHM was also highest among women who were currently using clothes (82%).

Table 3: Satisfaction with the current method of MHM

Method	Yes	No
Cloth	34.2	65.8
Disposable Sanitary Pad	76.4	23.6
Reusable Sanitary Pad	NA	-
Tampon	70.0	30.0
Menstrual Cup	67.0	33.3
Desire to CHANGE/TRY other methods of MHM		
Cloth	81.6	18.4
Disposable Sanitary Pad	26.4	73.6
Tampon	20.0	80.0
Menstrual Cup	25.0	75.0

Table 4: Knowledge about existing methods of MHM (n=128)

Method	n	%
Ever <u>HEARD</u> of any of the following methods?		
Cloth	128	100.0
Disposable Sanitary Pad	128	100.0
Reusable Sanitary Pad	18	14.1
Tampon	46	35.9
Menstrual Cup	11	8.5
Ever <u>USED</u> any of the following methods?		
Cloth	77	60.2
Disposable Sanitary Pad	103	80.4
Reusable Sanitary Pad	4	3.1
Tampon	11	8.5
Menstrual Cup	8	6.2

Table 4 shows the knowledge about and experience with different methods of MHM ever since menarche. The knowledge about reusable sanitary pads (14%) and menstrual cups (8.5%) is low. Further, the percentage of women who used reusable sanitary pads (3.1%) and menstrual cups (6.2%) was even lower.

Discussion:

Reproductive and sexual health is one the crucial issue for any young woman. The transition from childhood to adulthood occurs during the adolescence period which is characterized by major biological changes like physical growth, sexual maturation, and psycho-social development. During this phase of growth, the girls first experience menstruation and related problems which are marked by feelings of anxiety and eagerness to know about this natural phenomenon. Although menarche is celebrated in some regions of India, in most parts of India menstrual phenomenon is still considered a sensitive issue, surrounded by a wide range of restrictions, taboos, superstitious beliefs and thoughts(1,2,16). This leads to culmination in repression of feelings which can cause intense mental stress and seeking health advice from quacks and other unqualified persons (12,17). Age, socioeconomic status, literacy status of the individual as well as parents, occupation of the mother, socioeconomic status etc. are some of the factors that influence hygiene practices during the menstrual period(5,6,18). Additionally, the source(s) of information about menstruation and its management also plays a significant role(5). The present study was conducted among 128 college attending young girls (18-27 years) to study the current and past practices related to menstrual hygiene management.

At the present, the mean age of menarche was 13.7 years. A study Kumari by et al. reported that the mean age of attainment of menarche was 13.4 years(19). In a similar study done in Rural West Bengal, the age of menarche among girls was 14.1 years(20). In another study from Andhra Pradesh on high school girls, all students had attained menarche between 12 and 13 years(21).

Numerous studies report girls being caught unawares by menarche, and their subsequent feelings of stress, anxiety, depression, dirtiness, and anger. A systematic review of Indian studies conducted by van Eijk AM et al. concluded that about half of Indian adolescent girls started menarche unaware of its cause, with only a quarter understanding the source of bleeding(5). In the present study, about 64% of the young women were aware of

menstruation before their menarche. A study conducted by Sharma N et al. among female medical students reported that about 67 % of girls had previous knowledge of menstrual practices before attaining menarche(22). Similar results are also reported by Dasgupta A et al., Deo DS et al., and Juyal et al., among college going girls (23–25). However, a study performed among adolescent schoolgirls in Nagpur by Thakre SB et al., reported that only 37% of the girls were aware of menstruation before menarche(26). Dasgupta A et al. and Thakre SB et al. reported that inculcation of menstrual habits was mainly done by mothers(23,26). While the importance of puberty education is universally recognised, the question of who should educate girls is debated. India's National Health Mission programme has involved the female community health worker for this purpose with variable results, with mothers identified as the most frequent information source(27,28). An MHM package thus needs to strengthen mothers' practical MHM knowledge to support girls, while schools teach physiology.

Using a hygienic method of menstrual protection is important for women's health and personal hygiene. In some countries using a hygienic method for MHM is regarded as a sign of women/girl empowerment. In the present study, about 70 % of the girls were using hygienic methods (e.g., sanitary pads, tampons, and menstrual cups) for MHM. As per the latest round of the National Family Health Survey (NFHS-5), about 61% of young girls aged 15-24 years in Madhya Pradesh were using a hygienic method for MHM(29). According to NFHS-4 conducted in 2015/16 about 38% of girls in Madhya Pradesh were using the hygienic method for MHM(29). Method wise, in the present study, most of the girls were using disposable sanitary pads/napkins (56%) for MHM followed by ordinary (and often reusable) household cloths (30%), 8% were using tampons and menstrual cups were the least commonly used method (6%). According to NFHS-5, in Madhya Pradesh, about 50% of girls were using sanitary napkins, 64% used cloth, 12% used locally prepared napkins, 1% used tampons and only 0.3% used menstrual cups(29). A study by Sharma N et al. reported that about 86% of female medical students were using sanitary napkins as an absorbent material, while 10.79% were using cloth during their menstrual cycle(22). More than half of the girls from an urban area were using sanitary napkins, while in a rural area significantly a smaller number of girls (29%) were doing so. Another study by Meshram et al. reported that 78.5% of young girls used sanitary pads(30). Eijk et al. concluded that commercial pads were more commonly used in urban settings or schools, with girls in rural areas and community-based studies mainly dependent on clothes (5). In contrast to our findings a study by Kaur et al., in the rural background found that cloth (44.0%) was the major absorbent material followed by a sanitary napkin (36.2%)(31). The study by Das et al., in Singur, West Bengal also reported similar trends(20).

As mentioned above, in our study only 8% of college girls were using tampons and only 6% of girls reported using menstrual cups. According to NFHS-5, in Madhya Pradesh, only 1% of girls reported using tampons and only 0.3% used menstrual cups(29). The systematic review by van Eijk AM et al., also reported that the use of menstrual cups was close to zero among more than 138 studies included in the systematic review(5). Only one study (in urban Karnataka) mentioned tampons, with five girls reportedly using them(32). One study in urban Tamil Nadu asked about materials inserted into the vagina (reported by 26.9%), but it was unclear if these were tampons(33). Menstrual cups may be economically advantageous given that one cup can last up to 10 years; they were acceptable for schoolgirls in Nepal(34) and Kenya(35). The low use of insertable products may be related to concerns about virginity, despite the invalidation of a connection between virginity and breaking the hymen(36,37). Disposal of commercial pads is a matter of concern because of their high content of non-

biodegradable components. Safe disposal will become a growing problem across India as more females turn to commercial pads.

Lastly, about 30% of girls in our study reported missing college during menstruation in the last 12 months. van Eijk et al., reported that about 25% of girls reported that they did not attend school during menstruation(5). Qualitative studies report that school absenteeism is associated with poor MHM interventions(38,39), but so far only WASH studies have shown an association between toilet improvement and absenteeism, and improved enrolment of adolescent girls when girls-only toilets were constructed.

Conclusion:

Most young girls in our study were using hygienic methods for hygiene management during menstruation, however, still one-third of girls were still using ordinary clothes. Further, the use of reusable methods for menstrual hygiene management was very low. The girls should be educated about the selection of a sanitary menstrual absorbent and its proper disposal. This can be achieved through educational television programmes, advertisement, knowledgeable parents, so that she does not develop psychological upset and make her to feel free to discuss menstrual matters without any inhibitions.

References:

1. Guterman M MPgM. Menstrual Taboos Among Major Religions. *Internet J World Heal Soc Polit* [Internet]. 2007 Oct [cited 2022 May 3];5(2). Available from: <https://ispub.com/IJWH/5/2/8213>
2. Garg S, Anand T. Menstruation related myths in India: strategies for combating it. *J Fam Med Prim Care* [Internet]. 2015 [cited 2022 May 3];4(2):184. Available from: </pmc/articles/PMC4408698/>
3. Roeckel S, Cabrera-Clerget A, Yamakoshi B. Guide to menstrual hygiene materials. Unicef. 2019;38.
4. Ha MAT, Alam MZ. Menstrual hygiene management practice among adolescent girls: an urban–rural comparative study in Rajshahi division, Bangladesh. *BMC Womens Health*. 2022 Dec;22(1).
5. Van Eijk AM, Sivakami M, Thakkar MB, Bauman A, Laserson KF, Coates S, et al. Menstrual hygiene management among adolescent girls in India: A Systematic review and meta-analysis. *BMJ Open*. 2016;6(3).
6. Sumpter C, Torondel B. A Systematic Review of the Health and Social Effects of Menstrual Hygiene Management. *PLoS One* [Internet]. 2013 Apr 26 [cited 2022 May 3];8(4):e62004. Available from: <https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0062004>
7. Reddy PJ, Usha D, Reddy GB, Reddy KK. Reproductive Health Constraints of Adolescent School Girls.
8. Gold-Watts A, Hovdenak M, Daniel M, Gandhimathi S, Sudha R, Bastien S. A qualitative study of adolescent girls' experiences of menarche and menstruation in rural Tamil Nadu, India. *Int J Qual Stud Health Well-being*. 2020 Jan 1;15(1).
9. Infographic MHM and SDGs | MHDday [Internet]. [cited 2022 May 3]. Available from: <https://menstrualhygieneday.org/project/infographic-mhm-and-sdgs/>
10. Menstrual Hygiene Scheme(MHS) :: National Health Mission [Internet]. [cited 2022 May 3]. Available from: <https://nhm.gov.in/index1.php?lang=1&level=3&sublinkid=1021&lid=391>
11. Operational Guidelines Promotion of Menstrual Hygiene among Adolescent Girls (10-19 Years) in Rural Areas.

12. Sharma S, Mehra D, Brusselsaers N, Mehra S. Menstrual hygiene preparedness among schools in india: A systematic review and meta-analysis of system-and policy-level actions. *Int J Environ Res Public Health*. 2020 Jan 2;17(2).
13. Charan J, Biswas T. How to Calculate Sample Size for Different Study Designs in Medical Research? *Indian J Psychol Med [Internet]*. 2013 Apr [cited 2022 Jan 30];35(2):121. Available from: /pmc/articles/PMC3775042/
14. Systematic random sampling [Internet]. [cited 2022 Apr 28]. Available from: http://conflict.lshhtm.ac.uk/page_35.htm
15. Schifferdecker KE, Reed VA. Using mixed methods research in medical education: Basic guidelines for researchers. *Med Educ*. 2009;43(7):637–44.
16. Kumar A, Srivastava K. Cultural and social practices regarding menstruation among adolescent girls. 2011 Oct [cited 2022 May 3];26(6):594–604. Available from: <https://pubmed.ncbi.nlm.nih.gov/21932979/>
17. Srinivas P. Perception, Knowledge and Practices Regarding Menstruation among School Going Girls in Karaikal. *IOSR J Dent Med Sci e-ISSN [Internet]*. 2016 [cited 2022 May 3];15(1):27–34. Available from: www.iosrjournals.org
18. Phillips-Howard PA, Caruso B, Torondel B, Zulaika G, Sahin M, Sommer M. Menstrual hygiene management among adolescent schoolgirls in low- and middle-income countries: Research priorities. *Glob Health Action*. 2016;9(1).
19. Kumari S, Sood S, Davis S, Chaudhury S. Knowledge and practices related to menstruation among tribal adolescent girls. *Ind Psychiatry J [Internet]*. 2021 Oct [cited 2022 May 3];30(Suppl 1):S160–5. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/34908683>
20. Das DK, Chakraborty T, Chakraborty S, Tripura K, Datta A, Pal A. A cross sectional study on menstrual hygiene practices among the village women attending a primary health centre, Tripura. *Int J Community Med Public Heal*. 2019;6(8):3332.
21. Shanbhag D, Shilpa R, D'Souza N, Josephine P, Singh J, Goud BR. Perceptions regarding menstruation and practices during menstrual cycles among high school going adolescent girls in resource limited settings around Bangalore city, Karnataka, India. *Int J Collab Res Intern Med Public Heal*. 2012;4(7):1353–62.
22. Sharma N, Sharma P, Sharma N, Wavare RR, Gautam B, Sharma M. A cross sectional study of knowledge, attitude and practices of menstrual hygiene among medical students in north India. *J Phytopharm*. 2013;2(5):28–37.
23. Dasgupta A, Sarkar M. Menstrual Hygiene: How Hygienic is the Adolescent Girl? *Indian J Community Med [Internet]*. 2008 [cited 2022 May 3];33(2):77. Available from: /pmc/articles/PMC2784630/
24. Indmedica - Indian Journal of Community Medicine [Internet]. [cited 2022 May 3]. Available from: <http://www.indmedica.com/journals.php?journalid=7&issueid=28&articleid=306&action=article>
25. A comparative study on menstrual hygiene among urban and rural adolescent girls of West Bengal - Document - Gale Academic OneFile [Internet]. [cited 2022 May 3]. Available from: <https://go.gale.com/ps/i.do?id=GALE%7CA396200976&sid=google Scholar&v=2.1&it=r&linkaccess=abs&issn=22494863&p=AONE&sw=w&userGroupName=anon~16daac63>
26. Menstrual Hygiene: Knowledge and Practice among Adolescent School Girls of Saoner, Nagpur District. [cited 2022 May 3]; Available from: www.jcdr.net
27. Sharma K. Age at menarche in northwest Indian females and a review of Indian data. *Ann Hum Biol*. 1990;17.
28. Garg S, Sharma N, Sahay R. Socio-cultural aspects of menstruation in an urban slum in Delhi, India. *Reprod Health Matters [Internet]*. 2001 [cited 2022 May 3];9(17):16–

25. Available from: <https://pubmed.ncbi.nlm.nih.gov/11468832/>
29. National Family Health Survey (NFHS-5), India, 2019-21: Madhya Pradesh. Mumbai; 2021.
30. Meshram PD, Ratta AK, Kumar V. Perceptions and practices related to menstruation amongst tribal adolescent girls in rural field practice area of tertiary health care institute in Mumbai. *Int J Community Med Public Heal*. 2020;7(4):1313.
31. 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;2018.
32. Pokhrel S. Impact of Health Education on Knowledge, Attitude and Practice Regarding Menstrual Hygiene among Pre University Female Students of a College Located in Urban Area of Belgaum. [cited 2022 May 4];3(4):38–44. Available from: www.iosrjournals.org
33. Ramya S. A CROSS SECTIONAL STUDY ON MENSTRUAL HYGIENE PRACTICES AMONG ADOLESCENT GIRLS IN TRIBAL POPULATION IN TAMILNADU [Internet]. [Chennai]: THE TAMILNADU DR. M.G.R. MEDICAL UNIVERSITY CHENNAI; 2019 [cited 2022 May 4]. Available from: <http://repository-tnmgrmu.ac.in/13786/1/201500220ramya.pdf>
34. Oster E, Thornton R. DETERMINANTS OF TECHNOLOGY ADOPTION: PEER EFFECTS IN MENSTRUAL CUP TAKE-UP. *J Eur Econ Assoc* [Internet]. 2012 Dec 1 [cited 2022 May 4];10(6):1263–93. Available from: <https://onlinelibrary.wiley.com/doi/full/10.1111/j.1542-4774.2012.01090.x>
35. Mason L, Laserson KF, Oruko K, Nyothach E, Alexander KT, Odhiambo FO, et al. Adolescent schoolgirls' experiences of menstrual cups and pads in rural western Kenya: a qualitative study. *Waterlines*. 2015 Jan 1;34(1):15–30.
36. Goodyear-Smith FA, Laidlaw TM. Can tampon use cause hymen changes in girls who have not had sexual intercourse? A review of the literature. *Forensic Sci Int*. 1998 Jun 8;94(1–2):147–53.
37. Emans SJ, Woods ER, Allred EN, Grace E. Hymenal findings in adolescent women: impact of tampon use and consensual sexual activity. *J Pediatr* [Internet]. 1994 [cited 2022 May 4];125(1):153–60. Available from: <https://pubmed.ncbi.nlm.nih.gov/8021768/>
38. Kelly O, Gahagan S. Adolescent girls define menstruation: A multiethnic exploratory study. *Health Care Women Int*. 2010;31(9):831–47.
39. Chandra-Mouli V, Patel SV. Mapping the knowledge and understanding of menarche, menstrual hygiene and menstrual health among adolescent girls in low- and middle-income countries. *Reprod Health*. 2017 Mar 1;14(1).