

Original research article**Knowledge, attitude and practice of menstrual hygiene in adolescent schoolgirls of rural area in central India**¹Dr. Preeti Kori, ²Dr. Sohan Singh Mandloi, ³Dr. Shivangi Rajpoot ⁴Dr. Madhav Kadam¹Associate Professor, Department of Medicine, Government Medical Collage, Ratlam, Madhya Pradesh, India²Associate Professor, Department of Medicine, Government Medical Collage, Ratlam, Madhya Pradesh, India³Tutor, Department of Biochemistry, Government Medical Collage, Ratlam, Madhya Pradesh, India⁴Assistant Professor, Department of Biochemistry, N.S.C, Government Medical Collage, Khandwa, Madhya Pradesh, India**Corresponding Author:**Dr. Madhav Kadam (kmadhav322@gmail.com)**Abstract**

Background: Menstruation is accompanied by a cultural taboo in almost every society in the world. This indicates an urgency to investigate girls, menstrual needs, to inform effective responses and educate them about the right strategies of menstrual hygiene, attitudes and practices. The aim of our study was to assess the knowledge, attitude and practices about menstrual hygiene among adolescent school girls from rural areas of Central India.

Methods: This was a cross sectional study conducted among secondary schools and high school girls of rural area of central India, using predesigned questionnaire after obtaining informed consent. Questionnaire was based on Knowledge, attitude and practice related to menstrual hygiene.

Results: In our study, total of 130 adolescent school girls was enrolled; most of the students had attained menarche by 12yrs of age. 86.15% were lacking primary knowledge about menstruation, and 80% of our participants had good knowledge about cleanliness of undergarments, and 65% of students knew that menstruation was a physiological phenomenon and 71% of the participants, still believed in the taboos and myths associated with menses and 30% were shy about carrying sanitary products to school. 63.85% participants still used cloth and most worrisome finding of our study is that 63% of our students did not feel comfortable to approach their family/elders/health care workers to solve their queries about menstruation.

Conclusions: The low level of knowledge among participants is evident from their unpreparedness while entering menarche and their strong views of menstruation as social taboo can be judged from their various restrictions, owing to such strong socio-cultural beliefs and practices. Group discussions, media campaigns, sex education in schools are required to overcome taboo associated with menstruation.

Keywords: Menstrual hygiene, adolescent schoolgirls, knowledge, attitude, practice

Introduction

Adolescent girls constitute a vulnerable group not only with respect to their social status but also in relation to their health. Menstruation is accompanied by a cultural taboo in almost every society in the world. Although very common issue of everyday of life, menstruation is associated with many menstruations negative attitude in young girls the practice of good menstrual hygiene reduces the incidence of reproductive tract infection (RTI). Some of the common traditional and unhygienic practices includes use of old clothes as pads after recycling and use of ash endangering menstrual hygiene which has long term implications for their reproductive health^[1].

Thus, the consequences of RTI are severe and may result in significant negative impact to a woman's health including chronic pelvic pain, dysmenorrhea and in severe cases infertility.

The young population is seen to be trapped and confused due to the different schools of thoughts at home and the outer world. This indicates an urgency to investigate girls, menstrual needs, to inform effective responses and educate them about the right strategies of menstrual hygiene, attitudes and practices^[2]. India is a country of contrasts, with extreme wealth, poverty and gender-related disparities, which results in significant variation in health and social indicators among girls and women^[3]. There is empirical evidence that of the 113 million adolescent girls, 68 million attends about 1.4 million schools, with poor

MHM (Menstrual hygiene management) practices and cultural taboos considered to be impediments to their school attendance. Therefore, it is imperative to recognize the importance of health, education and well-being of the young girls [4-6].

Government of India is now making efforts in this direction, the menstrual hygiene scheme was launched in 2011, due to which the front-line functionaries get incentives to mobilize adolescents, provide them with information as well as encourage menstrual hygiene and use of sanitary products.

They also promote toilets in homes ensuring separate and cleaner toilets for girls in schools in consultation with village health and sanitation committee [1]. To understand the consequences and importance of menstrual hygiene practices among adolescent girls, it is important to study the current practices about the same so that future interventions can be planned accordingly.

Therefore, the aim of our study was to assess the knowledge, attitude and practices about menstrual hygiene among adolescent school girls from rural areas of central India.

Material and Methods

A School based cross sectional study was conducted by Department of Community Medicine, in a tertiary care center. Central India. The study period was period for six months from January 2022 to June 2022 among secondary schools and high school girls of rural area of Central India.

The study protocol was presented before the institutional ethical committee and consent was obtained. Adolescent girls between 10-19 years of age were selected to maximize the likelihood of attained menarche and were aware of the information on menstrual hygiene, maintenance and waste disposal.

To collect data, self-administered questionnaire were employed. After reviewing relevant literature, questionnaires were adopted and modified.

A predesigned questionnaire was distributed to the girls and was asked to fill it. A health talk regarding physiology of menstruation, menstrual hygiene, eating habits, dressing sense, role of exercise and other vital issues was given and girls were advised to seek medical advice when needed.

Data was entered in Microsoft excel sheet systematically. Categorical data was analyzed. Statistics was taken out in percentages for all the variables. P value < 0.05 considered statistically significant.

Results

A total of 130 adolescent girls were included in the study, who meets the inclusion criteria. Majority of the students 70 (53.8%) was belonged to the 15-19 yrs age group while the rest 60 (46.2%) belonged to 10-14yrs group (Table 1).

Table 1: Age wised distribution of the respondents

Age group	No. of students	Percentage
Early adolescent (10-14 yrs)	60	46.2%
Late adolescent (15-19 yrs)	70	53.8%

65 and 62 students belonged to class 2 and 3 socioeconomic group according to modified Kuppuswamy classification (Table 2).

Table 2: Socio economic status according to modified Kuppuswamy classification

Socio economic Status	No. of students	Percentage
Class 1	2	1.5%
Class 2	65	50%
Class 3	62	47.7%
Class 4	1	0.7%
Class 5	0	0%

84.6% of our participants had attained menarche at less than 12yrs, 6.92% attained menarche beyond 14yrs, while the rest attained in between 12-14yrs age.70% claimed to have regular cycles, and 63.85% used cotton cloth during menstruation. 76.15% had 2-7 day flow, 56.3% had normal quantity of menstruation during cycles; 72.3% had complaints of dysmenorrhea and 60.77% gave history of passage of clots (Table 3).

Table 3: Characteristics of Menstrual cycle among study participants

Age at menarche	No. of students	Percentage
<12 yrs	110	84.61
12-14 yrs	12	9.23
>14 yrs	8	6.15
Menstrual cycle		
Regular	91	70
Irregular	39	30

Sanitary device used		
Cloths	83	63.85
Sanitary pad	47	36.15
Duration of cycle		
<2days	5	3.85
2-7 days	99	76.15
>7 days	26	20
Amount of menstruation		
Scanty	27	20.77
Normal	73	56.15
Excess	30	23.07
Dysmenorrhea		
Present	94	72.31
Absent	36	27.69
Passage of clots		
Occasional	79	60.77
Always	51	39.23

A total 112 (86.2%) Students claim to not have received facts and details prior to our study regarding menstruation and menstrual hygiene. Of those who have received we see that parents (50%) and closest family play the most significant impact in educating the children regarding menstruation.

Only 6% of our respondents were aware about menstruation prior to attaining menarche-simply implying how unprepared they were for the same. Facts about the age of menarche, development of secondary sexual characters were known to 34% of the respondents, while 38% had partial knowledge about it. The information regarding a normal menstrual cycle was known to 46% of participants, and 32% had fractional knowledge about it. Around 21% had no idea that foul smelling bleeding or recent changes in bleeding duration or pattern was alarming (Table 4).

Table 4: Knowledge about menstruation

Question	Knows	Knows partially	Does not know
Knew about menstruation prior to menarche.	6%	46%	48%
Normal age of menarche, development of sexual characters.	34%	38%	28%
Knows what is normal duration of cycle, normal flow, normal duration of flow.	46%	32%	22%
Cause of menstruation/how does it occur?	40%	49%	11%
Foul smell, recent change in quantity (heavy/scanty) or duration (<2day/>7 days) of flow may be pathological.	46%	33%	21%
What material should be used as the absorbent during menstruation?	16%	54%	30%
How frequently should it be changed?	27%	60%	13%
Pad purchase & replacement technique.	34%	62%	4%
Knows method of disposal of used sanitary devices.	52%	42%	6%
Usage of clean undergarments, forms the most important part of personal sanitary hygiene.	80%	16%	4%
During menstruation external genitalia must be cleaned with soap and water.	48%	47%	5%
If reusable material is being used only after washing cleanly and drying in sun as Reusable materials are more prone to cause infection.	35%	30%	35%

While 16% had idea regarding the best material to be used, 34% knew the technique to select the product and 27% were aware about the frequency it has to be changed. But a majority of the participants were in the zone of partial knowledge- 54%, 62% and 60% respectively, and seemed to have multiple unsolved queries. The methods of disposal also followed the same trend- with 52% knowing exactly how to discard the waste and 42% still left doubtful.

Whilst 80% of our participants had good knowledge about cleanliness of undergarments, menstrual hygiene was known to only 48% (Table 4). There seemed to be poor knowledge about sterilisation of cloths and its usage.

A total 65% of our participants regarded menstruation as a physiological phenomenon, yet there remained 5% who claimed it to be a disease. Only 5% of our study group could boldly deny the anxiety associated with menstruation- while 38% were of neutral opinion, 57% have expressed concern regarding menstruation and chances in leakage. 56% were neutral about carrying sanitary products to school, while 30% felt cautious. Dysmenorrhea was found to be debilitating to 44% of the 72.31% who experienced it, while 42% had a neutral opinion. The role that food and exercise had on menstruation was accepted by 48% of our respondents. A total 71% of the participants still believed in the taboos and myths associated with menses. 65% believed that for menstrual education to be effective, it should be conducted by women, in small groups (Table 5).

Table 5: Attitudes about menstruation

Attitude	Believes	Maybe	Does not believe
Menstruation is a physiological phenomenon.	65%	30%	5%
There is no anxiety associated with menstruation, and leakage- prior precautionary measures would suffice.	5%	38%	57%
Believes in mother's or personal experience-in selection of menstrual device and does not accept media advices.	78%	19%	3%
There is no hesitation to carry sanitary pads/cloths/tampons to school.	14%	56%	30%
Classical cotton cloths cause more infections compared to commercial pads, as insufficient sanitization is often possible.	52%	34%	14%
Dysmenorrhea has to be treated with pain killers, menstruation is debilitating and bothersome.	44%	42%	14%
Food & exercise has a role in the quantity and duration of menstrual flow.	48%	33%	19%
Visiting temples, entering kitchen, touching food stuff etc. are Restricted.	71%	12%	17%
Talking about menstruation, sanitary products and practices must be restrictive to small groups of individuals in order to be effective.	65%	15%	20%

A total 12% of our study participants feel the need to restrict at home during menstruation, while 34% occasionally agree to the same. The taboo of not visiting temples, entering kitchen or wedding, eating pickles has been followed by 58% of the participants during menstruation even now. Except 4% of the participants, the remaining used their respective menstrual device in an appropriate way-for recommended durations and barring 3%, all the students practiced apt discarding techniques. 22% practiced recommendations of menstrual hygiene correctly, whilst 58% adhered to it to a near perfect level. Only 5% used the commercial washes/ lotions to cleanse external genitalia. A total 55% of those using reusable menstrual equipment- cloths, did not follow the ideal technique of sterilization prior to use. While 53% of our subjects know that improper usage of reusable menstrual devices can cause infections and long-term irreparable abnormalities, 63.85% of participants still use cloth- and 55% of these don't seem to adhere to precise sterilisation techniques before use. A total 49% experience premenstrual symptoms and 62% have significant dysmenorrhea requiring analgesics. A total 63% of our students did not feel comfortable to approach their family/elders/ health care workers do solve their queries and live with doubts (Table 6).

Table 6: Practices about menstruation

Parameter	Yes, always	Sometimes	No, never
I usually absent myself during menstruation, menstruation restricts my daily activities.	12%	34%	54%
I use the sanitary device in appropriate way for the prescribed duration.	56%	40%	4%
I dispose the sanitary device wrapped in a paper, into a dustbin.	42%	55%	3%
In case of reusable sanitary equipment, I wash in hot water with soap/dettol, dry it under sun and store in a safe and clean place.	12%	33%	55%
I have bath daily and clean external genitalia thoroughly and have not experienced any infections in the recent times.	22%	58%	20%
I use specialized washes/lotions to cleanse external genitalia apart from soap & water.	5%	0	95%
I experience emotional, appetite, digestive, breast changes pre-menstrually.	49%	51%	0
During menstruation I experience pain abdomen, pain over lower back and legs associated with vomiting, dizziness-requiring analgesics.	62%	25%	13%
I don't enter the kitchen or visit temples, touch pickles etc. while menstruating.	58%	36%	6%
I approach my family/elders/health care worker for all my queries regarding menstruation and menstrual hygiene.	16%	21%	63%

Discussion

In our study, most of the students had attained menarche by 12 yrs of age. This was comparable to a study by Patavegar *et al.* who reported the mean age of menarche as 12.7 ± 1 years among school going adolescent girls in urban Delhi in 2014 [7]. Similarly study by Dinesh Kumar *et al.* reported it as 13.02 years and Nair *et al.* from Delhi reported it to be as 13.6 years [8-9].

It has been established that menarche is also influenced by factors such as socioeconomic class and genetic factors [10]. Studies have shown that the age at menarche has been decreasing generally in many countries with a mean age at menarche ranging from 12 to 13 years in the majority of developed countries and this is in line with our study, most participants belonged to class 2 or 3 socioeconomic status [11].

The present study highlighted the medical problems faced by adolescent girls during menstruation. It was observed that dysmenorrhea was experienced by 72.3% of the girls. This is consistent with the study by Juyal R *et al.*, where it was observed among 64.9% girls [12]. 49% experience premenstrual symptoms

and 62% have significant dysmenorrhea requiring analgesics.

Total 86.15% students claimed to not have received knowledge regarding menstruation and menstrual hygiene. Parents and closest family seemed to have played the most significant role in educating the children regarding menstruation while the role played by teachers and health care workers seems extremely negligible as per our study.

Similar results were seen in the study conducted by Shabana Sultan *et al.*, where 63.5% of respondents were lacking primary knowledge about menstruation and these findings are explain that the awareness is largely dependent upon the socioeconomic class of the participants, rural or urban settings and literacy of the parents [17].

Only 6% of our respondents were familiar about menstruation prior to attaining menarche. Facts about the age of menarche, development of secondary sexual characters were known to 34% of the respondents. The information regarding a normal menstrual cycle was known to 46% of participant.

This alarming response portrays how unprepared our participants were when they entered puberty.

Knowledge about practices to be followed during menstruation material to be used, product selection and frequency of change was known to 16%, 34% and 27% respectively. The methods of disposal also was known to 52% of our contestants. But a majority of the participants belonged to the zone of half or incomplete knowledge.

Whilst 80% of our participants had good knowledge about cleanliness of undergarments, menstrual hygiene was known to only 48%. There seemed to be poor knowledge about sterilization of cloths and its usage.

65% of our participants knew that menstruation was a physiological phenomenon. 57% students' menstruation related anxiety while dysmenorrhea was incapacitating 44% of our participants. 71% of the participants still believed in the taboos and myths associated with menses and 30% were shy about carrying sanitary products to school. Similar results are seen by the study conducted by Prakash Mathiyalagen *et al.*, in which 82.2% girls had dysmenorrhea and 12.8% girls felt embarrassing to carry sanitary napkins to school [18]. Other studies conducted by Kural *et al.* and George NS *et al.* had prevalence of dysmenorrhea of 84.2% and 65% respectively [19, 20]. 65% believed that for menstrual education to be effective it should be conducted by women, in small groups-hence showing that the physiological phenomenon has still not received normalcy status.

With regard to practices followed during menstruation, 63.85% of participants still used cloth, and 55% of these did not follow the ideal technique of sterilization prior to use though 53% knew the complications associated with its improper usage. The practice of using pads is less than that reported from study by Patavegar *et al.* from Delhi (85.92%) and Yasmin S *et al.* (82.2%) from Bengal [7, 13].

Standards of menstrual hygiene were followed correctly by 22%, whilst 58% observed it to a near perfect level. The findings of our study is somewhat midway, to 2 studies, one conducted by Thakre S in Nagpur, where 58.09% of study participants followed the recommendations of menstrual hygiene whereas the 2nd study by Patavegar *et al.*, conducted among school girls in Delhi observed it being 34.32% [14].

12% of our study participants feel the need to restrict at home during menstruation, while the taboo of not visiting temples, entering kitchen or wedding, eating pickles was followed by a 58% of the participants during menstruation even now. This is consistent with a study by Sharma S *et al.*, according to which 46.5% girls practiced different restrictions during menstruation, the most common of which was restriction to pray or worship in temples during periods (82%) [15]. Girls were also not allowed to stay in kitchen or cook food (30%) or eat certain food items like curd, pickles (26%) etc. The most worrisome finding of the study is that 63% of our students did not feel comfortable to approach their family/elders/ health care workers to solve their queries about menstruation which is in contrast to most studies. In study conducted by Sharma S *et al.* more than two-third (66%) of the girls consulted mothers first for any of their menstrual related health issue whereas doctor was consulted by 8.5% girls [15]. A study by Paul *et al.* from 5 districts each, from 5 states of India (Delhi, Karnataka, Assam, Madhya Pradesh and Uttar Pradesh) observed that doctors were approached by maximum (78%) girls for their menstrual related morbidity [16].

Conclusion

The low level of knowledge among participants is evident from their unpreparedness while entering menarche and their strong views of menstruation as social taboo can be judged from their various restrictions, owing to such strong socio-cultural beliefs and practices.

These would obviously hamper the practice of standard protocols of menstrual hygiene and hence education about the facts of menstruation, physiological implications, significance and proper hygienic practices during menstruation to young girls and their family is the need of the hour.

Group discussions, media campaigns, sex education in schools are required to overcome taboo associated with menstruation. Anganwadi workers, health care representatives and teachers should be encouraged to discussing with young girls regarding menstruation and menstrual hygiene. Menstrual hygiene scheme run by Government of India should be implemented effectively and regular evaluation of the same is required.

Conflicts of interest: None.

Source of funding: None.

References

1. National Rural Health Mission. Training module for ASHA on menstrual hygiene. Ministry of Health Family Welfare. 2011;34:79-91.
2. Deshmukh V, Sandhu GK, Rachakonda L, Kakde M, Andurkar SP. Knowledge, attitudes and practices (KAP) regarding menstruation among girls in Aurangabad, India and their correlation with sociodemographic factors. *Int J Reprod Contracept Obstet Gynecol.* 2019;8(3):979-87.
3. Prusty RK, Kumar A. Socioeconomic dynamics of gender disparity in childhood immunization in India. *PLoS ONE.* 1992-2006. 2014;9(8):e104-598.
4. Mahon T, Fernandes M. Menstrual hygiene in South Asia: a neglected issue for WASH (water, sanitation and hygiene) programmes. *Gend Dev.* 2010;18(1):99-113.
5. Thakur H, Aronsson A, Bansode S, Lundborg CS, Dalvie S, Faxelid E. Knowledge, practices, and restrictions related to menstruation among young women from low socioeconomic community in Mumbai, India. *Front Public Health.* 2014;2:72.
6. Muralidharan A, Patil H, Patnaik S. Unpacking the policy landscape for menstrual hygiene management: implications for school Wash programmes in India. *Waterlines.* 2015;34:79-91.
7. Patavegar BN, Kapilashrami MC, Rasheed N, Pathak R. Menstrual Hygiene among Adolescent School Girls: An In-Depth Cross-Sectional Study in an Urban Community. *Int J Health Sci Res.* 2014;4(11):15-21.
8. Kumar D, Goel NK, Puri S. Menstrual pattern among unmarried women from northern India. *J Clin Diag Res.* 2013;7(9):1926-9.
9. Nair P, Grover VL, Kannan AT. Awareness and practices of menstruation and pubertal changes amongst unmarried female adolescents in a rural area of East Delhi. *Indian J Comm Medic.* 2007;32(2):156-7.
10. Gupta S, Sinha A. Awareness about reproduction and adolescent change school girls of different socioeconomic status. *J Obstet Gynecol India.* 2006;56(4):324-8.
11. Padez, Rocha MA. Age at menarche in Coimbra (Portugal) school girls: A note on secular changes. *Ann Hum Biol.* 2003;30(5):622-32.
12. Juyal R, Kandpal S, Semwal J. Menstrual Hygiene and Reproductive Morbidity in Adolescent Girls in Dehradun, India. *Bangladesh J Med Sci.* 2014;13(02):170-4.
13. Yasmin S, Manna N, Mallik S. Menstrual hygiene among adolescent school students: An in-depth cross-sectional study in an urban community of West Bengal, India. *IOSR.* 2013;5(6):22-6.
14. Thakre SB, Thakre SS, Reddy M. Menstrual hygiene: knowledge and practice among adolescent school girls of Saoner, Nagpur district. *J Clin Dia Res.* 2011;5(5):1027-33.
15. Sharma S, Mehra D, Kohli C, Singh MM. Menstrual hygiene practices among adolescent girls in a resettlement colony of Delhi: a cross-sectional study. *Int J Reprod Contracept Obstet Gynecol.* 2017;6(5):1945-51.
16. Paul D, Patnik R, Gopalakrishnan S. Improvement in knowledge and practices of adolescent girls on reproductive health with focus on hygiene during menstruation in five years. *Health Populat Perspec Issues.* 2014;37(1&2):1-14.
17. Sultan S, Sahu DS. Knowledge, attitude and practices about menstruation and related problems in adolescent girls. *Int J Reprod Contracept Obstet Gynecol.* 2017;6(12):5235-40.
18. Mathiyalgen P, Peramasamy B, Vasudevan K, Basu M, Cherian J, Sundar B. A descriptive cross-sectional study on menstrual hygiene and perceived reproductive morbidity among adolescent girls in a union territory, India. *J Family Med Prim Care.* 2017;6(2):360-5.
19. Kural M, Noor NN, Pandit D, Joshi T, Patil A. Menstrual characteristics and prevalence of dysmenorrhoea in college going girls. *J Family Med Prim Care.* 2015;4(3):426-31.
20. George NS, Priyadarshini S, Shetty S. Dysmenorrhoea among adolescent girls-characteristics and symptoms experienced during menstruation. *Nitte Univ J Health Sci.* 2014;4(3):2249-7110.