

Menstrual Hygiene Knowledge and Practices among Adolescent School-Girls in Haldwani, Uttarakhand: Probing the Association with School Environment

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Abstract

Background: Menstruation is one of the most significant social, and psychological changes that a female experiences. A mixture of incomplete and erroneous information about the safe and hygienic menstrual practices, as well as improper menstrual management at home or school can be a significant barrier to girls' school attendance and educational experience quality. Menstrual hygiene being a multi-sectoral public health issue needs to be dealt in integration with education, health, women and child development and water sanitation hygiene (WASH).

Objective: To assess the knowledge and practices towards menstruation and menstrual hygiene among adolescent girls and its association with the school environment.

Method: This study was an analytical cross sectional study, conducted among the 850 adolescent girls of government and private schools in Haldwani. Data was analyzed using SPSS (version 16).

Results: More than half of the participants from government and private school showed average knowledge and practices regarding menstruation and menstrual hygiene. Facilities in school related to menstrual hygiene management was found to be associated with menstrual hygiene practices among the study participants. ($p < 0.05$)

Conclusion: These findings indicate the need for education about safe and correct menstrual hygiene practices. School environment related to menstrual hygiene management should be improved and strengthened as per the need of adolescent population.

Key words- Menstrual hygiene, School environment, Menstrual Hygiene Management

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Introduction

Adolescence is defined as the age between 10-19 years.¹ There are 242 million adolescents aged 10-19 in India comprising 18% of the total population and among them 116 million are girls.² Menstruation is one of the most drastic change which affects a girl physically, socially and psychologically. Absence of correct knowledge due to different socio-culture beliefs can bring confusion and affects a girl emotional and psychological status. It can result into negative attitude towards menstruation and affects her menstrual hygiene practices.³ Lack of access to clean, effective absorbents; inadequate facilities to change, clean and dispose of absorbents; lack of access to soap and water; and lack of privacy at home or school will results into higher rates of school drop-outs and school absenteeism among the adolescent girls.⁴ Poor Menstrual Hygiene Management indirectly will create an obstacle in the achievement of the Sustainable development goals: Physical health and psycho-social well-being for women and girls, quality education for girls, gender empowerment and equality.⁵

“SchoolHealthProgram” launched by Government of India, Rashtriya Bal Swasthya Karyakram (RBSK) and Rashtriya Kishor Swasthya Karyakram (RKSK) are various initiatives taken which aims to strengthen the preventive and promotive aspects of health in environment of schools in line with the overall approach of Ayushman Bharat.⁶

Correct knowledge about menstruation and menstrual hygiene will eventually result into correct menstrual hygiene practices among the adolescent girls. Current study aimed to assess the knowledge and practices towards menstruation and menstrual hygiene among adolescent girls and its association with the school environment.

Materials and Methods

It was a school-based analytical cross-sectional study conducted from February 2022 to August 2022 among 850 adolescent girls of ten government and ten private schools (12-19 years of age) in Haldwani

block of Uttarakhand. Multistage sampling with probability proportional to size was used for the selection of schools and participants. Pre-tested, semi-structured, self-administered questionnaire in preferred language was used. The sample size was calculated on the basis of prevalence of school absenteeism due to poor management of menstrual hygiene among adolescent girls= 50.6% in a study conducted by Bali et al.⁷, among adolescent girls. Using $N = (Z_{1-\alpha/2})^2 pq/d^2$, where: N = sample size, Z = Z statistic for a level of confidence (1.96), p = expected prevalence or proportion, q= 1-p, d = precision 7% (relative) at 95% confidence interval and with addition of 10 percent non- response rate, 850 sample size was obtained. Adolescent girls between (12 to 19 years of age) who attained menarche and gave the consent were included in the study. The permission for conducting the study was taken from Principal of each school and consent from parents/guardians of each study participant.

The knowledge score was generated using 6 items and practice score was derived using 7 items from the questionnaire about menstruation and menstrual hygiene. Each correct answer received one mark, while each incorrect response received none. Finally, the score was classified as poor, average, or good. Ethical clearance was obtained from Institutional Ethics Committee, Government Medical College, Haldwani, Uttarakhand.

Statistics

The data was entered in MS Excel and analyzed by using SPSS version 16. Descriptive analysis was executed for each of the variables in the form of frequency and percentage. Chi square test was used to find out association between qualitative variables and t-test for quantitative variables. p value <0.05 was considered significant.

Results

In our study, a total of 850 participants (12-19 years of age) were evaluated. Most of the participants were middle- adolescent and belonged to nuclear family.

Table 1: Knowledge regarding menstruation and menstrual hygiene among the study participants (N=850)

Variable	Government School(n=425)	Private School (n=425)	Total (n= 850)	p-value*
Knowledge about menstruation before menarche				
Yes	248 (58.1)	306 (72.0)	554(65.1)	<0.001
No	178 (41.9)	119 (28.0)	297(34.9)	
Cause of menstruation				
Normal physiological process	114 (26.8)	268 (63.1)	382(44.7)	<0.001
Due to some food	5 (1.2)	00	5 (0.58)	
Cleans the body	238 (56)	90 (21.2)	328(38.5)	
Punishment of god	4 (0.9)	4 (0.9)	4 (0.47)	
It is a disease	00	4 (0.9)	4 (0.47)	
Don't know	64 (15.1)	59 (13.9)	123(14.4)	
Organ of menstruation				
Uterus	195 (45.9)	321 (75.5)	516 (0.7)	<0.001
Bladder/ Stomach/ Kidney	78 (18.4)	24 (5.6)	102(12.0)	
Don't know	132 (35.8)	80 (18.8)	212(24.9)	
Menstrual cycle repeats after how many days				
After 15 days	8 (1.9)	8 (1.9)	16 (1.8)	0.048
After one month	362 (85.2)	389 (91.5)	751(88.3)	
After 2-3 month	37 (8.7)	12 (2.8)	49 (5.7)	
Don't know	18 (4.2)	16 (3.8)	34 (4.0)	
Duration of normal menstrual period				
<2 days	52 (12.2)	32 (7.5)	84 (9.8)	< 0.001
2-7 days	316 (74.4)	281 (66.1)	597(70.0)	
>7 days	57 (13.4)	112 (26.4)	169(19.8)	
Hygienic absorbent to be used				
Sanitary napkins	293 (68.9)	373 (87.8)	666(78.3)	<0.001
Cloth	28 (6.6)	10 (2.2)	38 (4.4)	
Both	104 (24.5)	42 (10.0)	146(17.1)	

* chi-square test applied

Majority of the participants (69% from government and 89% from private school) answered sanitary napkins as a hygienic absorbent. Significant association was observed between type of school and sound knowledge about menstruation, such as knowing menstruation before menarche, the cause

and organ of menstruation, the normal duration of menstruation, the number of days before the menstrual cycle repeats, and the hygienic absorbent to be used during the menstrual cycle ($p<0.05$), as a higher proportion of students from private schools provided the correct answers (Table 1).

Table 2: Knowledge level regarding menstruation and menstrual hygiene among the study participants (N=850)

Grades of score	Government school (n=425)	Private school (n=425)	p-value
Good	16 (3.8)	48 (11.3)	<0.001
Average	236 (55.5)	289 (68.0)	
Poor	173 (40.7)	88 (20.7)	
Mean Score (SD)	5.05 (2.07)	6.10 (1.91)	<0.001

Majority of the participants from government and private school had average level of knowledge. Poor knowledge was reported in higher proportion among government school participants. Mean knowledge score was found to be greater among private school

participants. Independent t-test showed a significant difference in the mean score of knowledge between government and private school participants ($p < 0.05$) (Table 2)

Table 3: Practices regarding menstrual hygiene among the study participants (N=850)

Variables	Government School (n=425)	Private School (n=425)	Total (N= 850)	p-value*	
Absorbent used during menstruation					
Sanitary napkins	293 (68.9)	373 (87.8)	666 (78.3)	<0.001	
Cloth	28 (6.6)	10 (2.2)	38 (4.4)		
Both	104 (24.5)	42 (10.0)	146 (17.1)		
Method of disposing absorbent in house					
Throw in open drains, open grounds, gutter nearby	18 (4.2)	8 (1.9)	26 (3.0)	<0.001	
Throw them into dustbin with regular waste	152 (35.8)	182 (42.8)	334 (39.2)		
Throw in separate dustbins	129 (30.4)	203 (47.8)	332 (39.0)		
Bury it underground	18 (4.2)	8 (1.9)	26 (3.0)		
Burn it	93 (21.9)	20 (4.7)	113 (13.2)		
Throw them in latrine / commode	15 (3.5)	4 (0.9)	19 (2.2)		
Material used for wrapping absorbent before disposal					
Paper	91 (21.4)	100 (23.5)	191 (22.4)		0.77
Plastic polythene	139 (32.7)	136 (32.0)	275 (32.3)		
Paper and Plastic both	186 (43.8)	177 (41.6)	363 (42.7)		
Nothing	9 (2.1)	12 (2.8)	21 (2.4)		
Average number of absorbent used per day					
One	32 (7.5)	20 (4.7)	52 (6.1)	0.222	
Two	195 (45.9)	184 (43.3)	379 (44.5)		
Three	139 (32.7)	157 (36.9)	296 (34.8)		
Four or more	59 (13.8)	64 (15.1)	123 (14.4)		
How often do you clean your genitalia during menstrual cycle					
Only During bathing	85 (20)	116 (27.3)	201 (23.6)	<0.05	
Every time after toilet	332 (78.1)	309 (72.7)	641 (75.4)		
Do not clean	8 (1.9)	00	8 (0.9)		
Do you wash your hands after changing absorbent					
Yes	416 (97.9)	417 (98.1)	833 (98.0)	0.806	
No	9 (2.1)	8 (1.9)	17 (2.0)		
Taking bath during periods					
Yes	404 (95.1)	409 (96.2)	813 (95.6)	0.77	
No	21 (4.9)	16 (3.8)	37 (4.3)		

* chi-square test applied

A significant relationship was also observed between the type of school and correct menstruation practices, such as the type of absorbent used during menstruation, the proper method of disposing of

absorbent at home, and the frequency of cleaning the genitalia during the menstrual cycle ($p < 0.05$), as a higher proportion of students from private schools had these practices correct. (Table 3).

Table 4- Practice level regarding menstrual hygiene among the study participants (N=850)

Grades of score	Government School (N=425)	Private School (N=425)	Total -850	p-value
Good (6-7)	120 (28.2)	177 (41.6)	297 (34.2)	<0.001
Average (4-5)	248 (58.4)	224 (52.7)	472 (55.5)	
Poor(1-3)	57 (13.4)	24 (5.6)	81 (9.5)	
Mean Score(SD)	4.76 (1.21)	5.21 (0.97)		<0.001

Good level of practice was shown by 28 percent of participants from government school while 41 percent of private school. Majority of the participants from both type of school showed average score in menstrual hygiene practice level. Chi-square and

Independent t-test showed a significant difference in the practice level and mean practice score among the participants of government and private school ($p < 0.001$) (Table 4).

Table 5: Association of Menstrual Hygiene Practice with school environment (N=850)

Variables	Menstrual Hygiene Practice							
	Government School (n=425)				Private School (n=425)			
	Poor N(%)	Fair N(%)	Good(%)	p-value	Poor N(%)	Fair N(%)	Good N(%)	p-value
Provision of emergency sanitary pads in school								
Yes	40 (13.1)	169 (55.4)	96 (31.5)	0.048	24 (8)	148 (49.2)	129 (42.9)	0.002
No	17 (14.2)	79 (65.8)	24 (20)		00	76 (61.3)	48 (38.7)	
Provision of water facility in school								
Yes	57 (14)	230 (56.5)	120 (29.5)	0.001	24 (6.5)	189 (51.1)	157 (42.4)	0.06
No	00	18 (100)	00		00	35 (63.6)	20 (36.4)	
Provision of soap facility/ hand-wash facility in school								
Yes	38 (13.2)	158 (55.1)	91 (31.7)	0.066	12 (5.9)	112 (54.9)	80 (39.2)	0.621
No	19 (13.8)	90 (65.2)	29 (21)		12 (5.4)	112 (50.7)	97 (43.9)	
Any counseling session/ help regarding menstrual issue or safe disposal in school								
Yes	40 (13.2)	164 (53.9)	100 (32.9)	0.003	20 (7.5)	161 (60.3)	86 (32.2)	<0.001
No	17 (14)	84 (69.4)	20 (16.5)		4 (2.5)	63 (39.9)	91 (57.6)	
Gender separated toilet facility in school								
Yes	52 (13.8)	213 (56.6)	111 (29.5)	0.138	24 (5.9)	212 (51.8)	173 (42.3)	0.164
No	5 (10.2)	35 (71.4)	9 (18.4)		0-	12 (75)	4 (25)	
Dustbins present in or near the toilet for waste disposal								
Yes	30 (10)	180 (59.8)	91 (30.2)	0.004	8 (2.8)	148 (51.2)	133 (46)	<0.001
No	27 (21.8)	68 (54.8)	29 (23.4)		16 (11.8)	76 (55.9)	44 (32.4)	
Total	57	248	120		24	224	177	

Most of the school environment factors like provision of emergency sanitary pads, water facility in toilets, counselling sessions or help and presence of dustbins in or near the toilet came out to be significantly associated with correct menstrual hygiene practices among the participants of both type of schools ($p < 0.05$). (Table 5)

Discussion

27% and 64% participants from government and private school respectively knew menstruation as a normal physiological process. Similar to this findings, regarding the causes of menstruation was noted in the study done by Mamilla et al(2019)⁸ and by Shoor et al(2017).⁹

Uterus as an organ of menstruation was rightly known by 46% and 75% of the participants from government and private schools respectively. This finding simulates with the study conducted by Wagh et al(2018)¹⁰ in urban Nagpur where it was found to be 68%. Contrary findings were seen in the study of Mamilla et al (2019)⁸ and Bali et al (2020)⁷ where it was 20% and 4% respectively.

In the present study, more than two-third (78%) of the respondents were using sanitary pads. This result is in accordance with NFHS-5 data¹¹, which stated that 64.5% adolescent girls are using sanitary napkins. Similar finding were seen in the study by Sangha NK et al(2022)¹² and Shetty et al. (2021)¹³. Opposite finding were seen in the study conducted by Bali et al. (2020)⁷ in urban slum of Madhya Pradesh.

Throwing of used absorbents in the dustbins were reported by 60% and 80% participants of government and private schools respectively in our study. Similar finding were obtained in studies by Sangha et al¹².

In the present study we found that more than half of the participants of both the schools had average level of knowledge practice regarding menstrual hygiene. Poor level of knowledge was scored by 40% participants from government school while 20% participants from private school. Double the number of participants from private school scored good in practice score as compared to government school. These findings were not comparable with the studies of Mahajan and Kaushal(2022)¹⁴ and Gupta et al.(2019)¹⁵. Mahajan and Kaushal (2022)¹⁴

also observed that 19%, 69%, 12% samples had poor, fair and good score regarding menstrual hygiene practices respectively.

Conclusion

In our study we observed average knowledge and practice level regarding menstrual hygiene among a major proportion of participants. School environment of the adolescent girls showed significant association with the practices related to menstrual hygiene. This study adds to the literature in focusing impact of school environment and facilities required by adolescent girls to adopt correct and hygienic menstrual practices.

Recommendations:

Based on our findings of the study, it can therefore be suggested that efforts are needed to provide facilities related to Menstrual Hygiene Management including provision of sanitary pads when required, basic water and soap facility, presence of dustbins in or near the toilets to dispose of the menstrual waste and sensitization of young population to basic hygiene by regular teaching activities in schools.

Limitations:

The respondents might not have disclosed all answers due to the sensitive nature of the topic. This study didn't enquire about the knowledge of teachers and parents regarding this important issue. In-depth interview could be performed to address the sensitive and unaddressed problems in adolescent life.

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Conflict of interest: Nil

Ethical approval: The study was approved by the Institutional Ethics Committee

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