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A School-Based Study on Menstrual Hygiene Practices among Adolescent Girls in Ambala, Haryana

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ABSTRACT

Introduction: Adolescence is a critical transitional period marked by significant physiological and psychological changes, and menstruation is an important aspect of an adolescent girl's reproductive health. Proper menstrual hygiene practices during this stage are essential for maintaining health and well-being.
Methods: A descriptive research design was adopted to assess the expressed practices of menstrual hygiene among 100 adolescent girls studying in selected schools of Ambala, namely Duliana Government Senior Secondary School and D.A.V. Centenary Public School, Barara. Purposive sampling technique was used, and data were collected using a socio-demographic questionnaire and a self-structured menstrual hygiene practice checklist.
Results: The findings revealed that 67% of the adolescent girls had good menstrual hygiene practices, 25% had average practices, and 8% had poor practices. A statistically significant association was found between menstrual hygiene practices and class ($p = 0.005$), type of family ($p = 0.024$), amount of menstrual flow ($p = 0.026$), and type of absorbent used ($p = 0.047$). No significant association was observed with age, residential area, religion, parents' education, age at menarche, menstrual cycle pattern, duration of menstruation, family history of dysmenorrhea, or pain during menstruation.
Conclusion: The study concludes that most adolescent girls practiced satisfactory menstrual hygiene; however, selected socio-demographic and menstrual factors significantly influenced these practices, indicating the need for focused educational interventions to further improve menstrual hygiene behaviours.

1 INTRODUCTION

Menstruation is a normal biological process that involves the vaginal shedding of the endometrium, the lining of the uterus. This occurs during the menstrual cycle, which typically ranges from 14 to 28 days in length. Menstruation, sometimes known as a "period," usually happens once a month from puberty until menopause, with the exception of pregnancy, lasting for about three to seven days. One important sign of a female's reproductive development is the commencement of the menstrual cycle.(1) Menstrual hygiene practices are a serious public health issue, especially in many parts of the world where there is sometimes inadequate access to resources, education, and awareness.

The reproductive health choices they make today will impact future generations. Women who have a strong understanding of menstrual hygiene are less likely to experience reproductive tract infections. These infections, along with sexually transmitted infections, are commonly seen in primary care settings. Therefore, it is necessary for adolescent girls in any community to have adequate knowledge about menstruation as well as menstrual hygiene, as it directly contributes to reducing the prevalence of genital tract infections and sexually transmitted infections in primary care. (2) Bad menstrual hygiene has more effects than only one's physical health. Girls sometimes miss classes during their menstrual cycles because of inadequate facilities, like private restrooms and water supplies, as well as social anxiety. This absenteeism feeds the cycle of gender inequality in education by resulting in poorer academic performance and even dropout rates. As per a study report by UNESCO on menstrual hygiene, in South Asia, 1 in 3 girls miss schools during their period due to inadequate menstrual hygiene. (3)

Adolescence is a crucial time for women to prepare and reposition themselves for safe and healthy menstrual bleeding management. Also, this is the best time for girls to enter new settings, such as high schools, and try to make plans for their future adult lives.

However, due to a lack of sufficient information, the majority of teenage girls those between the ages of 10 and 19 enter their puberty period (maturity) without being ready. It has been discovered that inadequate menstrual hygiene practices can contribute to genitor-urinary tract infections, cervical cancer, poor academic performance, decreased self-esteem, and a poor quality of life in addition to school absence or dropout. In addition, females have frequently reported feeling scared, perplexed, and ashamed when going through their menstrual cycle due to Odors, leaks, clothing stains, and losing sanitary products during class. Their social growth, educational performance, physical, mental, and emotional health can all suffer significantly from an inability to manage menstruation hygiene.(4)

Prevalence of substandard menstrual hygiene practice in India, especially among adolescent girls, menstrual hygiene management is a serious public health concern. Poor hygiene practices result from many girls limited access to sanitary products, clean water, and private amenities for managing their periods. Due to insufficient menstrual hygiene practices, this might lead to harmful health consequences such reproductive tract infections. Finding the prevalence of these practices and the typical obstacles to upholding appropriate menstrual hygiene are made easier with the aid of a meta-analysis.(5)

In females who are of reproductive age, the menstrual cycle is a common and natural phenomenon. Menstruation begins during the adolescent stage, when major mental and physiological changes occur. Adolescence is a crucial time for women to prepare and reposition themselves for safe and healthy menstrual bleeding management. Also, this is the best time for girls to enter new settings, such as high schools, and try to make plans for their future adult lives. However, due to a lack of sufficient information, the majority of teenage girls those between the ages of 10 and 19 enter their puberty period (maturity) without being ready. The high prevalence of substandard menstrual hygiene practices among adolescent girls in India represents a critical public health issue influenced by limited access to sanitary products, inadequate water and sanitation facilities, poor awareness, and deep-rooted socio-cultural taboos. These challenges contribute to adverse health outcomes such as reproductive tract infections, skin problems, and psychological distress, while also leading to school absenteeism and reduced educational and social participation. Socioeconomic inequalities further widen the gap, with girls from rural and underprivileged backgrounds being disproportionately affected due to lack of resources and education.(7)

Evidence from multiple studies highlights significant deficiencies in menstrual knowledge before menarche, underscoring the need for early, targeted educational interventions. Improving menstrual hygiene practices is also essential for reducing health disparities and supporting adolescent girls' dignity and well-being. Moreover, addressing menstrual hygiene is aligned with global priorities advocated by the United Nations, particularly in achieving better health and educational outcomes for adolescents. Therefore, this study is needed to identify gaps in knowledge among adolescent girls and to enhance their awareness through educational pamphlets, ultimately promoting safe and healthy menstrual hygiene practices.

Since discussing "menses" is socially taboo and adolescent girls may not have access to sufficient information, most women find it uncomfortable. Even the limited information they do receive is frequently biased and surrounded by misconceptions, and it comes primarily from classmates, family members, and religious organizations. Teenage girls believe that menstruation is something embarrassing and ought to be kept private as a result. Adolescent girls may be more susceptible to mental, emotional, and physical issues as a result. Adolescent girls' everyday activities, academic achievement, attendance at school, and social interactions are all further hampered by these circumstances. Girls' perceptions of menstruation also have an impact on how hygienic they are throughout their periods.(6)

Improvement of menstrual hygiene practices contributes to the achievement of global health goals, such as the Sustainable Development Goals of the United Nations, especially SDG 3 (Good Health and Well-Being) and SDG 4 (Quality Education). The undertaking of a meta-analysis on this subject adds to the global endeavour to enhance the educational and health outcomes of adolescents, especially for girls in underdeveloped nations. The research felt that adolescent girls having lack knowledge about menstrual hygiene practices. (8)

2 METHODS

2.1. Study design and participants

This study employs descriptive research, to assess the expressed practices of menstrual hygiene among adolescent girls. This study participants were consisted the adolescent girls who are in menstruation. Inclusive criteria of this study- Adolescent girls who give consent to take part in the study. Adolescent girls who are menstruating. Adolescent girls who are present during the time of data collection. Total 100 adolescent girls are taken for sample.

2.2. Ethical Consideration

Ethical approval was obtained from Maharishi Markandeshwar University Mullana, Haryana, India. All the adolescents' girls give their consent.

2.3. The demographic profile questionnaire

This questionnaire is used to assess the general information and different aspect which create impact on pain including age, class, socioeconomic status of family, class, residential area, religion, education level of Parents, age at menarche, menstrual cycle, menstrual cycle completed in days, amount of bleeding during menstruation, history of dysmenorrhea in family, pain during menstruation.

2.4. Data collection

The study shows that data were collected in two settings having same characteristics and standards. When the adolescent girls were come in school and then take the consent. The demographic data were collected by taking the information of the adolescent girls by questionnaire method and expressed practices of menstrual hygiene is observed by the checklist.

2.5. Data Analysis

The Statistical Package for the Social Sciences (SPSS Inc.) for Windows, version 25.0, was used for data entry and analysis. Continuous variables were described as either mean (standard deviation) or median where categorical variables were given as frequency and percentage. In Inferential statistics the Chi-square test and pie chart were used to depict the findings at the level of significant level of $p < 0.05$.

3 RESULTS

The 3.1. Demographic of participants

Table 2 and Figure 1 describe the frequency and percentage distribution of adolescent girls according to their expressed menstrual hygiene practices based on the checklist scores. Out of 100 respondents, 67 adolescent girls (67%) obtained scores above 23 and were categorized as having good menstrual hygiene practices, indicating that more than two-thirds of the study population followed appropriate hygiene measures during menstruation. A total of 25 girls (25%) scored between 21–23 and were classified as having average menstrual hygiene practices, reflecting moderate adherence to recommended practices. Only 8 respondents (8%) scored below 21 and were categorized under poor menstrual hygiene practices, showing inadequate hygiene behaviours. The pie chart illustrated in Figure 4.1 clearly represents this distribution, showing that the largest proportion of adolescent girls belonged to the good practice category (67%), followed by average (25%) and poor practices (8%), thereby emphasizing that although most girls practiced satisfactory

menstrual hygiene, a small yet important proportion remains at risk due to poor practices.

Table 3. presents the descriptive statistics of the self-structured expressed practices of menstrual hygiene checklist among adolescent girls of Ambala. The total score ranged from a minimum of 17 to a maximum of 33, indicating variability in menstrual hygiene practices among the respondents. The mean score of 26.01 suggests that, on average, the participants demonstrated good menstrual hygiene practices. The standard deviation of 4.06387 indicates moderate variation in scores, showing differences in individual practice levels. The median score of 27.5 further confirms that at least 50% of the adolescent girls scored above this value, which falls within the good practice range. Overall, the combined findings from Table 4.2, Figure 4.1, and Table 4.3 demonstrate that the majority of adolescent girls had good menstrual hygiene practices, while a smaller percentage exhibited average and poor practices, highlighting the need for continued educational interventions for those with lower scores.

The findings presented in Table 1 show that that the total number of participants is 100% (n=100), 41% of respondents were aged 13–15 years and 46% were aged 15–17 years, while only 7% belonged to the 10–13 years group and 6% to the 17–19 years group, with most studying in 9th (45%) and 10th (40%) standards and fewer in 11th (8%) and 12th (7%) standards. Menarche was most commonly attained at 12–13 years by 62% of girls, followed by 10–11 years in 24%, whereas 10% and 4% attained menarche at 14–15 and 16–17 years respectively. Menstrual cycle duration varied, with 20% reporting cycles of less than 25 days, 25% having 25–27 days, 25% having 28–30 days, and 30% reporting cycles longer than 31 days; however, 85% reported regular cycles and 15% irregular cycles. Regarding duration of menstrual flow, 42% experienced flow for 5–6 days, 36% for 3–4 days, 12% for less than 3 days, and 10% for more than 7 days. The amount of flow was moderate in 61%, scanty in 37%, and heavy in 2% of respondents. A family history of dysmenorrhea was reported by 54%, while 46% reported none, and 66% experienced menstrual pain compared to 34% who did not. Sanitary pads were used by 98% of respondents, while only 2% used cloth, with no use of other absorbents. Socio-economically, 38% belonged to the lower middle class, 30% to the middle class, 20% to the lower class, 8% to the upper middle class, and 4% to the upper class. Residential distribution showed that 85% of respondents were from rural areas and 15% from urban areas, reflecting the overall demographic and menstrual health profile of the study population.

Table 4. shows a statistically significant association between expressed menstrual hygiene practices and class ($p = 0.005$), type of family ($p = 0.024$), amount of menstrual flow ($p = 0.026$), and type of absorbent used ($p = 0.047$). No significant association was found with age, residential area, religion, parents' education, age at menarche, menstrual cycle, duration of menstruation, family history of dysmenorrhea, or pain during menstruation. As the p-values for selected variables were below the level of significance, the null hypothesis was rejected. Thus, menstrual hygiene practices were significantly associated with certain selected demographic and menstrual variables.

4 DISCUSSION

The findings of the present study were discussed in light of evidence from related national and international studies to strengthen interpretation and relevance. The study, conducted among adolescent girls in selected schools of Ambala, revealed that a majority of participants demonstrated good menstrual hygiene practices, with 67% classified as good, 25% as average, and 8% as poor, indicating an overall satisfactory level of hygiene behaviour. Sanitary pad usage was very high (98%), reflecting improved access and acceptance, and these findings align with studies conducted in Nepal, Lucknow, and Nagpur, where a majority of adolescent girls reported using sanitary pads. However, lower usage rates reported from regions such as Madhya Pradesh highlight persistent regional disparities in menstrual hygiene practices. The age of menarche in the present study, predominantly between 12–13 years, was comparable with findings from studies conducted in Karnataka and other parts of India. (9,10,11,12)

A significant association between type of family and menstrual hygiene practices was observed, which is consistent with studies from urban slums and government schools in Dehradun. In contrast, no association was found between residential area and hygiene practices, supporting findings that rural–urban differences are gradually narrowing. Socioeconomic status showed a significant association with menstrual hygiene, corroborating studies from southern parts of Haryana, where lower socioeconomic status was linked to poorer practices. Parental education, however, showed no significant association in the present study, differing from some previous findings. Overall, the discussion highlights both consistencies and variations across studies, emphasizing the continued need for focused education and context-specific interventions to improve menstrual hygiene practices among adolescent girls.(13)

5 CONCLUSION

In conclusion, the study conducted among 100 adolescent girls revealed that 67% had good menstrual hygiene practices, 25% had average practices, and 8% had poor practices. Sanitary pads were used by the majority of participants, indicating good acceptance of hygienic absorbents. A statistically significant association was observed between menstrual hygiene practices and socio-demographic status, class, type of family, amount of menstrual flow, and type of absorbent used. These associations highlight the influence of both social and biological factors on menstrual hygiene behaviors. Overall, the findings emphasize the need for continued education and targeted interventions for girls with average and poor hygiene practices.

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Peer review

Yes, changes are done acc to peer review.

Data availability statement

The data sets generated during and/or analysed during the current study are available from the authors upon reasonable request.

Credit authorship contribution statement

Ms Shikha Chaudhary, Ms Alisha and Ms Tenzin Conceptualization, Methodology, Validation, Formal analysis, Investigation, Data curation, Writing original draft, Writing- review & editing, Project administration.

Declaration of competing interest

The author declare that they have competing interests.

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Table 1. Frequency and percentage distribution of expressed practices of menstrual hygiene among adolescents girls as per socio demographic variables

n=100

SL.NO	SAMPLE CHARACTERISTICS	F	%
1	AGE (IN YEAR)		
1.1	10-13	12	12
1.2	13-15	41	41
1.3	15-17	46	46
1.4	17-19	1	1
2	CLASS		
2.1	9TH	39	39
2.2	10TH	32	32
2.3	11TH	11	11
2.4	12TH	18	18
3	SOCIO ECONOMIC STATUS		
3.1	Upper class (>Rs.9098)	10	10
3.2	Upper middle class (Rs.4549-9097)	23	23
3.3	Middle class(Rs.2729-4548)	24	24
3.4	Lower middle class (Rs.1364-2728)	23	23
3.5	Lower class (<Rs.1364)	20	20
4	RESIDENTIAL AREA		
4.1	Urban	15	15
4.2	Rural	85	85
5	RELIGION		
5.1	Muslim	4	4
5.2	Hindu	88	88
5.3	Sikh	8	8
6	STATUS OF PARENTS EDUCATION		
	MOTHERS EDUCATION		
6i.1	No formal education	7	7
6i.2	Primary	15	15
6i.3	Secondary	32	32
6i.4	Higher secondary	21	21
6i.5	Graduate or above	24	24
	FATHERS EDUCATION		
6ii.1	No formal education	4	4
6ii.2	Primary	9	9
6ii.3	Secondary	38	38
6ii.4	Higher secondary	24	24
6ii.5	Graduate or above	24	24
7	TYPE OF FAMILY		
7.1	Nuclear family	56	56
7.2	Joint family	35	35
7.3	Extended family	9	9
8	AGE OF MENARCHE		
8.1	10-11	24	24
8.2	12-13	62	62
8.3	14-15	11	11

8.4	16-17	3	3
9	MENSTRUAL CYCLE		
9.1	<25 days	20	20
9.2	25-27 days	25	25
9.3	28-30 days	25	25
9.4	>31 days	30	30
10	MENSTRUAL CYCLE FLOW		
10.1	Regular	85	85
10.2	Irregular	15	15
11	MENSTRUAL CYCLE FLOW IN DAYS		
11.1	1-2	9	9
11.2	3-4	36	36
11.3	5-6	42	42
12	AMOUNT OF MENSTRUAL FLOW		
12.1	Scanty flow: 1-2 pads per day	37	37
12.2	Moderate flow: 3-5 pads per day	61	61
12.3	Heavy flow: >6 pads per day	2	2
13	FAMILY HISTORY OF DYSMENORRHOEA		
13.1	Yes	54	54
13.2	No	46	46
14	SUFFERING PAIN DURING MENSTRUATION		
14.1	Yes	66	66
14.2	No	34	34
11.4	7-8	13	13
15	ABSORBENT USED		
15.1	Cotton cloth	2	2
15.2	Sanitary pad	98	98

Table 2. Frequency and percentage distribution of adolescent girls as per their expressed practices of menstrual hygiene checklist.

SL.NO	MENSTRUAL HYGIENE PRACTICE	SCORE	F (%)
1	Good	>23	67(67%)
2	Average	21-23	25(25%)
3	Poor	<21	8 (8%)

MINIMUM SCORE 0 MAXIMUM SCORE 33

Table 3. Range, Mean, SD and Median of self-structured menstrual hygiene practice checklist

Variable	Range	Mean ±SD	Median
Menstrual Hygiene	17-33	26.01±4.06387	27.5

Table no. 4. Association of expressed menstrual hygiene practices with selected variables

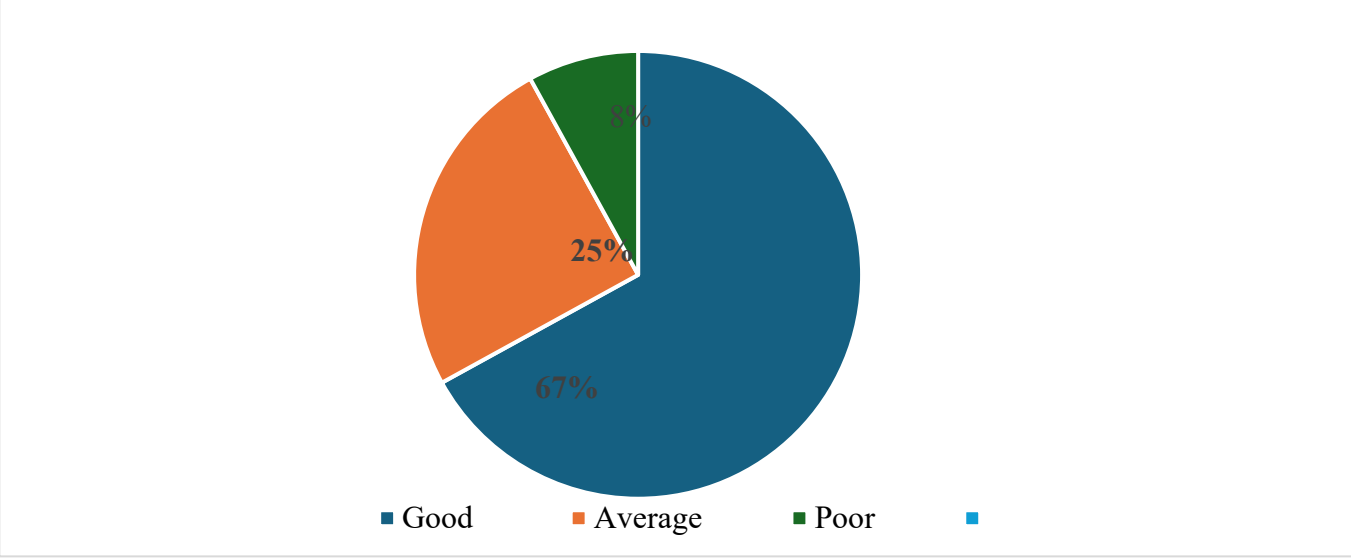
N=100

SR.NO	SOCIO DEMOGRAPHIC VARIABLES	LEVEL OF HYGIENE GOOD	AVERAGE	POOR	X2	df	p value
1	AGE(IN YEAR)						
1.1	10-13	6	6	0			
1.2	13-15	31	9	1			
1.3	15-17	29	10	7	10.459a	6	.107 NS
1.4	17-19	1	0	0			

2	CLASS						
2.1	9TH	25	14	0	18.613a	6	005*
2.2	10TH	22	7	3			
2.3	11TH	6	1	4			
2.4	12TH	14	3	1			
3	SOCIO ECONOMIC STATUS						
3.1	Upper class (>Rs.9098)	7	3	0	23.680a	8	003*
3.2	Upper middle class (Rs.4549-9097)	20	2	1			
3.3	Middle class(Rs.2729-4548)	21	2	1			
3.4	Lower middle class (Rs.1364-2728)	13	8	2			
3.5	Lower class (<Rs.1364)	6	10	4			
4	RESIDENTIAL AREA						
4.1	Urban	10	5	0	1.902a	2	.386 NS
4.2	Rural	57	20	8			
5	RELIGION						
5.1	Muslim	2	2	0	2.385a	4	.665 NS
5.2	Hindu	59	21	8			
5.3	Sikh	6	2	0			
6	STATUS OF PARENTS EDUCATION						
	MOTHERS EDUCATION						
6i.1	No formal education	6	1	0	3.713a	10	.959 NS
6i.2	Primary	9	4	2			
6i.3	Secondary	23	7	2			
6i.4	Higher secondary	12	7	2			
6i.5	Graduate or above	16	6	2			
	FATHERS EDUCATION						
6ii.1	No formal education	4	0	0	7.564a	10	.671 NS
6ii.2	Primary	5	4	0			
6ii.3	Secondary	25	9	4			
6ii.4	Higher secondary	17	4	3			
6ii.5	Graduate or above	15	8	1			
7	TYPE OF FAMILY						
7.2	Joint family	17	12	6	11..240a	4	0.24*
7.3	Extended family	6	2	1			
8	AGE OF MENARCHE						
8.1	10-11	14	10	0	10.210a	6	.116 NS
8.2	12-13	44	13	5			
8.3	14-15	7	2	2			
8.4	16-17	2	0	1			
9	MENSTRUAL CYCLE						
9.1	<25 days	11	7	2	5.661a	6	.462 NS
9.2	25-27 days	15	6	4			
9.3	28-30 days	18	6	1			
9.4	>31 days	23	6	1			
10	MENSTRUAL CYCLE FLOW						

10.1	Regular	56	22	7			
10.2	Irregular	11	3	1	.321a	2	.852 NS
11	MENSTRUAL CYCLE FLOW IN DAYS						
11.1	1-2	6	2	1			
11.2	3-4	25	9	2	1.610a	6	.952 NS
11.3	5-6	26	12	4			
11.4	7-8	10	2	1			
12	AMOUNT OF MENSTRUAL FLOW						
12.1	Scanty flow : 1-2 pads per day	20	10	7			
12.2	Moderate flow: 3-5 pads per day	46	14	1	11.078a	4	.026*
12.3	Heavy flow: >6 pads per day	1	1	0			
13	FAMILY HISTORY OF DYSMENORRHOEA						
13.1	Yes	35	16	3			
13.2	No	32	9	5			
14	SUFFERING PAIN DURING MENSTRUATION						
14.1	Yes	45	16	5	.129a	2	.938 NS
14.2	No	22	9	3			
15	ABSORBENT USED						
15.1	Cotton cloth	0	2	0			
15.2	Sanitary pad	67	23	8	6.122a	2	.047*

NS - Not significant (p>0.05) * - Significant (p<0.05)



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