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Original Research Article

Menstruation physiology knowledge and hygiene practices among adolescent girls from rural and urban backgrounds: a comparative study

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ABSTRACT

Background: Ignorance of scientific facts and hygienic practices during menstruation in adolescent girls, and poor menstrual hygiene is associated with reproductive tract and urinary tract infections which can be reduced by awareness and education. This study was aimed to compare the knowledge of menstruation physiology, hygiene, and practices among adolescent girls from urban and rural backgrounds.

Methods: A cross-sectional study done to compare menstrual hygiene and practices between urban and rural adolescent girls. 540 girls were interviewed, 290 from urban residences residing in nearby areas of the medical college and 250 from rural area villages. Participants' inputs were collected using a structured questionnaire.

Results: Of the 540 respondents, the majority (68% rural and 62% urban) experienced menarche between the ages of 12 and 14 years. 80% of girls from urban backgrounds knew about menstruation before menarche compared to 40% of girls from rural backgrounds. The majority (88% rural and 60% urban) reported their mother as a source of information. 16% of girls had correct knowledge regarding menstruation, compared to 96% in urban areas. 32% of girls from rural areas knew that menstruation is a physiological process. The sanitary pad was used by 20% of girls from rural areas compared to 80% from urban areas. Myths and taboos were more predominant in rural areas.

Conclusions: A lack of knowledge and awareness regarding menstruation is a key factor in this regard for rural populations. Education regarding reproductive health and hygiene should be included as a part of the school schedule.

Keywords: Attitude and practice, Comparative urban and rural menstrual hygiene practice, Knowledge, Menstrual hygiene, Physiology of menstruation

INTRODUCTION

According to the World Health Organisation adolescent age group is between 10 and 19 years. Menarche usually starts at the average age of 11-15 years.¹ Complex physical, endocrine, and cognitive changes occur during this phase. The onset of menstruation is a major functional transformation that a girl experiences during her adolescent phase. The teenagers go through physical and

psychological changes, which they may not understand much about themselves.^{2,3} Adolescent girls, in the first place, need to be prepared for these changes and adapt to certain good health practices, including menstrual hygiene, as these can have long-term effects on their health, especially on the reproductive aspects. The onset of menstruation is a major physiological change that a girl experiences during her adolescent age.⁴ Girls are still bound during menstruation due to socio-cultural

restrictions and taboos. Ignoring scientific facts and poor hygienic practices during menstruation in adolescent girls leads to reproductive tract and urinary tract infections. Lack of awareness about physiology, myths, and misconceptions is more prevalent in the rural population. Awareness regarding menstruation from childhood may help in safe practices and decrease the disease and suffering of girls once they grow as adults. Several schemes have been launched to promote menstrual hygiene.⁵ The Indian National Rural Health Mission in 2005 included menstrual hygiene as a key responsibility of ASHA workers. The menstrual Hygiene Promotion Scheme in 2011 in rural areas for girls has also been implemented, which has brought better conditions, but still, there is a lag that has to be removed with enhancement and encouragement regarding menstrual hygiene practices.⁷ This study is basically to compare rural and urban populations regarding menstrual hygiene practices, their knowledge, myths, and misconceptions.

The literature review suggests that a lot is being done by the governments, health care workers, and NGOs to educate and spread awareness, despite that the review of the literature also suggests a gap between knowledge and menstrual hygiene practice. The studies found that approximately, 71% of girls in India do not know about menstruation before their first period.⁸

Therefore, we planned a study involving adolescent girls to find out the awareness about knowledge of physiology, and menstrual hygiene practices, to know the myths and taboos prevailing among adolescent girls, and compare based on the residential background difference, between urban and rural areas.

This research aimed to study the comparison of urban and rural adolescent girls for their knowledge of menstrual physiology, their menstrual hygiene practices, and their associated myths and taboos.

METHODS

It was a study using mixed methods, both qualitative and quantitative methods. A cross-sectional study was done to compare menstrual hygiene and practices amongst urban and rural adolescent girls.

The study was initiated after obtaining Institutional ethics approval. (Ref no PCMS /OD/2018/2158 Dated 10-12-2018). The study duration was for 8 months (1st January 2019 till 31st July 2019). In our study, we utilised mixed method, both quantitative and qualitative methods of research. Girls from 6 urban schools and 6 rural schools were included. Teenage girls between the ages group 11 to 19 years were included. The rural area from where girls were included is 1) Khejda village in Vidisha District of Madhya Pradesh (located 64 km from Bhopal), 2) Ratua Village in Berasia Tehsil in Bhopal District of Madhya Pradesh State (located 27 km towards North from District headquarters Bhopal), 3) Sukhi Sewaniya village is located

in Huzur Tehsil of Bhopal district in Madhya Pradesh. It is situated 20km away from Bhopal.

We used a self-developed structured questionnaire in two languages (Hindi and English), which was pre-validated among nursing students, and another method for data collection utilised was a focus group discussion.

The consent was obtained from the school authorities, and assent from girls of 12 years and above was obtained, informing them about their voluntariness of participation in the study and discussions about their menstrual health and hygiene, at the end providing them with accurate and comprehensive information, and respecting their autonomy in decision-making related to their health.

Study group

Participants' input was collected regarding knowledge of menstrual physiology, hygiene practices, myths, and taboos regarding the menstrual cycle. Data were collected using a structured questionnaire regarding the menstrual cycle, knowledge about menstruation physiology, practices during menstruation, menstrual hygiene, and myths and taboos regarding the menstrual cycle. Focussed group discussions were done among adolescent girls based on the pre-listed theme and domains. Their Hygiene practices and problems they are facing during the menstruation phase, and associated myths and taboos.

After the collection of inputs, the opportunity was utilised for educating them about normal menstrual physiology through charts, photographs, and presentations (wherever facilities were available) and discussed hygienic practices to be followed.

RESULTS

A total of 540 girls were interviewed with the help of a questionnaire, 290 from Urban areas, residing in the nearby area of the Medical College, and 250 from Rural Areas. Those who gave consent to participate were interviewed using a structured questionnaire. Participants' input was collected regarding menstrual hygiene and practices.

Table 1: Age of onset of menses.

Age (years)	Rural (n=250)	Urban (n=290)
12-14	68% (170)	62% (180)
14-16	28% (70)	27% (80)
16-18	4% (10)	10% (30)

Regarding demographic characteristics of the study population, the age ranged from 13-18 years with a mean age of 15.40±1.732 in urban and 14.49±1.638 in rural Populations. Out of 540 respondents, the majority attained menarche at the age of 12-14 years in both groups (Table 1).

Knowledge of menstruation physiology

Regarding knowledge, 80% (232) of girls from urban backgrounds knew about menstruation before menarche compared to 40% (100) of girls from rural backgrounds.

The majority of (88% rural and 60% urban) girls reported their mother as a source of information regarding menstruation while other sources of information were friends and sisters (10% in rural and 17% in urban) and media (2% in rural and 18% in urban) but teachers (Nil in rural and 5% in urban) played very little role in information (Table 2).

Table 2: Knowledge of menstruation physiology.

Questions	Rural (250)	Urban (290)
Knowledge about onset of menstruation before menarche	Yes 40% (100)	Yes 80% (232)
	No 60% (150)	No 20% (58)
Source of information	Mother-88% (220)	Mother-60% (174)
	Friends- 10% (25)	Friends- 17% (50)
	Media-2% (5)	Media-18% (52)
	Teachers- Nil	Teachers- 5% (13)
Age of onset of menses	12-14 yrs - 68% (170)	12-14yrs-62% (180)
	14-16 yrs -28% (70)	14-16yrs -27% (80)
	16-18 yrs -4% (10)	16-18yrs-10% (30)
Correct knowledge regarding menstruation physiology	16% (40)	50% (145)
Perception about menstruation that it's a normal physiological phenomenon	32% (80)	80% (232)
Feel to hide menstrual cycle	Yes 90% (225)	Yes 50% (145)
	No 10% (25)	No 50% (145)
Missing schools during menses due to pain	18% (45)	None
	Don't go to school at all 3-4 miss school due to pain	1-2 reported absence due to other reason

Table 3: Menstrual hygiene practices.

Questions	Rural (250)	Urban (290)
Sanitary pad use	20% (50)	
	40% (100) homemade pad	100% (290)
	40% (100) both	
Number of pads used during the whole day who were using pads	1/day-80% (40)	1/day- 51% (150)
	2/day-20 (10)	2/day-33% (96)
	>2/day- Nil	3-4/day-15% (44)
Perineal wash after toilet	Yes 60% (150)	Yes 80% (232)
	No 40% (100)	No 20% (58)
Disposal of sanitary pads	Throw in waste 70% (35)	Throw in waste 70% (125)
	Burn 4% (2)	Burn 4% (10)
	Flush in toilet 20% (10)	Flush in toilet 20% (50)
	Reuse 6% (3)	Reuse 6% (15)
Drying of homemade pads	Inside room 76% (152)	
	Sun dry 24% (48)	None
Idea regarding availability of sanitary napkins at Anganwadi at subsidized rate in rural area	All were aware	55% Yes were aware from mostly Government school girls said Yes, All private Schools No
Rural girls using cloth pieces were facing problem of washing and drying due to shortage of water, lack of privacy.	Yes, in All (40% infrequent use Of sanitary pads)	None
Daily bath, hair wash allowed during menses	Yes in 50% (125) cases	Yes, in All (290)
Facility for a separate bathroom	Yes (75%)	Yes (100%)

Table 4: Myths and taboos associated with menstruation.

Questions	Rural (250)	Urban (290)
Girls are not allowed to enter religious places during menses	All	All
Girls are not allowed to enter the kitchen nor allowed to serve food to others because of the thought that they will contaminate food if they touch food during menses	80% (200)	None
Not allowed to serve some specific food like pickels and chips.	All	30% (87)
Girls are not allowed to play and dance or do any heavy work during menses as they think it will cause harm to them	All	All
Restriction to go out of the house	80% (200)	10% (29)
Restriction to share a bed with other family members		
Belief of toxin in menstrual blood	12% (30)	None
Loss of self-esteem during menses	75%	25%
Physical symptoms -dysmenorrhea, backache, weakness, irritability, headache	40%	36%

Only 16% of girls had correct knowledge regarding menstruation as compared to 96% in urban. 32 % of girls from rural areas knew that menstruation is a physiological process (100% from urban areas). The perception that menstruation is a normal phenomenon was found in 32% of rural while in 80% of urban girls.

Girls hiding their menstrual cycle were more in the rural population (90% compared to the urban population (50%). Neither of the population doesn't have any idea about pregnancy and lactation.

Menstrual hygiene practices

Sanitary pads available in the market were used by only 20% (50) of girls from the rural population, while 40% (100) were using homemade pads, and the rest 40% (100) were using both. As compared to urban adolescent girls, who were all using sanitary pads. For those using sanitary pads question was asked regarding the number of pads changed per day in urban girls. Out of 290 urban girls, 1 pad per day in 51% (150), 2 per day in 33% (96), and 3-4 per day in 15% (44). While in those 50 rural girls using pads, all were habituated to 1-2 pads per day.

Rural girls using cloth pieces for homemade pads were facing problems of washing and drying due to a shortage of water and lack of privacy. Homemade pads were reused in every cycle. These homemade pads were used to be dried inside a room, in most cases, by rural girls.

Perineal wash with water was practised in 60% of rural and 80% of urban girls. The disposal of sanitary pads in the majority was routine throw-in waste. Daily bath and hair washing were allowed only in 50% of rural girls, while it was allowed in all urban cases. The facility of a separate Bathroom was available to all in urban areas, but only 75% in rural areas (Table 3).

Around 40% of girls were not using sanitary pads because of cost in rural areas. It's not always available in Anganwadi centres. Although they had an idea regarding the availability of Sanitary Napkins at Anganwadi at a subsidised rate in rural areas.

Myths and taboos associated with menstruation

Regarding myths and taboos associated with menstruation, all the girls, including rural and urban, were not allowed to enter religious places during menses.

Total 80% (200) of rural girls were not allowed to enter the kitchen, nor allowed to serve food to others, because they thought that they would contaminate food if they touched food during menses, which wasn't present in the urban population. Similarly, the majority (80%, 200) of rural girls were restricted from going out of the house or sleeping with other family members.

All rural girls were not allowed to serve specific food like pickles and chips, nor were they allowed to play and dance during menses as they thought it would cause harm to them. While among urban girls, all were allowed to play and dance, 30% (87) had restrictions on touching pickles and chips with the same thought.

The 12% of girls from rural areas believed that there is a toxin in menstrual blood. No such myths were found in urban areas among adolescent girls. The feeling of loss of esteem during menses was reported by 75% of girls in the rural group and only 25% in the urban group (Table 4).

Additional symptoms reported were dysmenorrhea, backache, weakness, irritability, and headache. Headache was in a minor to tolerable state in a few cases.

Total 12 focused group discussions were done with adolescent girls willing to participate regarding hygiene

practices and problems they were facing during their menstrual period due to myths and taboos.

During the focus group discussions, the themes that emerged were the taboos like “restrictions were imposed on eating, playing, going out to school, and going to temple” They perceived it as an abnormal phenomenon happening to them during the menstruation phase.

A few participants had the belief that “becoming impure during menses is not allowed to take a bath, especially a head bath, not permitted to enter the kitchen”. One participant remarked about her perception “, Toxins are released during menstruation”. Participants said that as they were impure during menstruation, they were not allowed to enter the Temple or sacred places of worship. Participants remarked, “They were ashamed of menstruation and hid from male members of the family, the clothes used during menstruation are kept inside to dry after washing,” a few participants said, “They had a belief that touching any boy during menstruation they can get pregnant”. Additionally, most of the girls reported “they had inhibitions for eating sour food articles, especially like pickles, as they may cause harm”.

Many participants from rural backgrounds reported that “No separate toilet facility for girls in schools, so they preferred to stay at home during those days”.

The participants were keen to know the scientific facts about menstruation, and we utilised the opportunity to discuss these facts with the participants.

DISCUSSION

The Menstrual Hygiene Scheme was implemented in 2011 by the Ministry of Health and Family Welfare to promote menstrual hygiene among adolescent girls in the age group of 10-19 years in rural areas. The scheme aimed to aware adolescent girls on Menstrual Hygiene with easy access to and use of high-quality sanitary napkins. Safe Disposal of Sanitary Napkins is also important as per the scheme for the environment. Here, the ASHA is made responsible for the distribution, receiving an incentive @Rs 1 per pack sold and a free pack of napkins every month for her personal use. Monthly meetings at the Aanganwadi Centres or other such platforms for adolescent girls to focus on the issue of menstrual hygiene, and also serve as a platform to discuss other relevant issues. Menstrual Hygiene Management (MHM) is an integral part of Swachh Bharat Mission and Swachh Bharat: Swachh Vidyalaya. Menstrual Hygiene Day is organised on the 28th of May to increase awareness and address challenges.

NFHS-5 (2019-2021) has reported that 64.5% of adolescent girls use sanitary napkins and that there has been a significant increase in the use of sanitary napkins over the previous five years. However, a lot more needs to be done.

Shoor et al concluded that the school girls had less than satisfactory knowledge, but good practices regarding menstrual health among those who had attained menarche. Similarly, in our study, knowledge regarding the menstrual cycle was less in rural girls compared to urban girls.¹¹

Prajapati et al studied menstrual hygiene among adolescent girls in the urban community of Gandhinagar, where 26.1% of girls used sanitary pads, and the remaining were using either old or new cloth pieces. While in our study, only 20% of rural girls used sanitary pads as compared to all urban girls.¹²

Pallavi et al and Deshpande et al also studied menstrual practices in North India, menstrual practices where homemade pads were reused in every period, similar to our study.^{13,14}

Maniar et al studied menstrual hygiene practices: myths and taboo. The study revealed that people treat girls during their periods as untouchable. The women are sent to the field areas to do the agricultural work, but are not allowed to work at home. The school-going girls wear clothes, and during their periods, they usually stay back at home.¹⁵ The women in these study villages are very rigid and strict in following certain rules like cleaning all the utensils, and clothes used after their periods are over, etc. As compared to this study, in our study, girls are not treated as untouchables, but in the rural population, they are not allowed to enter the kitchen and serve food to others.

There is limited knowledge among young girls, especially in rural areas, and many of them are hesitant to discuss menstruation in public. It is important to understand that cultural norms and social stigma can contribute to this hesitancy, as menstruation is often considered a taboo topic in many communities.^{16,17} Young girls often receive their knowledge about menstruation from their mothers, sisters, cousins, aunts, and friends.¹⁸⁻²⁰ While these sources can be helpful, they may not always provide accurate information. Misconceptions about menstruation can lead to improper menstrual hygiene practices and negative health outcomes.¹⁸ Although the challenge is global but it has to be addressed at the regional level.²¹⁻²³

Singh et al reported a wide disparity of menstrual hygiene practices among various states and districts across northern and southern states of India. They reported that only 42% of adolescent girls from rural backgrounds practised exclusive hygienic methods.

At the state level, a wide variation was reported in the utilisation of the exclusive hygiene. It was reported as 23% in Uttar Pradesh and 85% in Tamil Nadu. This study also aptly emphasised the regional gaps and the need to address these gaps by policymakers and all stakeholders.²⁴

To address this issue, it is important to provide accurate and comprehensive menstrual hygiene education to young girls. This education should cover the scientific facts about

menstruation, proper menstrual hygiene practices, and how to access and use sanitary products. It is also important to address the social and cultural barriers that prevent girls from discussing menstruation openly and to create safe spaces for open and honest discussions.

Healthcare workers, community leaders, and educators can play a key role in providing this education and promoting open discussions about menstruation. This can help to dispel misconceptions and improve menstrual hygiene practices among young girls in India.

Firstly, it will be essential to understand their local needs and difficulties, their beliefs, and cultural practices. Then, having an open dialogue, holding discussions by providing accurate information, educating and motivating the adolescent girls by local role models to promote menstrual hygiene practices and safe disposal of sanitary napkins can be beneficial.

Our study has also reinforced the need for the generation of awareness among the masses to accept menstruation as a physiological process of growing pubertal girls. Their minds should be freed from all myths and taboos, making them and their family members aware of healthy hygiene practices. To address this gap, it is important to continue efforts to promote menstrual hygiene education and awareness, including providing education and resources to girls, families, and communities. Healthcare workers, NGOs, and other stakeholders can play a key role in providing this education and promoting open discussions about menstruation.²⁵ Additionally, governments can support these efforts by investing in menstrual hygiene education programs and policies.²⁶ With continued efforts, it is possible to bridge the gap between knowledge and practice and improve menstrual hygiene for girls and women in India.

This study has few limitations. Comparative study design of knowledge and practice of menstrual hygiene among urban and rural adolescent girls adds strength to the study. School community-based sampling increases its validity of the study. The sample size was smaller due to the feasibility of the study, which is its major limitation, as the results cannot be generalised. Only a few schools were approached due to the short duration of study.

CONCLUSION

The differences in knowledge and practices between urban and rural areas highlight the need for targeted efforts to educate and spread awareness about menstrual hygiene practices in rural communities.

The Menstrual Hygiene Scheme is a step in the right direction, but more efforts are needed to educate the elders of families, especially mothers, who play a critical role in shaping the attitudes and practices of young girls. Making sanitary pads available at affordable prices through social

marketing can also help to promote better hygiene practices.

In addition to government efforts, educational TV programs, trained school nurses/health personnel, motivated school teachers, and knowledgeable parents can all play important roles in promoting correct menstrual hygiene practices among adolescent girls. Integrating menstrual hygiene education into the school curriculum can also help to ensure that all girls receive the knowledge and skills they need to manage their menstrual health.

Overall, improving knowledge and awareness about menstrual hygiene practices is critical for promoting the health and well-being of adolescent girls in India, particularly in rural areas. Efforts should be made to reach all girls with accurate and comprehensive information and to promote open discussions and safe spaces for sharing and learning.

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