

A Cross - Sectional Study to Assess Knowledge and Practice of Menstrual Hygiene among School Going Girls in the Selected Rural Schools of East Khasi Hills District, Meghalaya

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ABSTRACT

Menstrual health is a key role in adolescent girls' health, yet it is commonly underestimated or overlooked.

Aims - To assess the knowledge and practice of menstrual hygiene among school going girls in selected rural school of East Khasi Hills, Meghalaya

Methods: A quantitative non-experimental cross sectional study design was adopted. A group of 142 participants were taken using convenience sampling techniques. Data was collected using self-administered structured questionnaire and analyzed using statistical analysis.

Result: Result shows that most participants, 83 (58.5%) had average knowledge, 48 (33.8%) had good knowledge, (7.7%) had poor knowledge regarding menstrual hygiene. Regarding practice, 3 (2.1%) had poor practice, 128 (90.1%) had average practice, and 11 (7.7%) demonstrated good practice. There was no significant association between the level of knowledge and practice with selected socio-demographic variables. However, a significant association was found between age group with level of knowledge and level of practice. A significant association was found between class and level of knowledge while there was no significant association between class and level of practice.

Regarding the combined levels, 74 (52.1%), had average knowledge and average practice, 44 (31.0%) who had good knowledge but average practice, 10 (7.0%) respondents had poor knowledge and average practice, 7 (4.9%) had average knowledge and good practice, and 4 (2.8%) had good knowledge and good practice, 2 (1.4%) respondents had average knowledge but poor practice, 1 (0.7%) respondent had poor knowledge and poor practice.

Conclusion: The findings of this study highlight the importance of improving menstrual hygiene knowledge and practices among school-going girls.

Keywords: Adolescent Girl, Menstrual Hygiene, Knowledge, Practice

INTRODUCTION

BACKGROUND OF THE STUDY

Adolescence is the stage of life that marks the transition from childhood to adulthood.¹ It is characterized by rapid physical, intellectual, emotional, and social development.¹ Adolescence refers to the period between 10 and 19 years of age.²

Menstruation is a natural physiological process during which endometrial tissue and blood are discharged from the uterine lining through the vagina, occurring every 28 days during the reproductive month. A typical menstruation cycle may range from 21 to 42 days. Menstrual bleeding generally lasts for approximately 4-5 days.

Menstrual hygiene is defined as “Sympathetic emotional and hygienic care given during menstruation.” It includes appropriate care of the genital area, the proper use and disposal of menstrual absorbents, personal hygiene, nutrition, and physical activity.³

Menstrual disturbances are common health concerns experienced by adolescent girls, accompanied by unhygienic menstrual practices. Therefore, providing adolescent girls with accurate information and promoting safe and hygienic menstrual practices are essential components of adolescent health care.

According to the Health and Family Welfare Statistics in India 2023, the use of hygienic menstrual protection among women aged 15-24 years has increased considerably in India.⁴

A study conducted among 900 school girls in Anand District, Gujarat, reported that only 31.0% of the participants considered menstruation to be a normal process, while 37.2% had not received any information about menstruation before experiencing menarche.⁵ Similarly, Patle and Kubde reported that awareness regarding menstruation was 47.57% among rural girls, compared with 63.38% among urban girls. The study also found that use of the commercially available sanitary pads was 43.4% among rural girls and 62.03% among urban girls.⁶

NEED OF THE STUDY

Menstrual health is essential to adolescent girls' well-being but is often overlooked. One study found that 67.3% of girls had below-average knowledge of menstrual hygiene, while only 16% had good knowledge.⁷ In Meghalaya, cultural, social, and geographical factors may limit access to menstrual information, products, sanitation and health services.⁸

Assessing menstrual hygiene knowledge and practices can guide health education interventions and promotes safe menstrual practices.

STATEMENT OF THE PROBLEM

“A cross - sectional study to assess knowledge and practice of menstrual hygiene among school going girls in the selected rural schools of East Khasi Hills District, Meghalaya.”

OBJECTIVES OF THE STUDY

Primary objective(s):

- a. To assess the knowledge of menstrual hygiene among school going girls in selected rural areas of East Khasi Hills District, Meghalaya.
- b. To assess the practice of menstrual hygiene among school going girls in selected rural areas of East Khasi Hills District, Meghalaya.

Secondary objective(s):

To find the association between knowledge and practice of menstrual hygiene among school going girls in selected rural areas of East Khasi Hills District, Meghalaya with selected demographic variables.

OPERATIONAL DEFINITION

Knowledge- Knowledge refers to the awareness regarding menstrual hygiene of school going girls, age eleven to seventeen years.

Practice- Practice refers to the act of performing menstrual hygiene practices among school-going girls aged eleven to seventeen years

Menstrual Hygiene- Menstrual hygiene refers to the practice of maintaining cleanliness and preventing disease and infection among school-going girls aged eleven to seventeen years.

School Going – A pupil who has enrolled in a school and is attending school aged eleven to seventeen years.

DELIMITATION

The study is delimited to school-going girls in selected rural schools of East Khasi Hills, Meghalaya.

REVIEW OF LITERATURE

Review of literature is an important part of the research process. It involves studying and examining previous research studies, books, journals, and other related materials connected to the topic of the study. Through the review of literature, the researcher gains knowledge about what has already been studied, the methods used by earlier researchers, and the findings obtained from those studies.

Every research study is based on existing knowledge; therefore, it is necessary to review previous studies before conducting a new investigation. Reviewing literature helps the researcher understand the background of the problem, identify gaps in existing studies, and develop a better understanding of the research topic. It also provides guidance for planning and conducting the present study.

A literature review gives a comprehensive overview and critical analysis of the research related to the selected topic. It helps the researcher to identify the strengths and limitations of earlier studies and justify the need for further research. In addition, it provides a foundation for developing the conceptual framework and methodology of the study.

The main purpose of reviewing literature is to collect relevant information, understand existing concepts and research approaches, and gain deeper insight into the selected area of study. It also helps researchers learn from the works of other scholars and contributes to expanding knowledge in the field.

The review of literature related to Menstrual Hygiene has been systematically organized chronologically, from recent to earlier studies, based on the available literature.

REGIONAL

Baruah PA. in July of 2023, used a questionnaire and checklist to examine menstrual hygiene knowledge and practice among 60 girl students at Balika Vidya Mandir School in Digboi, Tinsukia, Assam. The

majority of students demonstrated moderately adequate knowledge (82%) and practices (75%), with only a tiny fraction showing adequate (8%) or deficient levels. There were important connections observed between knowledge, age, and family income, as well as between practice, family income, and religion. The findings highlight the importance of raising student knowledge and teaching on menstrual hygiene.¹¹

Sonowal P. and Talukdar K in order to evaluate the knowledge and habits of teenage girls residing in the urban slums of Dibrugarh town, conducted a cross-sectional study on menstrual hygiene in 2019. More than 80% of participants did not know the hormonal reason of menstruation, and over 72% did not know the true cause of monthly bleeding, indicating that a sizable majority of participants lacked accurate understanding. Girls' perceptions and management of menstruation were influenced by cultural taboos and beliefs. About 76.7% of the girls said they used sanitary pads for cleanliness, while others said they used cloth or a combination of the two. Despite maintaining a certain standard of personal hygiene, there were still gaps in appropriate behavior and general comprehension. For the majority of participants, mothers were found to be the main source of information. Overall, the study showed that although some hygienic measures were being followed, teenage girls' level of knowledge was still insufficient, indicating the need for improved education, awareness campaigns, and access to reliable information to enhance menstrual hygiene management.¹²

Boruah B, Hakmaosa A, and Hajong S In 2022, carried out a cross-sectional study on the knowledge and practices of menstrual hygiene among adolescent girls in the Assamese districts of Barpeta and Nagaon. The study included 170 teenagers between the ages of 10 and 19. According to the study's findings, 91.76% of teenagers were aware that menstruation was common. 54.12% and 27.65%, respectively, were unaware of the source of menstrual flow and the cause of menstruation. Just 33.53% of respondents were aware that bleeding originates in the uterus. 61.76% of respondents were aware of how long a typical menstrual cycle lasts. When it comes to menstruation, 74.12% of teenagers use sanitary pads, 18.82% use cloth, and 7.06% use both cloth and sanitary pads. Throwing used absorbent with household waste was the method utilized in roughly 63.53% of cases. Throwing used absorbent with household waste was the method utilized in roughly 63.53% of cases.¹⁰

Borah H, Krishnatreya M, and Sarma N from October 2019 to March 2020, carried out a cross-sectional study on the awareness and practices of teenage girls living in the tea garden areas of Jorhat, Assam, India, regarding menstrual hygiene and related issues. The sample size of 333 was selected at random from nine tea gardens. Additionally, the majority of girls (77.48%) used sanitary pads during their periods. The study found that adolescent girls' knowledge of menstruation and sanitary practices was inadequate, and they should be educated on how to maintain menstrual hygiene.¹³

Tamphasana T, Rajkumari B, and Devi L from May 2017 to April 2019, 1963 schoolgirls from classes 8 through 12 in Imphal East District, Manipur, participated in a cross-sectional study by on menstrual hygiene knowledge, attitudes, and practices. 15.45 years was the mean age. The findings indicate that over half (51.3%) of the participants had a sound understanding of menstruation. Higher class AOR (95% CI) of 1.399, Christian by religion AOR (95% CI) of 1.640, father's higher educational level AOR (95% CI) of 4.492, attending private schools AOR (95% CI) of 1.370, and living in a rural community AOR (95% CI) of 1.266 were significantly associated with higher levels of knowledge about menstruation. According to the study's findings, three-fifths of the respondents had positive attitudes and over half had strong expertise. Early education in the school curriculum should prepare girls for menstruation.¹⁴

NATIONAL

Shalini SV, Johnson A, Amalan J. carried out a qualitative study on 31 May 2025 that investigated the perceptions and practices related to menstrual hygiene management among 50 adolescent girls and young women residing in an underprivileged urban community of Bengaluru, India. The study found that a considerable number of participants had not received adequate information about menstruation before attaining menarche. While regular replacement of sanitary pads was practiced by many participants, the use of reusable cloth pads was also reported. Poor sanitation facilities, particularly inadequate and unhygienic school toilets, emerged as an important concern. The findings indicated substantial deficiencies in menstrual hygiene management within economically disadvantaged urban communities and highlighted the importance of providing menstrual education before menarche, improving access to appropriate menstrual products, and ensuring adequate sanitation facilities in schools.¹⁵

Rajput BK, Mangal V, Bhargava A, et al. A cross-sectional study conducted from 11 April to 8 June 2025 among 1,160 high school girls assessed menstrual hygiene knowledge and practices. The findings showed that 52.5% had good knowledge and 42.1% followed good hygiene practices. Although most used sanitary pads, 35.9% did not change them at least three times daily. The study concluded that socioeconomic status and parental education significantly influence menstrual hygiene knowledge and practices.¹⁶

Darji J, Christian A, Patel V et al. A quantitative study conducted on 15 October 2024 among 100 adolescent girls in selected secondary and higher secondary schools of Nadiad City assessed their knowledge regarding menstrual hygiene. Parents were the main source of information (74%), followed by health workers (17%), friends (6%), and teachers (3%). Almost all participants (99%) used sanitary pads. Overall, 73% had average knowledge, 19% had poor knowledge, and only 8% demonstrated good knowledge.⁷

Sanjay L, Hondappagol A. A cross-sectional study conducted in Mangalore Taluk, Karnataka, in September 2024 included 482 adolescent girls selected through cluster random sampling. About 48.5% had average knowledge regarding menstruation, while 76.8% practiced appropriate menstrual hygiene. Better practices were observed among urban girls compared with rural girls. The study recommended strengthening menstrual health education and providing proper disposal facilities in schools.¹⁷

Panda N, Desaraju S, Panigrahy R P et al. A cross-sectional study conducted on 26 February 2024 among 921 females aged 10–49 years from three districts of Odisha assessed menstrual health and hygiene. The findings revealed that 74.3% understood menstruation as a physiological process, while 61% used sanitary pads, 31.6% used cloth, and 7.2% used both. The study emphasized the need to address traditional beliefs and improve menstrual hygiene education, sanitation, water supply, and disposal facilities.¹⁸

Kattimani V, Alekhya DLD, Pathralapati S, et al. A cross-sectional study conducted in India in 2024 assessed knowledge, attitudes, perceptions, and practices regarding sanitary napkin disposal among 484 college-going females. The mean age of participants was 20.92 ± 1.86 years. The study found that 96.9% used sanitary napkins, with 87.4% disposing of them in dustbins. Additionally, 63.2% were unaware of sanitary napkin incineration machines.¹⁹

Singh G, Gupta A, Nipendra A, et al. A cross-sectional study conducted in December 2023 among 300 menstruating adolescent girls aged 13–17 years from four rural schools in Patna, Bihar, assessed menstrual hygiene knowledge and practices. The study found that 59.3% had adequate knowledge, while 50.3% followed good hygiene practices. Poor practices were more common among girls attending government schools and those from nuclear families.²⁰

Mudi PK, Pradhan MR, and Meher T. A cross-sectional study conducted in 2023 among 360 currently married Juang women, a particularly vulnerable tribal group in Odisha, assessed menstrual health and hygiene practices. The study found that 85% used old cloth as menstrual absorbents, with limited use of sanitary napkins due to poor awareness, market accessibility, and cost. Cultural restrictions and untreated menstrual problems were also common. The study emphasized the need for awareness programs, affordable menstrual products, and accessible healthcare services.²¹

Chowdhury D, Chowdhury RI. A cross-sectional study conducted in 2023 among 550 adolescent girls aged 10–19 years living in slum areas of Siliguri, India, assessed menstrual hygiene knowledge and practices. The findings showed inadequate knowledge, with about 60% unaware of the source of menstrual bleeding. Only 45% used sanitary pads, while less than half practised proper disposal. More than half of the participants demonstrated poor menstrual hygiene practices, highlighting the need for improved education and awareness.²²

Singh A, Chakrabarty M, Singh S, et al. A cross-sectional study conducted in November 2022 across 28 states and 8 Union Territories of India, covering 707 districts and 636,669 households, assessed menstrual hygiene practices among adolescent women in rural areas. The study found that only 42% exclusively used hygienic menstrual methods, with considerable variation across states, ranging from 23% in Uttar Pradesh to 85% in Tamil Nadu. The study concluded that hygienic menstrual practices remain inadequate among adolescent women in rural India.⁹

Nimithamohan K, Murthy MRN, Divya KL, et al. A cross-sectional study conducted in rural Mysuru, Karnataka, in 2022 among 200 high school girls assessed menstrual hygiene and associated factors. The findings revealed that many participants experienced menstrual-related problems and changes in their diet and physical activity during menstruation. The study concluded that menstrual hygiene knowledge was inadequate and appropriate practices were lacking.²³

Panda J, Mickey RA, Sekhar SS, et al. A cross-sectional study conducted from July to September 2022 among 215 female nursing students at MKCG Medical College and Hospital, Berhampur, assessed menstrual hygiene knowledge and practices. Most participants demonstrated good knowledge and appropriate hygiene practices, with sanitary pads being commonly used. However, some misconceptions and improper drying of reusable cloths were observed. Mothers were the main source of menstrual information. The study recommended strengthening education to address remaining myths and improve practices.²⁴

Sehrawat I, Jain D, Sharma A, et al. A study conducted in August 2022 among 1,000 young women aged 15–25 years at JLN Medical College, Ajmer, Rajasthan, assessed knowledge, attitudes, and practices regarding menstrual health. Only 31.8% had received information before menarche, with mothers being the main source (55.4%). Most participants lacked knowledge about the hormonal basis and organs involved in menstruation. The study reported moderate awareness and highlighted the influence of family and school education on menstrual health.²⁵

Parikh V, Nagar S. A cross-sectional study conducted in July 2022 among 127 adolescent girls studying at a university in Gujarat assessed menstrual hygiene knowledge and practices. The study found that 80% of participants had regular menstrual cycles, while 78.7% demonstrated adequate knowledge about menstruation and 82% reported a normal menstrual pattern. Nearly 96% used sanitary pads, whereas 2.36% used reusable cloth, and about 19% made dietary changes during menstruation. Menstrual problems were more commonly reported among girls with irregular cycles, infrequent changing of absorbents, inadequate cleaning, and those using only plain water for cleansing. The study emphasized the need for

appropriate menstrual health education and promotion of hygienic practices.²⁶

Gupta R, Mishra S, Parihar A, et al. A cross-sectional study conducted in 2021 among 237 women aged 13–45 years attending Hind Institute of Medical Sciences, Sitapur, assessed their knowledge, attitudes, and practices regarding menstrual hygiene. The findings revealed that 76.8% had no information about menstruation before menarche, while 23.78% were unaware of its actual cause and 75.20% did not know the source of menstrual blood. In rural areas, only 4.72% used sanitary pads, whereas 79.39% relied on old cloth. In comparison, approximately 75% of urban women used sanitary pads. Only 52.36% of rural women reported cleaning their external genitalia with water. Overall, menstrual hygiene practices were significantly poorer among women living in rural areas.²⁷

Manjunatha S. conducted a study on 9 January 2020 at Raja Rajeswari Medical College and Hospital, Bangalore, assessed the knowledge and practices regarding menstrual hygiene among 380 adolescent girls aged 10–19 years from rural and urban field practice areas. The findings revealed that 43.4% of participants had received information about menstruation before their first period, while 62.4% recognized menstruation as a natural physiological process. About 58.9% used sanitary pads, but only 46.8% changed them twice a day. The study concluded that menstrual hygiene knowledge and practices were comparatively better among girls from rural school areas than those from urban schools.²

Khadervali N, Surendra B, Dudekula R. A cross-sectional study conducted on 26 October 2021 among 200 adolescent girls residing in government social welfare hostels in Chittoor assessed their knowledge, attitudes, and practices regarding menstrual hygiene. The findings showed that 41% identified menstruation as a physiological process, while others perceived it as a pathological condition or a religious curse. Mothers (36.5%) and sisters (36%) were the major sources of information. About 77.5% of the girls reported missing classes during menstruation, and 86% experienced menstrual-related restrictions. Regarding treatment-seeking, 24% used home remedies, 32% consulted a doctor, while 44% did not seek treatment. The study highlighted the important role of mothers in menstrual education and the persistence of restrictions and misconceptions among adolescent girls.²⁹

Rajavardhana T, Reddana L, Rudra JT, et al. A study conducted on 30 September 2021 among teenage girls in and around Anantapur town assessed their knowledge, attitudes, and practices regarding menstrual hygiene. Most participants were aged 15–17 years and were studying at the intermediate level. Although most girls understood that menstruation occurs in females and identified sanitary pads as the preferred menstrual absorbent, fewer than half had prior knowledge about menstruation before menarche. Awareness regarding infections associated with poor menstrual hygiene was also inadequate. Dysmenorrhea was commonly reported, particularly among younger participants. Overall, the study found satisfactory menstrual hygiene practices but inadequate knowledge among the participants.³⁰

Pramodha MS, Shashirekha HD. A cross-sectional study conducted in May 2021 in rural Dakshina Kannada, India, assessed knowledge, beliefs, and practices regarding menstrual hygiene among 130 adolescent school girls from secondary and high schools. The study revealed that 86% had limited knowledge about menstruation, although 65% understood it as a natural physiological process and about 80% were aware of maintaining clean undergarments. Menstrual myths and taboos were prevalent, with 71% following such beliefs. Around 30% felt embarrassed carrying menstrual products to school, while 64% used cloth instead of sanitary pads. Additionally, 63% were uncomfortable discussing menstrual concerns with family members or healthcare professionals. The study highlighted significant gaps in menstrual health knowledge and the persistence of negative beliefs and practices, emphasizing the need for effective menstrual health education.³¹

Bhatt MD, Kadam DM. A cross-sectional study conducted on 19 December 2019 among adolescent girls in a private school in Angaon village, Bhiwandi Taluka, Mumbai, assessed their knowledge, attitudes, and practices regarding menstruation. The study found that 83 girls were aware of the menstrual cycle, while 72 recognized menstruation as a physiological process. About 85 participants felt that girls should receive education about menstruation and hygiene before menarche. However, 50 girls reported following restrictions during menstruation. The study emphasized the importance of providing accurate information about menstrual physiology and addressing prevailing myths and misconceptions.³²

INTERNATIONAL

Karki KP, Gita KG, Shrestha B, et al. conducted a cross-sectional study to assess menstrual hygiene practices among adolescent school girls in Balkot, Bhaktapur Nepal, on 30 September 2025. A total of 210 participants were included in the study. The results revealed that 95.24% of the girls used commercially available sanitary pads during menstruation. All the participants reported practicing proper disposal of sanitary materials and had access to private washing facilities at school. Most study participants had good menstrual hygiene practices. But the study revealed that menstrual hygiene management is still a challenge in Nepal.

Most participants reported that there were separate toilets for girls with access to water and soap, but sanitary pads were not available in the school premises.³³

Mohammed AS, Cudjoea FK, Wuffeleb GM, et al. conducted a cross-sectional study among 363 schoolgirls in the Northern Region of Ghana in October, 2024 to assess menstrual hygiene knowledge and practices using a questionnaire. Most girls showed good awareness, with 90.9% recognizing menstruation as a natural process and 82.1% knew its hormonal cause, though only 57.3% knew the normal duration. While majority used sanitary pads (87.3%), some unsafe practices like improper disposal were observed. Knowledge was significantly associated with age, class, and ethnicity, and cultural and religious factors also influenced practices. Overall, despite generally good knowledge and practices, some gaps remain, indicating the need for better education and awareness.³⁴

Njee RM, Imeda PC, Ali MS, et al. conducted a school-based study on menstrual health and hygiene knowledge among adolescent girls in Tanzania in March 2024. The study included 8,012 girls aged 11–18 from urban and rural schools. Data were collected using questionnaires, focus group discussions, interviews, and observations. Findings showed that older girls, those with female guardians, and those from stable households had better knowledge. Differences were observed between government and non-government schools, while rural and urban girls showed similar knowledge levels. Only one in five schools had a trained teacher for menstrual health education. The study concluded that the majority of girls lacked adequate knowledge and emphasized the need for stronger policies, improved education, and better school support systems.³⁵

Aziz A, Memon S, Aziz F, et al. carried out a comparative study on the knowledge and practices regarding menstrual hygiene among adolescent girls in both urban and rural areas of Sindh, Pakistan, specifically in district Khairpur, on 19 January 2024, with a sample of 159 urban and 159 rural girls. The findings of this study indicated a notable difference in the management of menstrual hygiene between rural and urban girls. Around two-thirds of the total school girls believed that school management lacked sufficient resources and toilet facilities (rural: 76% versus urban: 62%). The primary source of information for adolescent rural and urban girls regarding menstrual-related issues was their mothers. A higher proportion of girls from the urban school (81%) were aware of using sanitary pads during menstruation. Most of the

girls from urban areas demonstrated satisfactory knowledge, whereas only 38% of rural girls showed satisfactory results. Nearly 71% of urban girls exhibited good practices when compared with rural girls (12%). This study concludes that with additional emphasis by the United Nations on female education in less developed regions, where women's health is typically undervalued, policies are needed regarding the inclusion of adolescent reproductive health in the curriculum.³⁶

Ahmed T, Hasan MK, Aunto TK, et al. conducted a Cross-Sectional Study on Menstrual Hygiene Knowledge and Practice Among Adolescent School Girls in Flood Affected Rural Bangladesh in Rangpur District. According to the survey just one-fourth (28.6%) of the teenage females enrolled in school had appropriate menstrual hygiene practices but over half (69%) had adequate knowledge about the topic. The study concluded that there is low level of menstrual hygiene practices among the respondents³⁷

Shah SF, Punjani NS, Rizvi SN, et al. conducted a descriptive cross-sectional study to assess the knowledge, attitudes, and practices regarding menstrual hygiene among girls residing in rural areas of Gilgit, Pakistan on 21 July 2023 with a sample size of 300 female participants aged 13–22 years. The results of the study showed that more than half of the participants had inadequate knowledge and practices regarding menstrual hygiene, which could be the outcome of various cultural and social factors related to menstrual hygiene. The study concluded that adolescent girls in rural areas lacked proper knowledge and practice regarding menstrual hygiene and recommended that regular educational sessions should be conducted by healthcare workers to improve the knowledge, attitudes, and practices of parents, teachers, and adolescent girls regarding menstrual hygiene.³⁸

Dube R, Zaidi H, Khan SS. conducted a study aimed to assess the Knowledge, Attitude, and Practice of Menstrual Hygiene among the female students and faculty of Medical and Health Sciences University in UAE. The purpose of the study was to evaluate the knowledge, attitudes, and practices of menstrual hygiene among female students and professors at Medical and Health Sciences University in the United Arab Emirates. A structured questionnaire and open-ended questions were used in this cross-sectional survey, which was conducted between February and June 2023 by sequential sampling. The study involved 253 women in total. Younger females had considerably more painful ($p=.0278$), heavy ($p=.005$), and irregular periods ($p=.0005$). The purpose of the study was to evaluate the knowledge, attitudes, and practices of menstrual hygiene among female students and professors at Medical and Health Sciences University in the United Arab Emirates. A structured questionnaire and open-ended questions were used in this cross-sectional survey, which was conducted between February and June 2023 by sequential sampling. The study involved 253 women in total. Younger females had considerably more painful ($p=.0278$), heavy ($p=.005$), and irregular periods ($p=.0005$).³

Daniel N, Kejela G, Fantahun F, et al. carried out a school-based cross-sectional study on the management of menstrual hygiene among teenage girls in Gimbi town, Western Ethiopia. Stratified random sampling was used to select 378 secondary school girls for the study. A pretested self-administered Afan Oromo questionnaire and an observational checklist were used to gather data. According to the findings, only 43.1% of participants followed proper menstrual hygiene. Better practices were linked to living in an urban area, having a higher level of education, having candid conversations with parents about menstruation, and having sufficient knowledge. The study found that schoolgirls had poor menstrual hygiene habits and highlighted the need for increased stakeholder awareness, education, and support to encourage appropriate menstrual hygiene management⁴⁰.

Appiah-Agyekum NN, Nyamekye MA, Agbenu IA et al. conducted a study on menstrual hygiene knowledge and practices among female senior high school students in the New Juaben North district of

Ghana. The goal was to evaluate levels of knowledge and menstrual hygiene practices and the factors that influence menstrual hygiene management among adolescent girls. The researchers employed a descriptive design using a cross-sectional method. They carried out the study in two senior high schools, with participants selected through systematic random sampling. Data were gathered using a structured questionnaire from August to September 2022. The study included 557 students. Results showed that 61.22% of students had good knowledge about menstruation, and 57.09% practised proper menstrual hygiene. Disposable sanitary pads were used by the majority (97.44%) and were also preferred (93.25%). Many students reported changing sanitary pads two to three times per day, and nearly 99% bathed during menstruation. Water was the most common method for genital cleaning (61.13%). Other results showed that students residing with their mothers and having appropriate disposal bins and adequate menstrual hygiene facilities tended to uphold good menstrual hygiene practices.⁴¹

Khanal G, Shrestha N, Adhikari K, et al. conducted a cross-sectional study on menstrual hygiene management among school students between 2021 and 2022 among 400 secondary school-going girls in Chitwan, Nepal, to assess their knowledge and practices regarding menstrual hygiene management. The study revealed considerable gaps in knowledge, with about 57.7% demonstrating unsatisfactory understanding before the intervention. Only around 38% of the participants initially knew that the uterus is the source of menstrual bleeding, and just 52.5% understood menstruation as a normal physiological process. Cultural restrictions were highly prevalent, with nearly 99.5% of the girls reporting some form of restriction during menstruation, and about 61.4% missing school during their periods. Common problems experienced included abdominal discomfort, mood changes, and fatigue, and most girls managed these by maintaining hygiene (36.8%) or performing light activities (27.5%). After health education, knowledge levels improved significantly, rising from 42.3% to 92.5% satisfactory knowledge. The study concluded that menstrual hygiene knowledge among adolescent girls was initially poor but can be greatly improved through proper health education, highlighting the importance of school-based awareness programs.⁴²

Tshomo T, Gurung MS, Shah S, et al. conducted a cross-sectional study to assess the knowledge, attitudes, and practices regarding menstrual hygiene management among female college students in Bhutan on 27 August 2021 with a sample size of 1,010 participants from 10 government colleges. The study revealed that the overall knowledge of menstruation among participants was low 35.5%, although many reported mothers as the primary source of information. Most participants used absorbents, but issues related to washing facilities were evident, including lack of water 21.3%, absence of soap 80.1%, and inadequate disposal facilities 24.1%, along with absence of toilet door locks in hostels. The study concluded that despite relatively good practices, gaps in knowledge and inadequate facilities negatively impacted menstrual hygiene management, and emphasized the need for improved health education, better washing infrastructure, and supportive environments for female students.⁴³

Nnennaya EU, Atinge S, Dogara SP, et al. conducted a study on menstrual knowledge and hygiene practices among adolescent schoolgirls in Taraba State, Nigeria in June of 2021. Menarche is a crucial stage in a girl's development, yet poor knowledge and hygiene can affect health and dignity. The study involved 297 girls selected through multistage sampling. A structured questionnaire was used to collect data. The mean age at menarche was 13.7 years. About 76.1% had prior knowledge of menstruation, with mothers as the main source (48.1%). Overall, 69.7% had good knowledge, and 57.58% practiced proper hygiene. A significant association was found between knowledge and hygiene practices ($p < 0.001$). The study concluded that awareness was satisfactory but emphasized improving access to reliable menstrual

health education.⁴⁴

Hassan M, Hasan MN, Mita MH, et al. conducted a cross-sectional study to assess menstrual hygiene practices and school absenteeism among adolescent girls in Dhaka division, Bangladesh, in March 2021. The study was conducted on a sample of 442 school-going adolescent girls selected from nine randomly selected girls schools. The results showed that the magnitude of school absenteeism was 35.1% in the study participants. Increased absenteeism was associated with older age, illiterate parents, single-parent families, lack of knowledge about the menstrual cycle before menarche and poor menstrual hygiene practices. The study concluded that these findings may help government and non-governmental organisations to develop interventions to improve knowledge about the menstrual cycle and thereby reduce school absenteeism during menstruation.⁴⁵

SUMMARY

This chapter presented a review of the literature related to the present study. The literature review focused on awareness regarding menstrual hygiene in terms of knowledge and practice. The review of literature enabled the investigators to establish the need for the study, adopt relevant research design, develop tools and decide on the method for collection and analysis of data.

RESEARCH METHODOLOGY

INTRODUCTION

Research methodology refers to the overall plan and techniques used for collecting and analyzing data to achieve the objectives of a study. It provides a systematic approach for organizing the research process and ensuring that the data gathered are valid and reliable. It also includes the methods, procedures, and strategies adopted for data collection and analysis.

The present study was carried out to assess the knowledge and practice of menstrual hygiene among school going girls in the selected rural school of East Khasi Hills District, Meghalaya.

RESEARCH APPROACH

Research approach is a crucial part of the research design that guides it. As a result, determining what is present and absent, as well as manipulating and controlling variables, it also helps identify the need for the presence or absence of a control group for comparative study⁴⁶.

In this study, a quantitative research approach design was adopted to assess the knowledge and practice of menstrual hygiene among school-going girls in the selected rural school of East Khasi Hills, District Meghalaya.

RESEARCH DESIGN

A research design is the overall framework or plan used to organize, conduct, and evaluate a research study. It is a systematic plan outlining what needs to be done, how it will be done, and how the research will be executed, the methods and techniques to be employed in the study. It contains a description of the study variables, both independent and dependent, sampling strategy, and a format for a data collection plan, presentation and analysis. It is also referred to as a guide that scientists use to conduct their investigation⁴⁶. In this study, a non-experimental cross-sectional study design was adopted to assess the knowledge and practice of menstrual hygiene among school-going girls in the selected rural school of East Khasi Hills, District Meghalaya.

VARIABLES IN THE STUDY

Variables are anything that has quantity and quality that varies. Variables are qualities, properties or characteristics of persons, things, or situations that change or vary⁴⁶.

a) INDEPENDENT VARIABLES

Socio-demographic variables

- Age
- Class
- Religion
- Mother's educational level
- Age of attaining menarche

b) OUTCOME VARIABLES

Knowledge and practice regarding menstrual hygiene in school-going girls from the age of 11-17 years in selected rural schools of East Khasi District, Meghalaya.

STUDY SETTINGS

The place where the research is carried out is known as the study setting. Perhaps some of it is natural, either regulated or not.⁴⁶

In the present study, the pilot study was conducted in St. Agnes Secondary School, Mawlynrei, Meghalaya.

The final study was conducted in St Francis D'Assisi Higher Secondary School Mawkasiang, Meghalaya and Sharon Memorial Higher Secondary School Mawdiangdiang, Meghalaya

ETHICAL CONSIDERATION

In our study, permission was obtained from:

- A. Institutional Review Committee (IRC)
- B. Institutional Ethics Committee (IEC)
- C. Principal of the selected school
- D. Informed consent and assent from participants

STUDY POPULATION

The population of a study is the entire set of individuals or objects having some common characteristic(s) selected for research study, sometimes referred to as the universe of the research study⁴⁶.

In this study, the population comprises female secondary school students of selected rural school of East Khasi Hills District, Meghalaya.

SAMPLING TECHNIQUE

The process of choosing a sample to represent the entire target population is known as sampling⁴⁶.

In our study, the sampling technique used is the Convenience Sampling Technique

SAMPLE SIZE

Sample size is the number of subjects, events, behaviors, or situations that were examined in the study⁴.

It was calculated using the following formula:

We know that:

$$N = \frac{(Z_{1-\alpha/2})^2 \times P \times (1-P)}{(d)^2}$$

$$N = \frac{(1.96)^2 \times 0.51 \times (1-0.51)}{(0.09)^2}$$

$$N = 118.52$$

$$N \approx 118$$

Extra sample with 10% attrition rate

$$n = 118 + 10\% \text{ of } 118$$

$$n = 118 + 11.8$$

$$n = 129.8$$

$$n \approx 130$$

Therefore, the number of participants selected for the study is 130. Where,

($Z_{1-\alpha/2}$): Critical value of the normal distribution at $\alpha/2$ (for a confidence level of 95%, α is 0.05 and the critical value is 1.96)

D = Margin of error

P = Proportion of prevalence

(Where p is taken according to a cross-sectional study on knowledge and practice regarding menstrual hygiene among adolescents in Imphal, East Manipur)⁸

CRITERIA FOR SAMPLE SELECTION

Inclusion criteria:

- School-going girls
- 11 – 17 years of age

Exclusion criteria:

- Participants not willing to take part in the study
- Absent during the day of sample collection

DEVELOPMENT OF DATA COLLECTION TOOL

Tools are the steps or tools taken by the researcher to collect data. The research tool was designed according to the objectives of the research.

The following steps were adapted before developing the tool:

- An extensive review of literature from books, research journals, online resources, and books related to the research subjects.
- Expert recommendations

DESCRIPTION OF DATA COLLECTION TOOL

The tool used for our research study to collect the data is a self-administered questionnaire. It consists of four sections.

SECTION I: This section comprises the demographic data of the participants including age, class, religion, mother's educational qualification and age of attaining menarche.

SECTION II: This section contains 8 questions designed for assessing the knowledge of the participants on menstrual hygiene.

SECTION III: This section includes 12 questions to evaluate the practice of participants on menstrual hygiene.

VALIDITY

The content validity of the research instrument was established through evaluation by various experts from different health departments, such as:

Department of Obstetrics and Gynaecology, Department of Community Medicine, Department of Paediatrics, Department of Midwifery and Obstetrical Nursing, Department of Community Health Nursing.

Experts were asked to evaluate for clarity, pertinence, suitability, applicability and meaningfulness for the study.

Changes were made according to the experts' feedback along with reorganization of the tool as required.

PILOT STUDY

From 30th March to 2nd April 2026, a pilot study was conducted in St. Agnes Secondary School Mawlynrei, Meghalaya, after obtaining prior information from the principal of the school. A participant information sheet was provided to the participants and assent and consent were obtained from them for the purpose of the study.

The number of participants for the study was 20. The participants were given 30 minutes to fill out the self-administered structured questionnaire.

The findings of this pilot study revealed that the tool was reliable and that it was feasible to carry out the main study as proposed.

DATA COLLECTION PROCEDURE OF THE FINAL STUDY

The final collection of data was carried out from 27th to 29th of April and from 5th to 7th of May, 2026 at the St Francis D'Assisi Higher Secondary School Mawkasiang, Meghalaya and Sharon Memorial Higher Secondary School Mawdiangdiang, Meghalaya.

Ethical clearance was obtained from the Institute Ethical Committee, NEIGRIHMS. Permission to conduct the final study was obtained from the Principal and Vice Principal of each school, and informed consent was obtained from the participants. The informed consent clearly outlined the problem statement, the purpose and the data collection process and assured the participants that confidentiality and anonymity of the data and the findings of the study would be maintained. A short introduction to the study was provided to the participants before administering the questionnaire; thereafter, the participants proceeded to complete the self-administered questionnaire for which they were allotted 30 minutes.

SCORING OF THE TOOL

SECTION I: It consists of socio-demographic characteristics and was not scored.

SECTION II: It consists of 8 questions on knowledge of menstrual hygiene of the participants. '1' mark for each correct response was awarded and for every incorrect response '0' or if left unanswered. The maximum score is 8 and the minimum score is zero.

SECTION III: It consists of 12 practice-based questions to assess the level of practice of participants on menstrual hygiene. '1' mark was awarded for each correct response and '0' for every incorrect response or if left unanswered. The maximum score is 12 and the minimum score is zero.

INTERPRETATION OF SCORE**SECTION II: KNOWLEDGE LEVEL**

Category	Range of Score
Poor	0-3
Average	4-6
Good	7-8

Maximum score is 8

SECTION III: PRACTICE LEVEL

Category	Range of score
Poor	0-5
Average	6-9
Good	10-12

Maximum score is 12

ANALYSIS, INTERPRETATION AND DISCUSSION

This chapter deals with the statistical analysis and interpretation of the data collected. The data was collected from 142 students from selected rural schools of East Khasi Hills District, Meghalaya.

The demographic variables were analyzed using descriptive statistics: frequency and percentage.

For the assessment of knowledge and practice on menstrual hygiene management, descriptive statistics were used: frequency and percentage.

The association of knowledge and practice with selected demographic variables, inferential statistics was found using Chi square.

ORGANISATION OF THE DATA

This chapter deals with the statistical analysis of the collected data and the interpretation of the findings.

ORGANIZATION OF FINDINGS

The data were analyzed, interpreted, and presented under the following sections.

- Section I: Description of socio-demographic variables of school-going girls in selected rural schools.
- Section II: Assessment of knowledge and practice regarding menstrual hygiene among school-going girls in selected rural schools.
- Section III: Cross-tabulation of participants according to their Level of Knowledge and Level of Practice
- Section IV: Association between knowledge and practice with selected socio-demographic variables among school-going girls in selected rural schools.

ANALYSIS AND INTERPRETATION

Section I: Description of socio-demographic variables of school-going girls in selected rural schools.

Table 1: Frequency and Percentage Distribution of Participants According to Socio-demographic Variables
N = 142

Variables	Category	Frequency (f)	Percentage (%)
Age Group (years)	11–13	50	35.2
	14–17	92	64.8
Class	6th	1	0.7
	7th	28	19.7
	8th	32	22.5
	9th	52	36.6
	10th	29	20.4
Religion	Christian	141	99.3
	Indigenous	1	0.7
Mother's Educational Level	No Formal Education	6	4.2
	Primary Schooling	36	25.4
	Upper Primary Schooling	29	20.4
	Secondary Schooling	31	21.8
	Higher Secondary School	25	17.6
	Undergraduate	14	9.9

	Post Graduate	1	0.7
Age at Attaining Menarche (years)	9	3	2.1
	10	11	7.7
	11	43	30.3
	12	44	31.0
	13	28	19.7
	14	13	9.2

Table 1 shows that a large proportion of respondents, 92 (64.8%), belonging to the age group of 14–17 years, whereas 50 (35.2%) belonged to the age group of 11–13 years.

With regard to class, most respondents, 52 (36.6%), were studying in the 9th standard, followed by 32 (22.5%) in the 8th standard and 29 (20.4%) in the 10th standard. Only 1 (0.7%) respondent was studying in the 6th standard.

Almost all respondents, 141 (99.3%), identified as Christians, while only 1 (0.7%) respondent were associated with the Indigenous religion.

With regard to mother's educational level, the majority of respondents indicated as follows: 36 (25.4%) had primary schooling, followed by 31 (21.8%) with secondary schooling and 29 (20.4%) with upper primary schooling. Furthermore,

25 (17.6%) had higher secondary education, 14 (9.9%) had undergraduate education, while only 6 (4.2%) had no formal education, and 1 (0.7%) had postgraduate education. Regarding age of attaining menarche, the majority of respondents attained menarche at 12 years, 44 (31.0%), followed closely by 11 years, 43 (30.3%). Fewer respondents attained menarche at 13 years, 28 (19.7%), 14 years, 13 (9.2%), 10 years, 11 (7.7%), and 9 years, 3 (2.1%).

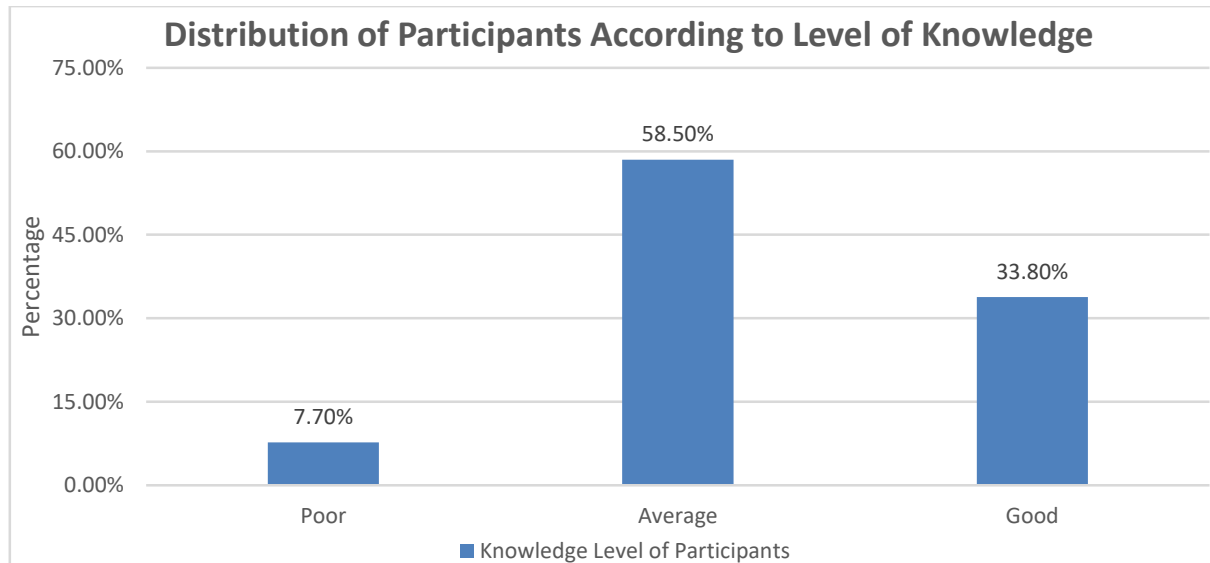
Section II: Assessment of knowledge and practice regarding menstrual hygiene among school-going girls in selected rural schools.

Table 2: Distribution of Participants According to Level of Knowledge with Mean and Standard Deviation
N= 142

Variable	Score Category (Score Range)	Frequency (f)	Percentage (%)	Mean	SD
Knowledge Score	Poor Knowledge (0–3)	11	7.7	5.73	1.56
	Average Knowledge (4–6)	83	58.5		
	Good Knowledge (7–8)	48	33.8		

Table 2 shows that the greater proportion of respondents, 83 (58.5%), had a moderate level of knowledge regarding menstrual hygiene, followed by 48 (33.8%) with good knowledge and 11 (7.7%) with poor knowledge.

Figure 1: Bar diagram depicting the Knowledge level of Participants.



The above figure (Fig. 1) shows that out of 142 participants 58.5% participants have average knowledge, 33.8% have good knowledge, and 7.7 % have poor knowledge.

The mean knowledge score was 5.73 ± 1.56 , indicating an overall average level of knowledge among the respondents.

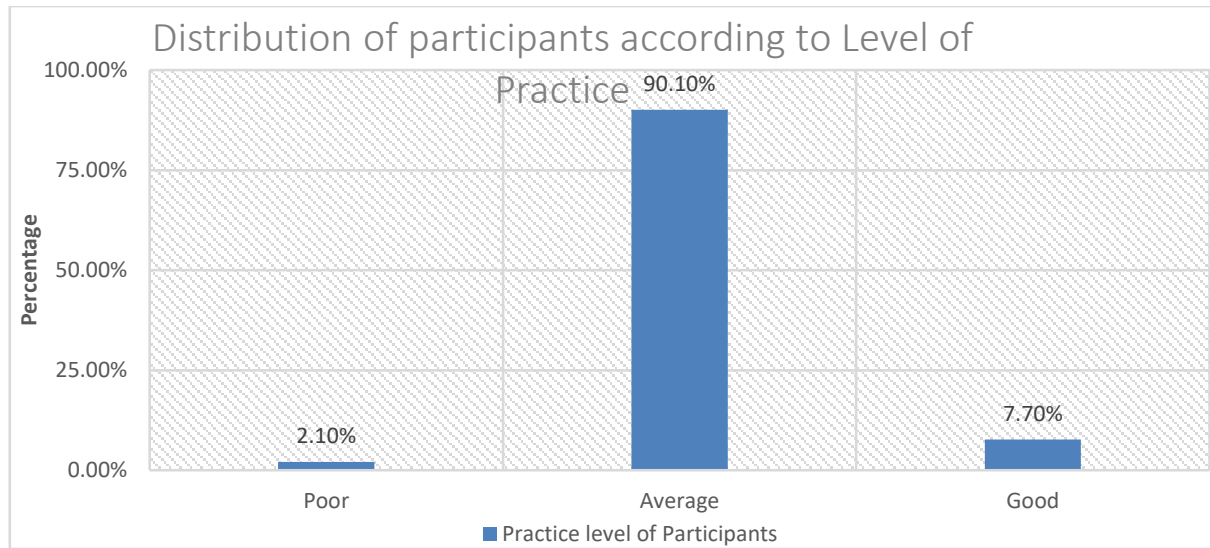
Table 3: Distribution of Participants in relation to their Level of Practice with Mean and Standard Deviation
N = 142

Variable	Score Category (Score Range)	Frequency (f)	Percentage (%)	Mean	SD
Practice Score	Poor Practice (0–5)	3	2.1	7.88	1.29
	Average Practice (6–9)	128	90.1		
	Good Practice (10–12)	11	7.7		

Table 3 reveals that the majority of respondents, 128 (90.1%), demonstrated average menstrual hygiene practices, whereas 11 (7.7%) had good practice and only 3 (2.1%) had poor practice.

The mean practice score was 7.88 ± 1.29 , suggesting an overall average level of menstrual hygiene practice among the respondents.

Fig.2: Bar diagram depicting the level of practice of participants



The above figure (Fig. 2) shows that out of 142 participants, 90.1% demonstrated an average level of practice, 7.7% demonstrated good level of practice and 2.1 % demonstrated poor level of practice

Section III: Cross-tabulation of participants according to their degree of Knowledge and Level of Practice

Table 4: Cross-tabulation of participants according to their Level of Knowledge and degree of Practice
N=142

	Poor Knowledge	Average Knowledge	Good Knowledge	Total
Poor Practice	1	2	0	3
Average Practice	10	74	44	128
Good Practice	0	7	4	11
Total	11	83	48	142

Table 4 shows that the majority of participants, 74 (52.1%), demonstrated average knowledge and average practice, followed by 44 (31.0%) who demonstrated good knowledge but average practice. Further, 10 (7.0%) participants demonstrated poor knowledge and average practice, 7 (4.9%) demonstrated an average knowledge and good practice, and 4 (2.8%) demonstrated good knowledge and good practice. Additionally, 2 (1.4%) participants demonstrated average knowledge but poor practice, while 1 (0.7%) participants demonstrated poor knowledge and poor practice.

Section IV: Association between knowledge and practice with selected socio-demographic variables among school-going girls in selected rural schools.

Table 5: Association between Level of Knowledge and Selected Socio-demographic Variables

among School-going Girls in Selected Rural Schools of East Khasi Hills District, Meghalaya

N = 142

Variable	Category	Poor Knowledge f (%)	Average Knowledge f (%)	Good Knowledge f (%)	χ^2 Value	df	p-value
Age Group (years)	11–13	7 (4.9)	35 (24.6)	8 (5.6)	12.893	2	0.002*
	14–17	4 (2.8)	48 (33.8)	40 (28.2)			
Class	6th	1 (0.7)	0 (0.0)	0 (0.0)	46.677	8	0.000*
	7th	7 (4.9)	21 (14.8)	0 (0.0)			
	8th	1 (0.7)	23 (16.2)	8 (5.6)			
	9th	2 (1.4)	25 (17.6)	25 (17.6)			
	10th	0 (0.0)	14 (9.9)	15 (10.6)			
Religion	Christian	11 (7.7)	82 (57.7)	48 (33.8)	0.716	2	0.699
	Indigenous	0 (0.0)	1 (0.7)	0 (0.0)			
Mother's Educational Level	No Formal Education	1 (0.7)	4 (2.8)	1 (0.7)	10.690	12	0.556
	Primary Schooling	2 (1.4)	22 (15.5)	12 (8.5)			
	Upper Primary Schooling	4 (2.8)	18 (12.7)	7 (4.9)			
	Secondary Schooling	4 (2.8)	15 (10.6)	12 (8.5)			
	Higher Secondary School	0 (0.0)	16 (11.3)	9 (6.3)			
	Undergraduate	0 (0.0)	7 (4.9)	7 (4.9)			
	Post Graduate	0 (0.0)	1 (0.7)	0 (0.0)			
Age Attaining Menarche (year)	9	0 (0.0)	3 (2.1)	0 (0.0)	7.177	10	0.709
	10	1 (0.7)	5 (3.5)	5 (3.5)			
	11	2 (1.4)	25 (17.6)	16 (11.3)			
	12	6 (4.2)	25 (17.6)	13 (9.2)			

	13	2 (1.4)	16 (11.3)	10 (7.0)			
	14	0 (0.0)	9 (6.3)	4 (2.8)			

***Statistically significant at $p < 0.05$ level**

Table 5 reveals that among respondents in the age group of 11–13 years, 35 (24.6%) demonstrated average knowledge, whereas among respondents aged 14–17 years, 40 (28.2%) demonstrated good knowledge regarding menstrual hygiene. A statistically significant association was found between age group and level of knowledge ($p = 0.002$).

With regard to class, the majority of respondents studying in 9th and 10th standards demonstrated comparatively higher good knowledge regarding menstrual hygiene. A statistically significant association was observed between class and level of knowledge ($p = 0.000$).

In terms of religion, the large proportion of respondents belonged to the Christian religion and demonstrated average knowledge. No statistically significant association was observed between religion and degree of knowledge ($p = 0.699$).

Regarding mother's educational level, respondents whose mothers had primary and secondary schooling demonstrated comparatively higher average and good knowledge. However, no statistically significant association was found between mother's educational level and level of knowledge ($p = 0.556$).

In relation to age at attaining menarche, respondents who attained menarche at 11 and 12 years demonstrated comparatively higher average and good knowledge. On the other hand, there was no statistically significant association between age at attaining menarche and level of knowledge ($p = 0.709$).

Table 6: Association between Level of Practice and Selected Socio-demographic Variables among School-going Girls in Selected Rural Schools of East Khasi Hills District, Meghalaya
N = 142

Variable	Category	Poor Practice (%)	Average Practice f (%)	Good Practice f (%)	χ^2 Value	df	p-value
Age Group (years)	11–13	3 (2.1)	46 (32.4)	1 (0.7)	8.839	2	0.012*
	14–17	0 (0.0)	82 (57.7)	10 (7.0)			
Class	6th	0 (0.0)	1 (0.7)	0 (0.0)	11.148	8	0.193
	7th	1 (0.7)	26 (18.3)	1 (0.7)			
	8th	2 (1.4)	29 (20.4)	1 (0.7)			
	9th	0 (0.0)	44 (31.0)	8 (5.6)			
	10th	0 (0.0)	28 (19.7)	1 (0.7)			
Religion	Christian	3 (2.1)	127 (89.4)	11 (7.7)	0.110	2	0.946
	Indigenous	0 (0.0)	1 (0.7)	0 (0.0)			
Mother's Educational Level	No Formal Education	1 (0.7)	4 (2.8)	1 (0.7)	13.878	12	0.309
	Primary Schooling	0 (0.0)	34 (23.9)	2 (1.4)			
	Upper Primary	0 (0.0)	25 (17.6)	4 (2.8)			

***Statistically significant at $p < 0.05$ level**

	Schooling						
	Secondary Schooling	1 (0.7)	29 (20.4)	1 (0.7)			
	Higher Secondary School	1 (0.7)	21 (14.8)	3 (2.1)			
	Undergraduate	0 (0.0)	14 (9.9)	0 (0.0)			
	Post Graduate	0 (0.0)	1 (0.7)	0 (0.0)			
Age at Attaining Menarche (years)	9	0 (0.0)	3 (2.1)	0 (0.0)	5.488	10	0.856
	10	0 (0.0)	11 (7.7)	0 (0.0)			
	11	1 (0.7)	37 (26.1)	5 (3.5)			
	12	2 (1.4)	38 (26.8)	4 (2.8)			
	13	0 (0.0)	27 (19.0)	1 (0.7)			
	14	0 (0.0)	12 (8.5)	1 (0.7)			
	Secondary Schooling	1 (0.7)	29 (20.4)	1 (0.7)			
	Higher Secondary School	1 (0.7)	21 (14.8)	3 (2.1)			
	Undergraduate	0 (0.0)	14 (9.9)	0 (0.0)			
	Post Graduate	0 (0.0)	1 (0.7)	0 (0.0)			
Age at Attaining Menarche (years)	9	0 (0.0)	3 (2.1)	0 (0.0)	5.488	10	0.856
	10	0 (0.0)	11 (7.7)	0 (0.0)			
	11	1 (0.7)	37 (26.1)	5 (3.5)			
	12	2 (1.4)	38 (26.8)	4 (2.8)			
	13	0 (0.0)	27 (19.0)	1 (0.7)			
	14	0 (0.0)	12 (8.5)	1 (0.7)			

Table 6 shows that 46 (32.4%) of the respondents in the 11–13 age group had average menstrual hygiene practices, whereas 10 (7.0%) of the respondents in the 14–17 age group had good practices. Age group and practice level were shown to be statistically significantly associated ($p = 0.012$).

In terms of class, most respondents who were enrolled in the 9th standard showed comparatively better menstrual hygiene habits. However, there was no statistically significant association found between practice level and class ($p = 0.193$).

In terms of religion, the majority of respondents practiced average menstrual hygiene and identified as Christians. Religion and practice level did not show a statistically significant association ($p = 0.946$).

The average menstrual hygiene habits were considerably higher among respondents whose mothers had completed primary and secondary education. However, there was no statistically significant association ($p = 0.309$) between the mother's educational attainment and practice level.

Respondents who reached menarche between the ages of 11 and 12 showed relatively greater average

menstrual hygiene practices. However, there was no statistically significant association ($p = 0.856$) between the level of practice and the age at menarche.

DISCUSSION

PRESENT STUDY	RELEVANT STUDY
The findings of the present study are congruent with existing literature. The majority of participants had average knowledge (58.5%) and average practice (90.1%). The present study found a significant relationship between age group and knowledge ($p = 0.002$), age group and practice ($p = 0.012$), and class and knowledge ($p = 0.000$). The findings also show gaps in menstrual hygiene knowledge despite acceptable practices. However, the present study found no significant association of knowledge with religion and mother's educational status.	The findings are similar to Boruah Beeva et al. (2022), who reported inadequate menstrual hygiene knowledge and practices among adolescent girls. This supports the present finding that gaps in menstrual hygiene knowledge persist. The significant association between class and knowledge is supported by Devi Longjam Usharani et al. (2019), who also found a significant association between class and menstrual hygiene knowledge. This is consistent with Sonowal and Talukdar (2019), who reported limited awareness and inadequate knowledge regarding menstruation, although acceptable hygiene practices were observed. This contradicts Devi Longjam Usharani et al. (2019), who reported significant associations between knowledge and religion and other educational factors. The difference may be due to variations in study setting and participant characteristics

SUMMARY

Managing menstrual hygiene is essential to adolescent health and has a big impact on girls' and women's physical, mental, and social wellbeing.

A non-experimental cross-sectional study was conducted on "Assessment of knowledge and practice of menstrual hygiene among school-going girls in selected rural schools of East Khasi Hills District, Meghalaya"

The primary objective of the study was to assess the knowledge and practice of menstrual hygiene among school-going girls in selected rural schools of East Khasi Hills District, Meghalaya. The secondary objective was to determine the association between knowledge and practice of menstrual hygiene with selected demographic variables among school-going girls in selected rural schools of East Khasi Hills District, Meghalaya.

142 students from two different rural schools in EKH, Meghalaya, participated in the study. Convenience sampling was used to choose participants. A standardized self-administered questionnaire was used to gather the data which was collected from 27 April to 29 April 2026 and 5 May to 7 May 2026. The data tool was divided into 3 sections.

Data was analyzed using a variety of statistical techniques. To ascertain the association between particular demographic characteristics and levels of knowledge and practice, descriptive statistics like frequency

and percentage as well as inferential statistics like Chi square were used. The findings were methodically organized and presented using tables and graphs in compliance with the study's objectives.

MAJOR FINDING OF THE STUDY

Findings related to demographic data of the participants.

- Out of 142 participants, 50 (35.2%) were in the age group of 11 – 13 years, 92 (64.8%) were in the age group of 14 – 17 years.
- Out of 142 participants, 1 (0.7%) was in class 6, 28 (19.7%) were in class 7, 32 (22.5%) were in class 8, 52 (36.6%) were in class 9 and 29 (20.4%) were in class 10
- Out of 142 participants, 141 (99.3%) belong to Christian religion and 1 (0.7%) was from indigenous religion
- Out of 142 participants, 6 (4.2%) of mothers of the participant had no formal education, 36 (25.4%) had primary schooling, 29 (20.4%) had upper primary schooling, 31 (21.8%) had secondary schooling, 25 (17.6%) had higher secondary schooling, 14(9.9%) were undergraduates and 1 (0.7%) were post graduate.
- Out of 142 participants, 3 (2.1%) had attained menarche at the age of 9 years, 11 (7.7%) had attained at 10 years of age, 43 (30.3%) at 11 years, 44 (31%) at 12 years, 28 (19.7%) at 13 years and 13 (9.2%) at 14 years Findings related to knowledge regarding menstrual hygiene among participants
- Majority of the participant demonstrated average knowledge on menstrual hygiene (58.5%).
- 33.8% of the participant demonstrated good knowledge on menstrual hygiene.
- 7.7% of the participants demonstrated poor knowledge on menstrual hygiene.

Findings related to practice regarding menstrual hygiene among participants

- The majority of the participants practices average menstrual hygiene (90.1%).
- 7.7% of the participants have good practice on menstrual hygiene.
- 2.1% of the participants have poor practice on menstrual hygiene.

Findings related to the association between the level of knowledge and the level of practice among the participants

- The majority of participants, 52.1%, demonstrated average knowledge and average practice,
- Followed by 31.0% who demonstrated good knowledge but average practice.
- Further, 7.0% participants demonstrated poor knowledge and average practice,
- 4.9% demonstrated average knowledge and good practice, and 2.8% had good knowledge and good practice.
- Additionally, 1.4% participants demonstrated average knowledge but poor practice, while 0.7% participants demonstrated poor knowledge and poor practice

RECOMMENDATIONS OF THE STUDY

Similar studies could also be conducted with a larger sample size and among different groups of adolescent girls at the community level to obtain findings that are more representative and generalizable. Regular menstrual hygiene education programs should be conducted in school to improve students' knowledge and promote healthy menstrual hygiene practices.

IMPLICATIONS OF THE STUDY

Nursing care has transitioned from simply performing routine duties to delivering comprehensive,

evidence-based, and holistic care. The findings of this study hold significant relevance for nursing education, practice, administration, and research. Enhancing menstrual hygiene knowledge and practices among schoolgirls is vital for advancing adolescent health, preventing reproductive tract infections, and improving their overall well-being.

NURSING EDUCATION

Education plays a vital role in empowering individuals to adopt healthy practices and prevent disease. Nursing education must highlight menstrual hygiene management as a key part of adolescent health. The nursing curriculum should thoroughly cover menstrual physiology, hygiene practices, menstrual disorders, and strategies to prevent infections related to menstruation. Nursing students should be trained to provide age-appropriate health education, counselling, and awareness programs on menstrual hygiene, particularly for adolescents in rural communities. Educational strategies such as interactive teaching sessions, demonstrations, and school health programs should be incorporated into nursing education to improve students' knowledge, communication skills, and community outreach abilities.

NURSING PRACTICE

Nurses play a vital role in supporting adolescent health through education, counselling, and preventive care. This study emphasizes the importance of nurses in schools, primary health centres, community health centres, and rural areas educating adolescent girls on safe menstrual hygiene practices. Community and school health nurses should regularly organize awareness programs, group discussions, and counselling sessions to enhance knowledge about menstrual hygiene. They should encourage the use of clean and hygienic menstrual absorbents, proper disposal methods, hand hygiene, and timely recognition of symptoms requiring medical attention. These interventions can contribute to reducing menstrual-related infections, absenteeism from school, and misconceptions surrounding menstruation.

NURSING RESEARCH

Research is essential for evidence-based nursing practice and the ongoing advancement of healthcare services. This study provides baseline data on the knowledge and practices of menstrual hygiene among schoolgirls in rural areas. Future research could involve larger sample sizes and diverse geographic locations to compare menstrual hygiene behaviors across different populations. Experimental and interventional studies could evaluate the effectiveness of health education programs in improving menstrual hygiene knowledge and practices. Additionally, future studies might explore the impact of socio-cultural beliefs, parental education, socioeconomic status, and access to menstrual hygiene products on menstrual hygiene management.

NURSING ADMINISTRATION

Nursing administrators are vital in the organization, execution, and evaluation of adolescent health programs. Based on the study's findings, they should promote regular school-based menstrual hygiene education programs in partnership with schools, local health authorities, and community groups. They should also support training of nurses and health workers to enhance their knowledge and instructional skills in menstrual hygiene management. Furthermore, nursing administrators must ensure that schools, especially in rural areas, are equipped with educational materials, menstrual hygiene supplies, and proper sanitation facilities. These efforts will help improve menstrual hygiene practices, support reproductive

health, and enhance adolescent healthcare quality.

CONCLUSION

According to the study, 58.5% of participants demonstrated average knowledge of menstrual hygiene, while 33.8% demonstrated good knowledge and 7.7% demonstrated poor knowledge. Regarding menstrual hygiene practices, 90.1% exhibited average practice, 7.7% good practice, and 2.1% poor practice. There was no significant relationship between knowledge or practice levels and socio-demographic factors such as age at menarche, mother's education level, or religion. However, significant correlations were found between age groups and both knowledge and practice levels, as well as between class and knowledge level, but not between class and practice level.

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