

Evaluating Menstrual Hygiene Practices and School Absenteeism Among Adolescent Girls in Lumbini Province, Nepal

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ABSTRACT

This study applied cross-sectional study design to investigate the relationship between menstrual hygiene practices and school absenteeism among adolescent girls in grades nine and ten in Lumbini Province, Nepal. The research investigated how social norms, religious customs, and the availability of facilities and hygiene products affect girls' involvement in school activities while menstruating. The study used a purposive sampling method to recruit participants and self-administered semi-structured questionnaires to collect the data.

Key findings include more than one-third of the participants who experienced menarche at the age of 13 years. Among the total participants, 61% received information about menstruation primarily from friends and family members. Notably, 40% of participants were adversely affected by the lack of safe hygiene facilities and resources at school. Furthermore, 43% reported missing homework submissions and class tests during menstruation, while 32% missed regular learning and extracurricular activities. Additionally, 17% missed final examinations and had to repeat the same class. The study suggests the need for targeted programs to improve school infrastructure and implement additional arrangements for missed assignments and final examinations to address the challenges faced by adolescent girls in Lumbini Province, Nepal.

Keywords: Menstrual hygiene practices, school absenteeism, adolescent girls, social norms, infrastructure, educational interventions. and Nepal.

INTRODUCTION

Menstruation, also known as the monthly period, is a natural bodily process experienced by girls during their reproductive years (Sharma et al., 2020). Unfortunately, this biological phenomenon is often masked in taboos, socio-cultural norms, and religious customs within societies, particularly in countries like

Nepal. These cultural beliefs, associating menstruating girls with impurity, lead to their exclusion from daily and community activities during menstruation (Kawata et al., 2022). In Nepal, nine out of ten girls report facing restrictions during menstruation, such as being prohibited from entering prayer rooms, temples, and kitchens, touching male family members,

sleeping in their beds, and attending school (Boakye-Yiadom et al., 2018; Sharma et al., 2022). As a result, many girls miss crucial school days, adversely affecting their educational activities.

The challenges in managing menstrual hygiene at schools in Nepal are further compounded by inadequate infrastructure, including a lack of changing rooms, private toilets, disposal facilities, and clean water supply (Sharma et al., 2022). These deficiencies hinder girls from effectively managing their menstruation while at school, contributing to increased absenteeism and academic underperformance which has negative impact on their educational journey.

Menstruation serves as a significant barrier to educational attainment for girls in developing and least-developed countries including Nepal. Its impacts are primarily due to insufficient hygiene facilities and prevalent myths and misconceptions (Sommer et al., 2016). Cultural taboos and religious restrictions exacerbate the situation by confining girls to their homes during their monthly periods, thereby hindering regular school attendance (Alor et al., 2022; Vashisht et al., 2018).

Numerous studies have highlighted the profound impact of menstrual hygiene practices and infrastructure availability on girls' school attendance during menstruation (Sharma et al., 2020; Sivakami et al., 2019). Additionally, the physical discomfort and psychological challenges associated with menstruation, such as heavy bleeding, cramps, fatigue, anxiety, irritation, and abdominal pain, contribute significantly to school absenteeism among girls (Garg & Anand, 2015; Sharma et al., 2022).

High rates of school absenteeism among menstruating girls have been reported globally. In Ethiopia, over half of the girls reported missing school during their monthly periods (Belay et al., 2020). Similarly, in Bangladesh, 41% of menstruating girls experienced school absenteeism (Alam et al., 2017), while in rural India, the figure rose to 43% (Vashisht

et al., 2018). In Ghana, a majority of adolescent girls, ranging from 27.5% to 95%, missed school during menstruation due to various reasons, including a lack of sanitary pads, menstrual pain, fear of staining uniforms, teasing by male counterparts, and lack of privacy (Boakye-Yiadom et al., 2018; Kumbeni et al., 2021; Mohammed et al., 2020). Similarly, in rural Nepal, 22.1% of girls were found to miss school during menstruation, with approximately 10% perceiving a decline in academic performance after menarche due to missed school days (Ranabhat et al., 2019).

Despite the widespread impact of menstruation on school attendance, there still needs to be more studies examining menstrual hygiene practices and school absenteeism among adolescent girls in Lumbini Province, Nepal, on a large scale. This study aims to address this gap by evaluating menstrual hygiene practices and school absenteeism in Lumbini Province, Nepal, to inform the provincial government and advocate to formulate appropriate policies to support schoolgirls by creating a favorable school environment that helps attending school during menstruation.

MATERIALS & METHODS

A. Study Design, Setting and Sampling

This is a descriptive cross-sectional study. Our study setting is Lumbini province of Nepal which lies in the western part of Nepal. This region features a rich tapestry of demographics and a varied topography, making it exceptionally diverse in its population composition and geographical features.

In this study, we adopted three levels of selection. For the first step, we selected the site [districts], secondly, we selected the schools, and lastly, we selected the study subjects [participants]. To select the site, we applied the lottery method. As we know this province has two main geographical division: Terai and Hill. In the Terai region- there are six districts and in the Hilly region,

there are six districts. First, we wrote the names of all districts in a uniform sized paper and put them in a small box. Then we shook the box and took out one piece of paper and we repeated it four times to select four districts from Terai region. Then we carried out the same procedure to select four districts from Hilly regions [n = 8]

After that, we selected four schools from each selected district. To select the schools, we employed a convenience sampling method [Hamed Taherdoost, 2016] and selected four schools from each district which were near the district headquarters. In this way we choose four schools from each district [n = 32]. In the next step, we choose study participants from each respective participating schools.

To recruit the participants, the study team coordinator approached each selected schools' principal and had a meeting to discuss the study. After the discussion, the school principal from each participating school provided enrollment register which we used as a sampling frame. From this register we confirmed 3,177 students enrolled in grade nine and ten. Based on the variability of enrollment of girls, the study team decided to capture 25% of girls population from grade nine and ten who met inclusion criteria to be the study participant of our research. We also kept a 2% contingency if any selected participant missed school or decided not to participate during data collection day. Therefore, we have n =811 participants selected for this study. We used the lottery method to select study participants. Our study participants were the students of respective participating school's girls who enrolled in grade nine and ten, had menarche, whose parents gave the consent for participation and willing to participate in the study voluntarily. To decide the participants, we used the lottery method. First, we listed the names of girl students in a uniformed piece of paper using the daily attendance that was provided from the school authority. Then we wrote all their names and put them in a small jar. After that, we took out the piece of paper one by

one before getting the required number of students. The jar shook before taking out the piece of paper each time. We did this procedure separately for each school to determine the number of participants.

After completing the sampling process, our research coordinator contacted each participating schools' principal and handed over the study materials including details of study and consent forms to send some to each selected students to discuss with their parents for approval. After receiving back of all consent forms from students, the principal informed our research coordinator, and the research coordinator confirmed the date of data collection.

B. Data collection

Our research coordinator confirmed the data collection day with the school authority. We used semi-structured self-administered questionnaires to collect the data. On the designated data collection day, the research team including the research coordinator approached the school and distributed the survey form to the selected participants. We provided two hours' time to get back the survey forms. We used the same procedure for Terai and Hilly districts to collect the data. At the end of data collection, we got 762 survey forms back from the participants and 49 survey forms were missing. We separated forms from Terai and Hilly regions- 378 from Terai and 384 from Hilly regions.

C. Survey Tool

The study utilized a semi-structured self-administered questionnaire as the primary data collection tool. Before its development, an extensive review of relevant literature was conducted, examining methodologies employed in similar studies [Khanal et al., 2023; Tegegne et al., 2014; Mohammed et al., 2020; Adhikari et al., 2007]. Furthermore, consultations were held with subject matter experts to ensure comprehensive coverage of relevant areas. The questionnaire encompassed diverse facets, including the age of menarche,

sources of menstruation-related information, factors impacting school attendance during menstruation, and missed days due to menstruation. Pilot testing was conducted with 30 students from a government school in Butwal, followed by questionnaire refinement based on feedback. This process revealed that specific questions, such as those about future professional life impacts, were unsuitable for measuring present situations. Consequently, adjustments were made to the questionnaire based on insights gained from the pilot test analysis. This iterative approach ensured the final questionnaire was well-tailored for effective data collection regarding menstruation-related issues among the target population.

D. Variables

The assessment of menarche age began by asking participants a direct question: "How old were you when you experienced your first menstruation?" This inquiry aimed to gather precise data on the age at which individuals underwent this milestone. Another question was asked to comprehensively understand the sources from which participants learned about menstruation: "Who gave you information about menstruation?" The responses were categorized into five sub-sections: self, friends, mother, school, and elder siblings. Additionally, a broader category labelled "other" encompassed sources such as television and the internet, acknowledging the diverse channels through which individuals may acquire knowledge on this essential topic.

Following this, participants were questioned about the methods they employed to manage menstruation. The responses were divided into two primary categories: sanitary pads and ragged clothes, reflecting modern and traditional menstrual hygiene management approaches practiced in rural areas.

Further inquiry delved into the factors that hindered participants from attending school

during their monthly period. Responses were categorized into three main groups: physical infrastructures, psychological factors, and somatic reasons. Physical infrastructural challenges included inadequate toilet facilities, an unfavorable school environment, and improper disposal facilities for soiled items. Psychological barriers encompassed parental and female teacher attitudes, fear of interacting with male personnel and teasing from male peers. Somatic reasons comprised physical discomforts such as abdominal pain, fever, and general malaise.

Finally, participants were asked to report the number of days they typically stayed home during their last monthly period. Responses were categorized into specific numerical ranges [1,2,3,4 days or not at all], facilitating a quantitative assessment of school absenteeism patterns during menstruation.

E. STATISTICAL ANALYSIS

The collected data was manually sorted, tabulated, and processed using simple statistical procedures. The data gathered from survey questionnaires were first coded, categorized, processed, and analyzed using Microsoft Word and Excel. Descriptive analysis was performed on categorical data, presenting frequencies and percentages. The chi-square test investigated differences in menstrual hygiene practices between the Hilly and Terai regions.

RESULT

Demographic Status

This study took place in the Hill and Terai districts of Lumbini Province in Nepal, involving high school-level students (grades nine and ten) with 762 participants. Of these, 378 students were represented from the Hilly district, while 384 were from the Terai district.

Table 1: Characteristics of Participants and Menstrual Practices by Region (n=762)

Variables	Hill n (%)	Terai n (%)	P value (chi square)	Total (n)
Age of the students				
14 years	48 (12.70%)	80 (20.80%)	0.0058	128 (16.70%)
15 years	113 (29.90%)	112 (29.17%)		225 (29.53%)
16 years	171 (45.23%)	137 (35.68%)		308 (40.42%)
17 years	46 (12.16%)	55 (14.32%)		101(13.25%)
Grade				
Grade 9	101(26.72%)	134 (34.90%)	0.0145	235 (30.84%)
Grade 10	277 (73.28%)	250(65.10%)		527 (69.16%)
Age at menarche				
10 to 11	73 (19.31%)	91(23.70%)	0.127	164 (21.52%)
12	100 (26.46%)	117 (30.47%)		217 (28.48%)
13	148 (39.15%)	131(34.11%)		279 (36.61%)
14	57 (15.08%)	45 (11.72%)		102 (13.38%)
Source of information				
Self-learning	26 (6.88%)	30 (7.81%)	0.01	56 (7.35%)
Friends and families	254 (67.19%)	214 (55.73%)		468 (61.42%)
Learning from School	52 (13.76%)	70 (18.22%)		122 (16.01%)
Others (TV and Internet)	46 (12.17%)	70 (18.22%)		116 (15.22%)
Materials used to manage monthly period				
Disposable sanitary Pads	200 (52.91%)	177 (46.09%)	0.062	377 (49.47%)
Ragged Clothes	92 (24.34%)	104 (27.80%)		196 (25.72%)
Never used any disposable sanitary pads	10 (2.64%)	23 (5.98%)		33 (4.33%)
Reusable pads (locally made)	76 (20.10%)	80 (20.83%)		156 (20.47%)
Source of sanitary pads and materials				
Reusable pads purchase from the local shop	76 (20.10%)	80 (20.83%)	0.023	156 (20.47%)
Disposable sanitary pads purchase from Pharmacy	101 (26.72%)	62 (16.14%)		163(21.39%)
Parents help to buy Sanitary Pads	54 (14.28%)	64 (16.67%)		118 (15.48%)
Sanitary Pads Available in School	45 (11.90%)	51 (13.28%)		96 (12.60%)
Ragged clothes	92 (24.34%)	104 (27.08%)		196 (25.72%)

Most participants (87%) were 16 years old or younger. Grade 10 comprised more than half of the participants (69%). Over one-third (37%) experienced menarche at the age of 13, slightly more in the Hilly region than Terai (39% vs. 34%). Friends and family members were the primary sources [61%] of information about menstruation. Almost half (49%) participants used disposable sanitary pads, while locally made reusable pads, especially in the Terai region,

gained popularity. Approximately one quarter [26%] of participants used ragged clothes as the menstruation management materials. Further analysis revealed notable differences between the Hill and Terai regions in terms of Grade nine and ten distribution (p=0.014), sources of information about menstruation (p=0.01), and the procurement of sanitary pads and materials (p=0.023).

Table 2: Factors Affecting School Attendance during Menstruation (n=762)

Factors that affect attending school during menstruation	Hill, n (%)	Terai, n (%)	p value	Total
Lack of safe hygiene facilities and resources at school	156 (41.27%)	151 (39.32%)	0.048	307 (40.29%)
Health concerns (e.g., abdominal pain)	39 (10.32%)	31(8.07%)		70 (9.19%)
Perceived stigma (teasing, stained cloths, touching to others)	99 (26.19%)	134 (34.89%)		233 (30.58%)
Unfriendly home environment (sanitary pads, parental attitude)	84 (22.22%)	68 (17.71%)		152 (19.95%)
Total:	378	384		762

The predominant factor hindering school attendance during menstruation was the lack of safe hygiene facilities and resources at school, identified by 40% of participants. The perceived stigma surrounding menstruation emerged as another significant barrier, reported by 31% of participants. Perceived stigma was more prevalent in the Terai region compared to the Hilly region,

with 35% of participants from the Terai region reporting this concern, as opposed to 26% from the Hilly region. Similarly, an unfriendly home environment was cited as a contributing factor by 20% of participants. The analysis of factors influencing school attendance during menstruation revealed a marginal statistical difference between the Hill and Terai regions (p=0.048), suggesting

nuanced variations in challenges faced by menstruating individuals across these geographical areas.

Table 3: Impact on Education Due to Monthly Period (n=762)

Impact on Education due to monthly Period	Hilly region n (%)	Terai region n (%)	p value (chi-square test)	Total n (%)
Missed activities (learning and extracurricular activities)	123 (32.54%)	117 (44.53%)	0.253	240 (31.50%)
Missed to submit homework and attend class test	170 (44.97%)	159 (41.40%)		329 (43.17%)
Missed Final exam and Class repetition	59 (15.61%)	68 (17.71%)		127 (16.66%)
No effects	26 (6.88%)	40 (10.42%)		66 (8.66%)
Total	378	384		762

Among the various impacts reported by participants, the most prevalent was missing homework and class tests, cited by 43% of respondents. Similarly, approximately one-third of participants, totaling 32%, reported missing regular learning activities and extracurricular engagements due to menstruation. A noteworthy finding is that 17% of participants missed final examinations due to menstruation, which necessitates repeating the class for an additional year. Conversely, 9% of

participants reported experiencing no discernible effects of menstruation on their educational activities, indicating individual variation in how menstruation impacts academic performance and engagement. The statistical analysis did not reveal a significant difference in the impact of menstruation on education between the Hill and Terai regions ($p=0.253$), suggesting similar educational challenges menstruating girls face across these areas.

Figure 1: School Days Missed Due to Menstruation During the Most Recent Menstrual Period

FIGURE 1: SCHOOL DAYS MISSED DUE TO MENSTRUATION

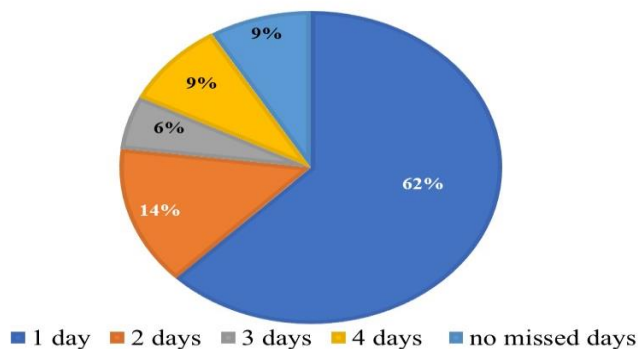


Figure 1 illustrates that 63% of respondents missed one day of class, while 6% did not attend school for three days during menstruation. However, 9% consistently attended school during menstruation.

DISCUSSION

This study explored menstrual hygiene practices and school absenteeism during menstruation in Lumbini Province of Nepal

and its associated factors. This study was conducted among high school girls [Grade nine and ten] in Lumbini Province, where 378 students participated from the Hilly region and 384 from the Terai region. In our sample, the school missed days varied from 1 to 4 days. Most participants [62%] missed one day of school during menstruation. Similarly, a recent study in the Chitwan district of Nepal concluded that

61.4% of girls missed school due to the menstrual cycle (Khanal et al., 2023), which is precisely aligned with our study. A study from Australia reported that 26% of schoolgirls missed school due to the monthly period; the absence ranged from 1 to 4 days, depending on the level of pain they experience. (Parker et al., 2010) A study in Uganda reported that 59% of girls missed school during their monthly period, which ranges from 1 to 7 days. (Miuro et al., 2018) A study conducted among 1300 high school girls in Turkey concluded that 32% of high school girls missed school due to the menstrual cycle. (Esen et al., 2016) In Mexico, 24% of schoolgirls who experience dysmenorrhea reported missing school. (Ortiz et al., 2009) Similar to ours, an Ethiopian study reported that (40-51) % of girls were absent from school while they were in their monthly period. (Tegegne & Sisay, 2014) A study from three West African countries found that 23% of Nigerian girls, 17% Girls from Burkina Faso, and 15 % girls from Niger missed school during menstruation (Hennegan et al., 2021) and the stated causes were poor access to water and sanitation facilities, lack of privacy, poor access of absorbent materials, lack of disposal facilities and lack of painkillers available at school to manage menstrual pain. These illustrations were similar to Sierra Leone, Ghana, and Gambian reports. (Hennegan et al., 2016)

One in ten menstruating girls misses school for 4 to 5 days per month, and 23% of adolescent girls drop out of school when they start menstruation in India (Garg & Anand, 2015). The cited causes included a deficiency in menstruation management items (specifically, access to sanitary pads) and a lack of proper physical facilities at school, notably inadequate standard toilets, and disposal facilities. This finding corresponds with our study, where our participants reported missing school for 1 to 4 days during menstruation. The primary causes were a lack of sanitary pads at home and improper toilet facilities in school. Most interestingly, 9% of our respondents never

missed school days during their monthly period. This might be because of the changes of time and advancement of technology that helped to gain knowledge from various sources and apply their knowledge in practice, or they have supportive family members [especially mother and sisters], and they may take it as a normal phenomenon. A further explanation is that there is an individual variation in how menstruation impacts academic performance and engagement.

Our participants cited several reasons for missing school days during menstruation, including self-reported concerns such as fear of clothes getting stained and being teased by male peers, apprehension about physical contact with males, inadequate toilet facilities at school (specifically, a lack of running water for cleaning and sanitary items disposal), and experiencing somatic pain, including abdominal discomfort and general malaise. These reasons closely align with findings from previous studies by Garg & Anand (2015), Hennegan et al., (2017, 2021), Khanal et al. (2023), Montgomery et al. (2012), and Sharma et al. (2022) (short summary of their findings). Similarly, Khanal et al. (2023) reported that the primary reasons for school absenteeism among menstruating-age girls were pain, discomfort, and leakage-all categorized as somatic reasons. Notably, their study did not explore physical facilities, such as the availability of running water in toilets and proper disposal facilities. Moreover, the findings underscore a need for more school infrastructure, particularly in menstruation management. This pattern is consistent with previous studies conducted in Low- and Middle-Income Countries, confirming that menstruation serves as a significant barrier to school attendance (Garg & Anand, 2015; Hennegan et al., 2017, 2021; Kawata et al., 2022; Miuro et al., 2018; Mohammed et al., 2020; Sharma et al., 2020; Vashisht et al., 2018).

We found that participants lacked sanitary pads at home, and adequate toilet facilities in school for cleaning and disposing of

soiled items were the barrier to school attendance during menstruation. Most girls who use sanitary pads feel comfortable without fearing staining and being teased by their male counterparts. (Hennegan et al., 2017) Similar findings about sanitary pads use were reported elsewhere in Ghana (Montgomery et al., 2012), Ethiopia (Tegegne & Sisay, 2014), India (Sivakami et al., 2019) and Bhutan. (Kumbeni et al., 2021) Poverty is the leading cause of school absenteeism during menstruation. Girls, as students from poor households, were unable to afford disposable sanitary pads, and they had to rely on cloth rags, which are not adequately sanitized and have a risk of getting infections. Also, it has a chance of leaking and causing physical discomfort. Additionally, the public schools in Nepal did not have standard toilet facilities that prevent menstruating girls from attending school while they are in menstruation.

Our study findings indicated that various school activities were adversely affected by menstrual periods, including missing class tests, skipping extracurricular activities, and being absent during the final test, ultimately resulting in repeating the same class. This observation aligns with previous research by Garg & Anand (2015), Hennegan et al. (2017), Miuro et al. (2018), Mohammed et al. (2020), Montgomery et al. (2012), Parker et al. (2010), Sharma et al. (2022), Tegegne & Sisay (2014), and Vashisht et al. (2018).

Strength and Limitation of the Study

This study represents the inaugural exploration of menstrual hygiene practices and school absenteeism among Grade nine and ten girls in Lumbini Province, Nepal. We gathered firsthand student data regarding their life experiences, with potential implications for policy changes to create a menstruation-friendly school environment. The study also sheds light on the causes of school absenteeism, contributing valuable information for addressing issues at local and policy levels. However, this study possesses certain limitations. Its cross-sectional nature

precludes the establishment of causal relationships between socio-demographic factors and school absenteeism. The findings cannot be generalized to the entire population of menstruation-aged females, given the exclusive focus on government-run schools. Private schools may exhibit different physical infrastructures and environments. Moreover, the participants only represented one province and did not constitute a nationally representative sample. Despite these limitations, the study provides crucial insights that apply to other provinces in Nepal.

Recommendations

Based on the results obtained from analyzing available statistics concerning menstrual hygiene practices, school absenteeism due to menstruation, and its impact on education, the following recommendations are proposed:

The analysis highlighted the lack of school infrastructure as a primary cause of absenteeism during the monthly period. Policy efforts should be directed towards enhancing infrastructure to address this issue, making it more girl friendly. Modifications to existing infrastructure can be explored, and new building constructions should adhere to a building code specifying facilities necessary for accommodating menstrual needs. Secondly, it was observed that female students often refrain from attending school due to various somatic pains during menstruation. Establishing school clinics for health counselling and regular health check-ups catering to female students could significantly benefit them. This initiative should be integrated into the education policy to ensure its systematic implementation. Third, regular interactions among parents, school-teachers, and all students should be facilitated to discuss the challenges girls face during menstruation. This open dialogue will increase awareness of this natural phenomenon, contributing to the reduction of social taboos and cultural barriers. When cooperation is achieved, enhanced understanding among all

stakeholders will likely improve school attendance. Furthermore, students who successfully attend school during their monthly period should be encouraged to share their experiences, ideas, and strategies. Creating a platform for these students to communicate with others can motivate peers not to miss school days. Peer-to-peer encouragement can have a positive impact on overall school attendance. Finally, empowering schoolgirls involves providing additional social, emotional, and moral coaching. This can contribute to developing decision-making skills and fostering a sense of autonomy and confidence among female students. Comprehensive education beyond academic subjects can empower girls to navigate various aspects of their lives effectively.

CONCLUSION

Despite menstruation being a regular occurrence among reproductive-aged females, numerous obstacles prevent school-aged girls from attending school during their monthly period. It is imperative to implement policies and programs aimed at creating adolescent-friendly infrastructure and a school environment that facilitates accessibility for girls to maintain menstrual hygiene and overall health. These measures are long overdue. Additionally, we propose future research to examine the impact of school absenteeism related to the monthly cycle on the academic activities of school-aged girls.

Declaration by Authors

Ethical Approval: Written informed consent was obtained from the parents of research participants and the respective school's headmasters. The Research Ethics Board of Research and Educational Change Academy in Lumbini, Nepal, reviewed and approved our study.

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