



(RESEARCH ARTICLE)



Barriers to menstrual hygiene management in school environment among adolescent girls of Tatopani Rural Municipality, Jumla: A cross-sectional study

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Abstract

Background: Adolescence, spanning the ages of 10 to 19, is marked by rapid physical, psychological, social, and biological changes. Despite its importance, menstrual hygiene remains a neglected issue. In many developing countries, adolescent girls face numerous challenges in managing their menstrual hygiene, especially in school environments. These challenges include inadequate access to water and sanitation facilities, a lack of privacy, teasing by boys, insufficient menstrual hygiene education and products, and social stigma along with cultural restrictions on activities. This study aims to explore the barriers to menstrual hygiene management in school environment among adolescent girls in a rural municipality in Jumla,

Methods: A cross-sectional study was conducted in public schools located in Tatopani rural municipality, Jumla. Simple random sampling method was used to select the respondents. Data collection was carried out using a semi-structured questionnaire through the self-administered technique. The study population consisted of adolescent girls in grades nine and ten, with a total sample size of 192 participants.

Results: The study revealed that the majority of participants were aged between 13 to 15 years old, with 67.7% feeling uncomfortable managing their menstrual cycle at school. While most respondents had access to gender-separated toilets, only 38.0% had soap available for hand washing, and 88.5% faced poor lighting conditions. More than half of the students reported a lack of private spaces to address menstruation needs. Disposal practices varied, with 41.1% using dustbins, 40.1% utilizing rivers, and 16.1% resorting to toilet pans. Merely 15.1% had access to a sick room for resting. A significant number of students mentioned taking medication for menstrual pain, and 32.3% missed school during their cycle, citing reasons such as staining clothes or cultural restrictions.

Conclusions: The study identified several barriers to menstrual hygiene management among adolescent girls in a rural school setting, including discomfort, lack of essential facilities, unsanitary disposal methods, and missed school days. Raising awareness, improving infrastructure, educating on proper disposal, implementing policies, and community campaigns to enhance menstrual hygiene management and create a supportive school environment

Keywords: Adolescent; Barriers; Menstrual; Hygiene; Management; Practice; Discomfort; Jumla

1. Introduction

Adolescence, from ages 10 to 19, marks a crucial period of development, particularly with the beginning of menstruation. Despite being a natural process, menstruation is often stigmatized, impacting the adoption of proper menstrual hygiene management practices influenced by various societal, cultural, educational, and economic factors. In

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numerous developing nations, menstrual taboos restrict girls' access to essential information and support, hindering their ability to manage menstruation effectively.^{1,2,3} In many developing nations, menstrual taboos restrict girls' access to essential information and support from parents and teachers, hindering their ability to manage menstruation effectively.^{4,5}

In low- and middle-income countries, adolescent girls face challenges managing menstruation at school due to inadequate facilities, teasing, and stigma along with cultural restrictions.⁶ There are about 1.2 billion adolescents in the world and they have a wide range of interests, demands and worries, despite awareness of adolescent reproductive health needs, menstruation remains taboo.⁷ UNICEF's Factsheet reveals that 15% of girls in Burkina Faso, 20%, in the Ivory Coast and in Nigeria 23% miss school due to challenges in managing menstrual hygiene.⁸ According to the 2018 ASER study, 11.7% of schools lack separate restrooms for girls, while 22.8% have non-functional toilets, significantly affecting girls' education.^{9,10} In Nepal, out of 29,607 public schools, 82% have inadequate sanitation facilities, and 18% have lack any sanitation facilities at all. According to the MICS 2019 report, 9.4% of women reported missing social activities due to their menstrual periods.¹¹ approximately one-third of girls faced difficulties in washing, disposing of them discreetly, and carrying or storing them, often fearing ridicule from male peers. These challenges significantly impede girls' ability to effectively manage their menstrual hygiene.¹²

2. Methods

A school-based cross-sectional study was conducted from May to November 2022 in government schools of Tatopani Rural Municipality, Jumla, focusing on adolescent girls aged 10-19 in grades nine and ten. The study excluded girls who were absent during data collection or had not experienced menarche. The sample size was calculated using a statistical formula, resulting in a final sample of 192 participants after accounting for nonresponse.

Data was collected through a pre-designed and pre-tested questionnaire, with informed consent obtained from participants. A self-administered technique was employed, and facilitators were available to assist with any questions. Each questionnaire was coded to ensure confidentiality and anonymity. The study's validity was supported by a review of related literature, and reliability was confirmed through pre-testing on a similar population.

Data analysis was performed using Epi-Data version 3.1 and SPSS version 16, employing descriptive statistics and chi-square tests to explore associations between variables. Ethical approval was granted by the institutional review committees, and strict measures were taken to maintain confidentiality and minimize disruption during the study.

3. Results

Table 1 Socio- demographic characteristics of the respondents (N=192)

Variables	Frequency	Percentage
Age groups (years)		
13-15	107	55.7
16-19	85	44.3
Family type		
Nuclear	75	39.1
Joint	109	58.8
Extended	8	4.2
Ethnicity		
Brahmin	8	4.2
Chhetri	116	60.4
Dalit	66	34.4
Janjati	2	1.0
Religion		

Hindu	185	96.4
Christian	7	3.6
Mother education		
Cannot read and write	143	74.5
Can read and write	43	22.5
Primary level	3	1.6
Secondary level	3	1.6
Father education		
Cannot read and write	78	40.6
Can read and write	69	35.9
Primary level	24	12.5
Secondary level	14	7.3
Bachelor	2	1.0
Master	5	2.6
Mother occupation		
Housework	148	77.1
Business	3	1.6
Job	5	2.6
Agriculture	35	18.2
Daily wages	1	0.5
Father occupation		
Business	45	23.4
Job	20	10.4
Agriculture	85	44.3
Daily wages	24	12.5
Foreign employment	18	9.4
Family monthly income		
<10,000	94	49.0
10,000-20,000	41	21.4
20,000-30,000	10	5.2
>30,000	47	24.5

Table 1 shows that most students (55.7%) are aged 13-15, with joint families being the most common (58.8%). Chhetri is the largest ethnic group (60.4%), and 96.4% of students were Hindu. Majority (74.5%) of the respondent's mothers have no formal education, while fathers primarily work in agriculture (44.3%). Regarding family income majority (49%) had less than 10000 per month.

Table 2 Hygiene practice during menstruation

Variables	Frequency	Percentage
Use of pad (n=192)		
Sanitary	62	32.3
Cloth	51	26.6
Both	29	41.1
Reason for not using sanitary pad (n=130)		
Costly	57	43.8
Easily not available	60	46.2
Difficult to dispose	3	2.3
Difficult to reuse	10	7.7
Reuse of reusable cloth (n=120)		
Yes	103	79.2
No	27	20.8
Clean of external genital (n=192)		
Yes	191	99.5
No	1	0.5
Use to clean external genitalia (n=191)		
Water only	83	43.5
Soap and water	108	56.5
Bathing frequency (n=192)		
Daily	111	57.8
Third day	74	38.5
Fourth day	7	3.6

Table 2 indicate Regarding Hygiene practice during menstruation and the finding shows that, a significant portion used both sanitary pads and reusable cloth (41.1%) during menstruation. Among those not using pads, high cost (43.8%) and unavailability (46.2%) were the main reasons. Most of the girls reused the cloth (79.2%). Almost all girls maintained clean external genitalia (99.5%) during menstruation, with the majority using soap and water (56.5%). A majority bathed daily (57.8%) during menstruation, while a some percentage (38.8%) bathed every third day. Less participants (3.6%) bathed on the fourth day of menstruation.

Table 3 Menstrual Hygiene Management in school

Variables	Frequency	Percentage
Uncomfortable feel in school during menstruation (n=192)		
Yes	130	67.7
No	62	32.3
Gender separated toilet (n=192)		
Yes	161	83.9

No	31	16.1
Condition of toilet (n=192)		
Clean	109	56.8
Fairly clean	40	20.8
Satisfactory	23	12.0
Dirty	20	10.4
Water availability (n=192)		
Yes	162	84.4
No	30	15.6
Availability of soap (n=192)		
Yes	73	38.0
No	119	62.0
Lock condition (n=192)		
Good	130	67.7
Bad	62	32.3
Light condition (n=192)		
Good	22	11.5
Bad	170	88.5
Availability of mirror (n=192)		
Yes	6	3.1
No	186	96.9
Private place to manage menstruation (n=192)		
Yes	84	43.8
No	108	56.3
School provides sanitary pad (n=192)		
Yes	180	93.8
No	12	6.3
Absorbent change in school (n=192)		
Yes	185	96.4
No	7	3.6
Frequency of absorbent change (n=192)		
Once a day	3	1.6
Twice a day	69	35.9
Thrice a day	97	50.5
Fourth a day	23	12.0
Dispose of pad (n=192)		
Dustbin	79	41.1
Haphazardly throw	5	2.6

Throw in toilet pan	31	16.1
River	77	40.1
Rest room for rest (n=192)		
Yes	29	15.1
No	163	84.9
Pain manages at school (n=192)		
Medicine	134	69.8
Exercise	2	1.0
Drink hot water	19	9.9
Rest	37	19.3
School miss during menstruation (n=192)		
Yes	62	32.3
No	130	67.7
Reason for school miss (n=62)		
Afraid of staining on cloth	20	32.3
Lack of private space to manage menstruation	8	12.9
Pain	8	12.9
lack of disposal facilities	1	1.6
parents tell not to go to school	7	11.3
Cultural restriction	18	29.0
Teacher support (n=192)		
Yes	127	66.1
No	65	33.9

Table 3 Indicate regarding menstrual hygiene management in school, a substantial percentage of students felt uncomfortable (67.7%) during menstruation at school. Most students revealed that they had access to gender-separated toilets (83.9%), although the condition of toilet amenities such as locks (32.3%), lighting (88.5%), and mirrors (96.9%) was generally poor. A significant percentage did not have access to soap (62%) and private spaces (56.3%) for managing menstruation. Most reported their schools providing sanitary pads (93.8%). Many students disposed their pads inappropriately (58.8%) with a significant portion being disposed of in rivers (40.1%). Majority of girls reported that there was unavailability of restrooms (84.9%) for resting during menstruation. Many students resorted to medication (69.8%) for pain management, and a significant percentage of students missed school (32.3%) during menstruation, citing reasons such as fear of staining clothes, cultural restrictions, and lack of proper facilities. Many students reported receiving support from their teachers (66.1%) during their menstrual cycle but remaining did not get any support.

Table 4 indicates the Association between Uncomfortable feel in school during menstruation with different variables. The study findings suggest that various factors in the school environment can contribute to barriers in menstruation hygiene management among adolescent school girls. While the availability of gender-separated toilets, toilet conditions, and lighting did not show significant associations with discomfort during menstruation, the availability of soap and water for hand washing and the condition of the toilet lock were significantly linked to higher levels of discomfort. Additionally, the study indicated that the absence of a private place for managing menstruation and the disposal of pads did not significantly impact discomfort levels. However, missing school during menstruation was significantly associated with discomfort, emphasizing the need for comprehensive support systems to address the challenges faced by menstruating students.

Table 4 Association between Uncomfortable feel in school during menstruation with different variables

Variables	Feel uncomfortable		P-value	
	Yes	No		
Gender separated toilet				
Yes	111(68.9%)	50(31.1%)	0.696	0.404
No	19(61.3%)	12(38.7%)		
Condition of toilet				
Clean	76(69.7%)	33(30.3%)	0.469	0.493
Not-clean	54(65.1%)	29(34.9%)		
Availability of soap and water				
Yes	42(57.5%)	31(42.5%)	5.576	0.018
No	88(73.9%)	31(26.%)		
Lock condition in toilet				
Yes	80(61.5%)	50(38.5%)	7.009	0.008
No	50(80.6%)	12(19.4%)		
Light in toilet				
Yes	13(59.1%)	9(40.9%)	0.844	0.358
No	117(68.8%)	53(31.2%)		
Private place to manage menstruation				
Yes	61(72.6%)	23(27.4%)	1.647	0.199
No	69(63.9%)	39(36.1%)		
Pad dispose				
Dustbin	57(72.2%)	22(27.8%)	1.212	0.271
Improper Dispose	73(64.6%)	40(35.4%)		
Sick room for rest				
Yes	18(62.1%)	11(37.9%)	0.497	0.481
No	112(68.7%)	51(31.3%)		
Reason for school miss during menstruation				
Cultural Restriction	9(47.4%)	10(52.6%)	3.990	0.046
School Environment	121(69.9%)	52(30.1%)		

4. Discussion

This study investigates the barriers to menstrual hygiene management in the school environment among adolescent school girls. Practices and various barriers regarding menstrual hygiene management have been burning issues in today's world. Although many school health programs conducted among school periphery girls still have to face their own challenges and limitations regarding menstruation.²⁴

In this study, most of the participant's parents were uneducated with low family income, and all participants preferred using disposable sanitary pads, though 41.1% used cloths as an alternative due to the high cost and unavailability of sanitary pads. Similar findings were reported in a study conducted by Singh et al. among adolescent girls of private schools, where girls used cloths as an alternative while at home due to family practices and cheap alternatives.²⁴

This study findings show that 67.7% of respondents feel uncomfortable in school during menstruation due to various barriers like the lack of adequate school infrastructure and amenities, such as lock condition of toilet, lighting condition of toilet, Availability of mirror, availability of soap and water, private spaces for menstrual management, resting room, teacher support and disposal facilities. This finding supports by the menstrual hygiene matters result conducted by House et al. which reported that girls found school environments insufficient to support their menstrual management practices, due to lack of clean latrines, locks or doors, soap, sufficient water, and dustbin.^{2,4,6}

In this study, the majority (83.9%) of students reported the availability of gender-separated toilets. However, 88.5% of the toilets were in poor condition due to inadequate lighting, with 96.9% lacking mirrors and 32.3% having broken locks. This finding aligns with the study by Trinis et al., which highlighted issues such as unclean latrines, missing locks or doors, and poor lighting conditions.¹⁸ Additionally, more than half (62%) of respondents noted the absence of soap and water for hand washing. A study by Mohammed et al. in Ghana among adolescent girls supports this, showing that none of the schools had a regular water supply, mirrors for girls to check for bloodstains, or soap for hand washing in their WASH facilities.¹⁶

The study found that most participants (50.5%) change their absorbent three times a day, but the disposal methods were not ideal. While 41.1% use dustbins, 40.1% dispose in rivers, 16.1% throw in toilet pans, and 2.6% discard carelessly. This finding was strongly supported by Ranabhat et al. in Kalikot showed that more than half (69.8%) of respondents dispose of cloth or pads in open areas, such as rivers, or carelessly in the environment.¹³

Regarding pain management, 19.3% of participants reported needing rest to alleviate their pain; however, the school lacks a restroom for them to rest during menstruation. A similar study conducted in the Bamako district by Seydou et al. among school adolescent girls found that schools also did not provide a space to rest when pain occurred during menstruation.⁴

In this study, 32.3% of girls missed school during menstruation. The reasons for absenteeism included fear of staining (32.3%), cultural restrictions (29%), and lack of private places to manage menstruation (12.9%), pain (12.9%), parental instructions not to attend (11.3%), and inadequate disposal facilities (1.6%). This aligns with findings from Rajbhandari et al. in Bhaktapur, which noted that pain and discomfort were major reasons for absenteeism, with 37.5% of girls citing fear of leakage and 8.9% mentioning lack of private space.²⁴ Similarly, Van Eijk et al. in India found that girls missed school due to physical discomfort, lack of water and hygiene facilities, fear of staining, and restrictions from relatives or teachers.¹⁹

The study found no significant association ($p>0.05$) between uncomfortable feelings during menstruation at school and factors such as gender-separated toilets, lighting conditions, private spaces for managing menstruation, sick rooms for rest, or school attendance during menstruation. However, there was a significant association ($p<0.05$) between uncomfortable feelings and factors like the availability of soap and water, the condition of toilet locks, and pad disposal facilities. In contrast to the current study, previous research had not demonstrated significant associations between menstrual barriers and these specific factors.

Overall, this study highlights the challenges and limitations faced by adolescent schoolgirls in managing menstruation in the school environment. It emphasizes the need for a menstrual-friendly environment, access to affordable menstrual products, and teacher support. Improving menstrual hygiene management can lead to increased school attendance, better health outcomes, and reduced stigma associated with menstruation.

5. Conclusion

This study highlights the significant challenges faced by adolescent girls in managing menstruation within school environments in low- and middle-income countries. Key barriers identified include inadequate facilities, lack of privacy, and cultural stigma, which collectively hinder effective menstrual hygiene management and negatively impact girls' school attendance and overall well-being. The findings underscore the urgent need for systemic improvements, such as the provision of clean and accessible sanitation facilities, adequate menstrual products, and supportive educational environments. Implementing community-wide awareness campaigns and educational programs can help break the stigma surrounding menstruation and promote healthier practices.

Compliance with ethical standards

Disclosure of conflict of interest

No conflict of interest to be disclosed.

Statement of informed consent

Parental consent and Informed consent were obtained from all participants included in the study.

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