International Journal of Community Medicine and Public Health
Wangoo DP et al. Int J Community Med Public Health. 2025 Feb;12(2):740-745
http://www.ijcmph.com
pISSN 2394-6032 | eISSN 2394-6040

DOI: https://dx.doi.org/10.18203/2394-6040.ijcmph20250063

Original Research Article

Understanding of menstruation among school going adolescent girls in Delhi: a cross-sectional study

Divya P. Wangoo[1], Srishti Yadav[2], Sahil Goyal[3]*, Priya Kataria[4], Chandrika Agarwal[5]

[1]Department of Physiology. North Delhi Municipal Corporation Medical College and Hindu Rao Hospital, Delhi, India
[2]Department of Community Medicine, University College of Medical Sciences and Guru Teg Bahadur Hospital, Delhi, India
[3]Department of Community Medicine, North Delhi Municipal Corporation Medical College and Hindu Rao Hospital, Delhi, India
[4]Department of Community Medicine, Faculty of Medicine and Health Sciences, Shree Guru Gobind Singh Tricentenary University, Gurugram, Haryana, India
[5]North Delhi Municipal Corporation Medical College and Hindu Rao Hospital, Delhi, India

Received: 01 January 2025
Accepted: 20 January 2025

***Correspondence:**
Dr. Sahil Goyal,
E-mail: goyalsahil603@gmail.com

ABSTRACT

Background: Menstrual hygiene is a multi-dimensional concept. Social inhibitions and the negative attitude of people in discussing menstruation related issues openly prevents the adolescent girls from getting the right kind of information.
Methods: We conducted a school based cross sectional study in Sarvodaya Kanya Vidyalaya in North Delhi to assess the understanding of menstruation among school going adolescent girls by using a pre- designed, pre-tested, self - administered questionnaire in Hindi language from August to November 2023 (4 months). Students of classes 6th to 10th were included in the study.
Results: The mean age of the study participants was 13.4±1 years and ranged from 11 to 16 years. Sixty-three percent of the girls had no or incorrect understanding of menstruation. Among the participants who remain absent during menses (45%), the most frequently reported reason is feeling uncomfortable (26.9%) followed by feeling ill (4.5%) and excessive bleeding (4.5%). As for the site of menstrual bleed, we got varied responses; 46 (29.5%) students reported it to be from vagina, 26 (16.7%) from uterus, 11(7.1%) from stomach and 47 (30.1%) reported it to be from urethra.
Conclusions: There was a lack of understanding and awareness on menstruation among adolescent girls. To improve the knowledge of adolescent girls and address their hesitancy about menstruation, Balika Manch programs should be organized at school and in the community so that they may share the problems faced by them at various facets of life.

Keywords: Menstrual awareness, Adolescent health, School girls

INTRODUCTION

Adolescence is the age group from 10-19 years. It is a unique stage of human development and an important time for laying the foundations of good health.[1] Menarche is one of the most significant changes that occurs in a woman's life in this age group. According to the World Health Organization/United Nations Children's Fund (WHO/UNICEF) Joint Monitoring Programme 2012, menstrual hygiene management (MHM) is defined as: "women and adolescent girls are using a clean menstrual management material to absorb or collect menstrual blood, that can be changed in privacy as often as necessary, using soap and water for washing the body as required, and having access to safe and convenient facilities to dispose of used menstrual management materials. They understand the basic facts linked to the menstrual cycle and how to manage it with dignity and without discomfort or fear".[2] It

is clear from the mentioned definition, that menstrual hygiene is a multi- dimensional area. There is substantially limited knowledge among adolescent girls in India regarding menstrual health. Social inhibitions and the negative attitude of people in discussing the related issues openly, prevents adolescent girls from getting the right kind of information.[3] In this context this study was conducted to assess the understanding of menstruation among school going adolescent girls in Delhi.

Objective

The objective of the study was to assess knowledge about menstrual hygiene practices among school-going adolescent girls.

METHODS

Study design

It was a school based cross-sectional study.

Study site

The study was conducted at Sarvodaya Kanya Vidyalaya, Malka Ganj in North Delhi.

Study duration

The duration of the study was from August to November 2023 (4 months).

Type of sampling

Type of sampling was purposive sampling.

Sampling methods

A list of all Government Girls Schools (Sarvodaya Kanya Vidyalaya) in North Delhi was made. The area was divided in two zones- zone 7 and zone 8. Out of the two zones, Zone-7 was selected randomly, which comprised 18 schools. Out of these, one school was randomly selected for the study. Students of classes 6th to 10th were included for the study as per inclusion and exclusion criteria till the sample size was obtained. According to the NFHS-5 survey (2019- 2021), 89 percent urban women adopt hygienic menstrual practices in India.

The formula for sample size estimation is given by the following formula.

$$Sample\ size = 4pq/l^2$$

Here, p is 0.89, q is 1-p i.e., (1-0.89=0.11), I is allowable error at 5%.

$$4 \times 0.89 \times 0.11/0.25 = 156$$

Thus, the sample size for our study was 156.

Inclusion criteria

Adolescent girls who had attained menarche, having at least two consecutive menstrual cycles within two months, and adolescent girls who were present on the day of data collection were included.

Exclusion criteria

Girls who were willing but unable to provide important information about menstruation and practices were excluded.

Written informed assent was taken from the study participants and consent from their parents was taken before recruiting them for the study.

Study tool

The study was carried out using the pre- designed, pre-tested, self-administered questionnaire in Hindi language comprising of questions to assess socio demographic details of the study participants, characteristics of menstrual cycle, menstrual hygiene practices among the participants, knowledge regarding menstrual hygiene management and their menstrual hygiene management practices in school. The questions related to menstrual hygiene practices were to be answered on the basis of practices followed during last periods to avoid recall bias.

Data analysis

All the data was compiled in Microsoft Excel sheet. The data was summarized descriptively and Chi square test was used for finding the association between the categorical variables. P value less than 0.05 was considered statistically significant. The data analysis was done using IBM statistical package for the social sciences (SPSS), version 26.0 software.

RESULTS

Socio-demographic details of study participants

The study was conducted in a government girl's school in an urban area in North Delhi. A total of 156 adolescent girls studying in the classes 6th to 10th were our study participants. Among these, 5% were from 6th standard, 21% from 7th standard, 30% from 8th standard, 19% from 9th standard and 25% from 10th standard (Figure 1). Table 1 shows the age distribution of study participants. The mean age of the study participants was 13.4±1 years and ranged from 11 to 16 years. Majority of the study participants were of the age of 14 years.

Majority of the study participants were of the age of 14 years. Mean age of the study participants was 13.4±1 years and ranged from 11 to 16 years. The educational status of

the parents was classified according to the Modified Kuppuswamy scale (Table 2). The mothers of the majority of the study participants i.e., 79.3% had studied till high school. None had obtained any professional degree. Similarly, fathers of the majority of the study participants i.e., 72.5% had studied till high school and none had obtained any professional degree.

Table 1: Age-wise distribution of the study participants (n=156).

Age (years)	N (%)
11	6 (3.8)
12	26 (16.7)
13	47 (30.1)
14	57 (36.5)
15	17 (10.9)
16	03 (1.9)

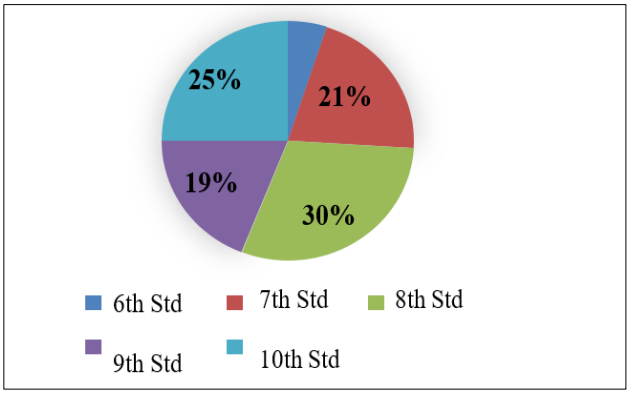

Figure 1: Distribution of study participants according to their class (n=156).

Table 2: Educational details of parents of the study participants (n=156).

Variables	N (%)
Mother's education	
Illiterate	19 (12.2)
Primary school	24 (15.4)
Middle school	34 (21.8)
High school	34 (21.8)
Intermediate	23(14.7)
Graduate	6 (3.8)
*Don't know	16 (10.3)
Father's education	
Illiterate	12 (7.6)
Primary school	16 (10.3)
Middle school	27 (17.3)
High school	40 (25.6)
Intermediate	30 (19.2)
Graduate	6 (3.8)
Professional	0
*Don't know	25 (16.0)

Characteristics of menstruation of study participants

The mean age and standard deviation of menarche was 11.8±1 years. Out of 155 participants, a total of 21 (13.5%) study participants had duration of menstruation for ≤3 days, 105 (67.7%) had a cycle of duration between 4 to 6 days and 29 (18.7%) had cycles for ≥6 days. Regarding duration, out of 153 study participants, 10 (6.5%) had duration of menstrual cycles <28 days, between 28-32 days was 137 (89.5%) and more than 32 days 6 (3.9%).

Figure 2 shows the pie chart which shows the distribution of study participants in percentages who experience various genital symptoms during their menstrual cycle. It shows that 18 (11.5%) experience skin rashes, 13 (8.3%) burning sensation, 4 (2.6%) redness and swelling, 3 (1.9%) produce whitish discharge, 42 (26.9%) report experiencing some other symptoms and 76 (48.7%) report experiencing no symptoms at all.

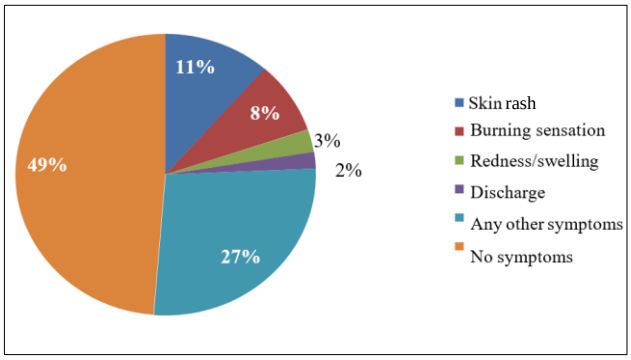

Figure 2: Distribution of the study participants according to the genital symptoms experienced by them during menstruation.

Table 3: Basic understanding of menstruation among study participants (n=156).

Variables	N (%)
What is the menstrual cycle? (n=156)	
It is related to hormones	17 (10.9)
It is related to ovulation	7 (4.5)
It has 3 phases	13 (8.3)
No changes in body	15 (9.6)
Related to hormones and ovulation	5 (3.2)
Do not know	99 (63.5)
Why does menstruation occur? (n=156)*	
Monthly cycle which occurs among every woman	132 (85.2)
Do not know	11 (7.1)
Any other reason (curse or sins)	13 (8.4)
What is the site of menstrual bleeding? (n=156)	
Vagina	46 (29.5)
Uterus	26 (16.7)
Stomach	11 (7.1)
Urethra	47 (30.1)
Some other body site	26 (16.7)

Knowledge regarding menstruation

Table 3 shows the responses of study participants to basic questions regarding menstruation. Only a small proportion of participants had an understanding about the menstrual cycle. Sixty-three percent of the girls did not know about the menstrual cycle. However, the majority of the girls knew the fact that it is a monthly occurrence in women. As for the site of menstrual bleed, 46 (29.5%) reported it to be vagina, 26 (16.7%) uterus, 11 (7.1%) stomach, 47 (30.1%) urethra and remaining 26 (16.7%) answered it to be some other site in the body.

Out of 156 participants, 94 (63.5%) participants reported that they were aware of the harmful effects associated with cloth usage, 57 (36.5%) were unaware of the harmful effects of cloth and 5 (3.2%) did not answer the question. Table 4 shows the communication patterns and awareness about menstruation hygiene scheme (MHS) among study participants. Only 26 (16.7%) talk to someone regarding their symptoms and 51 (32.7%) students reported they still feel hesitant while talking about menstruation and only 96 (61.5%) could talk about it without feeling uncomfortable. 45 (28.8%) even believe that menstruation still is a secretive topic and should not be discussed openly in front of others. It shows that one third of the study participants were hesitant while talking about menses and one third thought that talk about menses should be secretive. And only one fifth were aware about the MHS.

Absenteeism due to menstruation

Regarding absenteeism from school due to menses, as shown in Table 5, the majority of the participants do not take leave from school during this period. However, 14.6% and 27.6% of the participants reported that menstruation affects their school performance always and sometimes respectively.

Figure 3 shows that among the participants who take leave, the most frequently reported reason is feeling uncomfortable (26.9%) followed by feeling ill (4.5%) and excessive bleeding (4.5%). Water shortage and non-availability of soaps was also reported by few participants.

Table 4: Communication patterns and knowledge about MHS among study participants (n=156).

Variables	Yes (%)	No (%)
Hesitant while talking about menses	60 (38.5)	96 (61.5)
Talk about menses should be secretive	45 (28.8)	111 (71.2)
Aware about MHS scheme	31 (19.9)	125 (80.1)

Table 5: Absenteeism and effect on school performance due to menstruation among study participants (n=156).

Variables	N (%)
Do you take leave from school during menses?	
Yes always	4 (2.6)
Yes sometimes	29 (18.6)
Rarely	28 (17.9)
Never	95 (60.9)
Does menstruation affect your school performance?	
Always affected	23(14.6)
Sometimes affected	43 (27.6)
Rarely affected	38 (24.5)
Never affected	52 (33.3)
Do you ever give excuses to say that you are menstruating?	
Always	3 (1.9)
Sometimes	34 (21.8)
Rarely	18 (11.5)
Never	64 (41.1)
Don't know	37 (23.7)

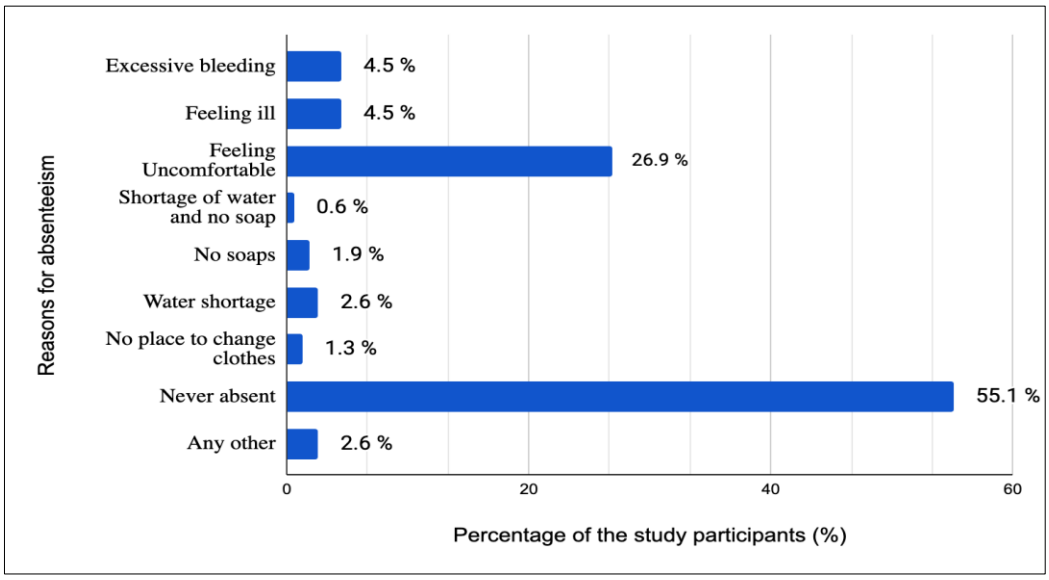

Figure 3: Reasons for absenteeism during menstruation among study participants (%).

DISCUSSION

Since there is utmost need of assessing menstrual hygiene practices and level of awareness among adolescents, senior secondary school was chosen since the majority of adolescents could be reached for inclusion in the study. In our study, about 156 adolescent girls were enrolled in a government school, out of which two-thirds belonged to the age group of 13-14 years. This study was comparable to the study conducted by Sangeetha et al in schools of East Delhi district in which the majority of participants also belonged to early adolescence i.e., 14 years or less than 14 years old.[4] In another school based study conducted by Chauhan et al reported that the average age at menarche in their study was 12.3 years.[5] The mean age of menarche was 11.8 years in our study.

A mother's education plays an important part in a girl's menstrual health. Majority of the mothers in our study were educated till middle of high school and 12% of the mothers were illiterate. This is different from the study done by Chauhan et al in which most of the girl's mothers were illiterate (51.8%).[5] In another study conducted by Yaliwal et al, most of the girls were from families of poor socioeconomic backgrounds with the parents having a poor educational status.[6] 49% of the mothers had primary education or were less educated. About 44% of the fathers of the girls had primary education or were less educated. However, in our study, the mother's education and father's education level in the majority of participants (>50%) was till high school.

Among our study participants, the basic physiological understanding of the menstrual cycle was not known by majority (63.5%) of the girls which is comparable to a study done by Divya et al in which it was found that 52% of study subjects were not aware of the reason behind the occurrence of menstruation.[7] A study done by Chauhan et al reported that very few girls (18.6%) are aware of the physiological basis of the menstrual cycle and 11.1% knew the role of hormones in the menstrual cycle.[5] A similar proportion of girls in our study knew that menstruation is related to hormones (10.9%) and ovulation (4.5%). In the study conducted by Divya et al in Uttarakhand it was found that 28.67% of study participants believed menstruation to be a curse of God which was lower in our study (8.4%).[7] Wagh et al reported that 71% of their study subjects knew the cause of menstruation as physiological, 18% didn't know the cause, 11% still believe it as curse of God.[3]

In the study conducted by Yaliwal et al, most of the girls (56%) attained menarche between 12 and 14 years of age.[6] It was also found that 12% of the girls staying in both urban and rural areas had no knowledge of commercial sanitary pads. However, in our study, it was found that 36% of adolescent girls did not know that cloth use is harmful, in other words, they did not have satisfactory knowledge regarding the importance of sanitary pads usage. This may be because of the absence of periodical menstrual hygiene awareness sessions by school teachers.

In our study, it was found that only 46.2% had a satisfactory level of awareness (i.e., 29.5% and 16.7% knew that the source of menstrual bleeding was vagina and uterus respectively). Chauhan et al in their study found that only 11.9% of the adolescent girls in their study knew that bleeding takes place from the uterus.[5] Another study conducted by Raina et al reported that only 12% of the girls were aware of the uterus being the source of blood flowing during the menstrual cycle while a majority of girls i.e. 55.33% were not aware of the same.[7] This proportion is even lower than our study. However, a different finding was reported from the study conducted by Wagh et al in which out of 100 adolescent girls, 68% knew that menstruation resulted as a result of bleeding from the uterus, 20% thought the source to be vagina, while 12% thought that the bleeding occurs from urethra.[3] The lack of awareness was higher in our study due to inclusion of the school-going adolescent population whereas in the study by Wagh et al, the study participants included young females in the age group of 20-22 years, who had learnt through education and experience.[3]

In the study conducted by Garg et al, trusted sources of menstruation-related information for the participants were their mothers (53.7%), teachers (25.5%), friends and relatives (25.5%), sisters (17.0%), mass media (2.7%), and frontline community health workers (0.7%).[8] A total of 675 participants (59.8%) reported usually consulting a person outside the formal health system for menstruation-related problems, of whom 572 (84.7%), 54 (8.0%), 40 (5.9%) and 9 participants (1.3%) consulted their mothers, sisters, relatives, and friends, respectively. There is a need to raise awareness and consistent efforts are required through 'Balika Manch' and other activities at school level so that correct and timely information is propagated to adolescent girls regarding menstrual hygiene practices. In the present study, most participants did talk about menstruation mostly to their mothers (89.7%) while the rest i.e., 10.3% had not talked to anyone. However, in the study conducted by Sangeetha et al in 2021 they found that the majority of the study participants (68%) did talk to their mothers and some had talked to the doctor (4%).[4] A study conducted in schools of Jodhpur also reported mothers to be the most common person whom the girls found comfortable and confident to talk with regarding their menstrual problems.[9] Chauhan et al mentioned in their study that the source of knowledge for most of the girls was mothers (43%), followed by friends (20.6%) and sisters (17.1%).[5]

A school based study done in Telangana reported that 32.7% of girls reported absenteeism from school during their periods and the most common (87.7%) reason for absenteeism was pain, discomfort, or tiredness.[5] Around 21% of our study participants took leave during menses. The commonest reason for being absent in our study was also similar, i.e., feeling uncomfortable. Hakim et al in their study reported that about 81.4% of non-government school girls and 64.4% of government school girls attended the school during their menses.[9] Chauhan et al also

mentioned that schools (their study site) have separate bathrooms for girls, adequate privacy with continuous supply of water and none of the girls had issues with hygiene management at school.[5] In our study, shortage of water and non-availability of soaps (which tells about hygiene maintenance) was reported as the reason for absenteeism by a small proportion of girls (around 4.5%) which was comparable to a study done by Hakim et al which reported that lack of water, toilet and privacy was documented as a cause for not attending school by 4.8% of the study participants.[9]

Strengths and limitations

One of the major strengths of the study was that it was a pre-designed questionnaire-based study. In addition, we included all the girls studying in the selected school. However, there are some limitations to our study. The study was conducted only in one school of North Delhi, so the results may not be generalizable to other areas. The findings may also not be generalizable to private schools where there might be better availability of general sanitation facilities as it was conducted in a government girls school. Furthermore, the study was conducted in girls only school so some of the menstrual hygiene practices may differ from co-ed school.

CONCLUSION

The study has shown that the majority of the participants were not factually aware about menstruation as a biological process. The overall understanding of menstruation was less in our study participants. However, the majority of the participants had practiced satisfactory practices regarding menstruation. This may be due to the availability of the sanitary pads at school given under the MHS of Government of India. Thus, a continuous supply chain of sanitary pads is fundamental in encouraging the use of sanitary pads among school going adolescent girls. Some of the study participants were hesitant in talking about menstruation to anyone except to their mothers. Thus, to improve their awareness and address their hesitancy about menstruation, Balika Manch programs should be organized at school and in community so that so that they may share the problems faced by them at various facets of life and are confident to open up to all members including the male members of the community.

ACKNOWLEDGEMENTS

Authors would like to thank the school Principal, teachers and parents for their cooperation, and students for their active participation in the study.

Funding: No funding sources
Conflict of interest: None declared
Ethical approval: The study was approved by the Institutional Ethics Committee

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Cite this article as: Wangoo DP, Yadav S, Goyal S, Kataria P, Agarwal C. Understanding of menstruation among school going adolescent girls in Delhi: a cross-sectional study. Int J Community Med Public Health 2025;12:740-5.