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## Enhancing Menstrual Awareness among Adolescent Girls: Evaluating the Influence of School Initiatives

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### KEYWORDS

Menstrual Health, Adolescent Girls, School-Based Initiatives, Awareness.

### ABSTRACT:

**Introduction:** Although menstruation is a natural biological process that has a substantial impact on adolescents girls' health and well-being, it is frequently stigmatised and poorly understood, especially in settings with limited resources. In order to address this problem, school-based menstrual health programmes offer thorough instruction, easy access to sanitary supplies, and encouraging surroundings for managing menstrual health.

**Objective:** The purpose of this cross-sectional study is to determine how well school-based programmes work to increase adolescent girls' awareness of menstruation and to identify differences in menstrual knowledge, attitudes, and practices between schools that implement these programmes and those that do not. The study also aims to determine the variables that affect menstrual awareness, such as financial situation, educational attainment, and resource accessibility.

**Methodology:** Using a quantitative methodology, the study surveyed adolescent girls in District-Dehradun, Uttarakhand, who were in various higher secondary schools and ranged in age from 13 to 16. Cochran's formula is used to calculate the sample size, and self-structured questionnaires are used to collect data over a six-month period.

**Findings:** The investigation shows a strong correlation between school-based MHM programmes and adolescents girls' knowledge of menstruation. Menstrual awareness among students has been positively impacted by initiatives like the availability of knowledgeable staff, specifically designated spaces for MHM programmes, educational sessions, and adequate facilities.

**Discussion:** By emphasising the significance of evidence-based interventions and cooperative efforts to promote menstrual health awareness and hygiene practices among adolescent populations, the study's findings add to the ongoing conversation on MHM in schools. However, the study's design flaws and geographic specificity point to the need for more investigation in order to generalise the results and establish causality.

**Conclusion:** In spite of its limitations, the study's conclusion emphasises the value of menstrual health initiatives (MHM) in raising adolescent girls' awareness of menstruation. It also advocates for ongoing improvement and targeted interventions to close the knowledge gaps regarding menstrual health and the accessibility of resources. Policymakers and educators can create specialised strategies to meet the various needs of adolescent girls and promote menstrual health with dignity and confidence by taking into account cultural, geographic, and socioeconomic factors.

### 1. Introduction

Menstruation is a normal biological process that is specific to women and has a big impact on adolescent

girls' health and wellbeing. Menstruation is a common occurrence, but despite this, it is frequently stigmatized, disregarded, and poorly understood, especially in environments with limited resources. To address this



issue, many school-based programmes have been put into place all over the world to raise adolescent girls' awareness of their periods. The aforementioned initiatives are designed to furnish girls with comprehensive education on menstrual health, enhance their access to menstrual hygiene products, and establish nurturing environments that enable them to effectively manage their menstrual health.

Even though school-based menstrual health initiatives are widely recognised as important, little is known about their effectiveness or impact, especially when it comes to cross-sectional studies. Cross-sectional studies provide a moment in time of a population and enable researchers to look at relationships between variables without proving causation. Cross-sectional studies are essential for determining potential factors influencing menstrual health education outcomes and assessing the prevalence of menstrual knowledge, attitudes, and practices among adolescent girls.

The purpose of this cross-sectional study is to assess how school-based initiatives affect adolescent girls' increased awareness of their menstrual cycles. We aim to evaluate disparities in menstrual knowledge, attitudes, and practices between schools with and without menstrual health initiatives by surveying a diverse sample of adolescent girls. Furthermore, our goal is to investigate potential factors that influence menstrual awareness, including financial standing, level of education, and availability of resources related to menstrual hygiene.

This study aims to offer important insights into the efficacy of school-based initiatives in raising adolescent girls' awareness of menstruation through a thorough analysis of survey data. Our goal is to improve menstrual health education in schools by identifying factors that are linked to higher levels of menstrual knowledge and positive attitudes towards menstruation. These factors will then be used to inform the design and implementation of future interventions.

Furthermore, this research aims to add to the expanding body of evidence on menstrual health education by highlighting the advantages and disadvantages of cross-sectional studies in assessing the effectiveness of school-based initiatives. In the end, our research may help practitioners, educators, and policymakers understand the value of funding evidence-based programmes that raise menstruation awareness and give adolescent girls the skills they need to take charge of their menstrual health with dignity and confidence.

## 1.1 Objectives

- To ascertain whether adolescent girls' schools have access to qualified staff for Menstrual Hygiene Management (MHM).

- To look into whether schools offer MHM programmes private spaces.
- To find out how often adolescent girls attend menstrual health classes in their schools.

## 1.2 Hypothesis

The following are the primary null and alternate hypotheses put forth in relation to awareness and school initiatives:

- **H<sub>0</sub>2:** There is no apparent association between school MHM programmes and adolescent girls' awareness of menstruation.
- **H<sub>A</sub>1:** There is a notable correlation between school MHM programmes and adolescents girls' awareness of menstruation.

## 2. Methodology

### 2.1. Study Design:

In order to evaluate adolescent girls' knowledge of menstrual hygiene and health in District-Dehradun, Uttarakhand, this study uses a cross-sectional quantitative approach. The study covers a range of higher secondary schools in both urban and rural areas within the Dehradun District. By using a quantitative design, it is possible to gather detailed information and conduct a thorough examination of the menstrual hygiene practices and awareness of the adolescent girls in the area.

### 2.2. Study Location and Environment:

The research is being done in Uttarakhand's Dehradun District, which is distinguished by a blend of urban and rural regions. The Shivalik Hills and rivers encircle the semi-hilly city of Dehradun, the capital of Uttarakhand. Significant weather variations, such as wintertime temperature drops and heavy rainfall, are experienced in the district. Higher secondary schools in the district that draw students from different states and nations are included in the study.

### 2.3. Study Population:

The study population includes adolescent girls aged 13-16 who attend higher secondary schools in Dehradun District. Participants must have regular menstrual cycles to be considered for inclusion.

### 2.4. Eligibility criteria:

#### Inclusion criteria:

- Adolescent girls aged 13 to 16 years.
- The presence of regular menstrual cycles.

#### Exclusion Criteria:

- Adolescent girls under 13 or over 16 years.



## 2.5. Sample Size:

Sample size is calculated using Cochran's formula for statistical reliability and precision. With a 95% confidence level and a 5% sampling error, the sample size is estimated to be 450 adolescent girls.

## 2.6. Sampling Techniques and Procedure:

Adolescent girls from Dehradun District's rural and urban areas are systematically chosen through the use of simple random sampling. The sampling frame includes schools that serve students in six administrative blocks, ranging in class from IX to XII. This strategy guarantees that the study population is representative of a range of locations and backgrounds.

## 2.7. Data Collection Methods:

Adolescent girls chosen by random sampling are given a self-structured questionnaire as part of the data collection process. The questionnaire addresses awareness, practices, and resource accessibility related to menstrual hygiene. The six-month data collection period spans from February to July 2022 in order to account for seasonal variations and guarantee thorough coverage.

## 2.8. Data Collection Tools:

The main tool for gathering data for this study is a structured questionnaire that was carefully created. To guarantee reliability and content validity, the questionnaire is validated. Among other pertinent factors, it includes information on hygiene management practices, menstrual hygiene awareness and demographics.

## 2.9. Data Collection Process:

To ensure a quiet and welcoming environment for data collection, adolescent girls who have been chosen are given the questionnaire by trained researchers in classrooms. Before distributing the questionnaire, the administration of the participating schools and the participants provide verbal informed consent. When needed, researchers offer advice and support while filling out the questionnaire.

## 2.10. Quality Control:

The study employs strict quality control procedures, such as validation of the questionnaire, training of research staff, and ongoing supervision throughout data collection. To find and fix any unclear or inconsistent questions in the questionnaire, pilot testing is done. Precise data entry and analysis are performed to guarantee dependability and accuracy.

## 2.11. Data Analysis:

Data analysis is the methodical use of Microsoft Excel to process and interpret gathered data. Variable correlations and associations are investigated using descriptive statistics, visual aids, and hypothesis testing using Chi-Square analysis. This all-encompassing method makes it easier to analyse the goals of the study in detail and improves the validity of the results.

## 2.12. Ethical Considerations:

Throughout the entire study, ethical issues are of the utmost importance. Participants and school administrations are asked for verbal informed consent, with a focus on voluntary involvement and confidentiality. All stakeholders are informed in a transparent manner of the study's goals and procedures. Constant inspections guarantee that ethical norms are followed, especially with regard to participant safety and data privacy.

## 2.13. Dissemination of Results:

Peer-reviewed publications, conference presentations, and stakeholder gatherings will all be used to share the study's findings. In order to inform evidence-based interventions and policies related to menstrual health education in schools, efforts will be made to guarantee that the results are communicated to policymakers, educators, and other pertinent stakeholders. The study's limitations are recognised, offering a framework for analysing the results and directing future lines of inquiry.

## 3. Data Analysis

### 3.1 Evaluations of School MHM Initiatives and Menstrual Awareness

This section examines adolescent girls' knowledge of the menstrual cycle and the initiatives that schools have taken to raise awareness of menses in the educational setting. This section examines how school initiatives affect adolescent girls' awareness of menstruation. The following are the primary null and alternate hypotheses put forth in relation to awareness and school initiatives:

- **H<sub>0</sub>1:** There is no apparent association between school MHM programmes and adolescent's girls' awareness of menstruation.
- **H<sub>A</sub>1:** There is a significant correlation between school MHM initiatives and adolescents girls' awareness of menstruation.

### Four MHM initiatives implemented by schools have been identified by this study:

1. Experienced Person for MHM
2. Private Place (Committed Area) for MHM Programs



3. Sessions on MHM
4. Proper Facilities for MHM

The extent to which menstruation awareness is affected by these initiatives is assessed. Menstrual awareness and these initiatives were categorised as "yes" or "no." The chi square test is used independently for each school's MHM programme and menstrual awareness level. Four distinct sub null hypotheses related to the school MHM initiative are developed as follows because of the separate test:

1. **H<sub>0</sub>1.1:** There is no apparent association between adolescent girls' knowledge of menstruation and schools with MHM experts on staff. **H<sub>A</sub>1.1:** There is a significant correlation between adolescents girls' knowledge of menstruation and schools with MHM experts.
2. **H<sub>0</sub>1.2:** There is no apparent association between adolescent girls' knowledge of menstruation and schools that dedicate space for MHM programmes. **H<sub>A</sub>1.2:** Adolescence girls' knowledge of menstruation and schools that dedicate space for MHM programmes are significantly correlated.
3. **H<sub>0</sub>1.3:** There is no significant connection between adolescent girls' knowledge of menstruation and schools hosting MHM programmes. **H<sub>A</sub>1.3:** Adolescence girls' awareness of menstruation and schools hosting menstrual health education programmes are significantly correlated.

4. **H<sub>0</sub>1.4:** Adolescent girls' awareness of menses and schools with adequate MHM facilities are not significantly correlated. **H<sub>A</sub>1.4:** Adolescent girls' awareness of menses and schools with adequate MHM facilities are significantly correlated.

These sub-null hypotheses are investigated, and conclusions about the sub-and main hypotheses are made in a manner similar to that described above. Each analysis is presented in the sections below. To begin, the working hypothesis is developed and put to the test using the Chi Square Test of Association. The test comprises a crosstab of awareness and age groups, followed by the results of the Chi Square Test and its conclusion.

### 3.1.1. H<sub>0</sub>1.1 Testing: Awareness of Menses and Skilled Individual for MHM

Regarding menstrual awareness and school initiatives, the working null and alternate hypotheses are as follows:

**H<sub>0</sub>1.1:** There is no apparent association between adolescent girls' knowledge of menstruation and schools with MHM experts on staff.

**H<sub>A</sub>1.1:** There is an interesting correlation between adolescent girls' knowledge of menstruation and schools with MHM experts.

The above hypothesis testing yielded the following results:

Table 3.1: Menses Awareness & Experienced Person for MHM

		Awareness of Menstrual Cycle	
		No	Yes
Experienced Person for MHM in Schools	No	20	85
	Yes	42	303
Pearson Chi-Square Test			
Experienced Person for MHM in Schools		Awareness of Menstrual Cycle	
		Chi-square	3.202
		Df	1
		Sig.	0.074
Results are based on nonempty rows and columns in each innermost subtable.			
*. The Chi-square statistic is significant at the .05 level.			

The above table shows that the p value is 0.074, which is greater than the 0.05 significance level, meaning that

the alternative hypothesis, **H<sub>A</sub>1.1**, cannot be rejected in favour of the null hypothesis, **H<sub>0</sub>1.1**. Therefore, it can



be said that there is no real correlation between adolescent girls' awareness of menstruation and schools that have MHM experts on staff. It can be concluded that adolescents girls' awareness of their periods is unaffected by the presence of an experienced menstruation health worker (MHM) in their schools, meaning that the presence of an MHM in a school does not affect adolescents girls' awareness of their periods.

### 3.1.2 H<sub>0</sub>1.2 Testing: Menses Awareness & Committed Area for MHM

The working null and alternate hypothesis related to menses awareness and school initiatives are:

**H<sub>0</sub>1.2:** there is no significant association between awareness of menses in adolescent girls and schools having committed area for MHM.

**H<sub>A</sub>1.2:** there is a significant association between awareness of menses in adolescent girls and schools having committed area for MHM.

The results of the above hypothesis testing are:

Table 3.2: Menses Awareness & Committed Area for MHM

		Awareness of Menstrual Cycle	
		No	Yes
Committed Area for MHM Programs in Schools	No	56	49
	Yes	87	258
Pearson Chi-Square Test			
Committed Area for MHM Programs in Schools		Awareness of Menstrual Cycle	
		Chi-square	29.353
		Df	1
		Sig.	.000*
Results are based on nonempty rows and columns in each innermost subtable.			
*. The Chi-square statistic is significant at the .05 level.			

The above table shows that the p value is 0.000, which is less than the significance level of 0.05. As a result, the null hypothesis **H<sub>0</sub>1.2** may be rejected in favour of the alternative hypothesis **H<sub>A</sub>1.2**. Therefore, it can be said that there is a strong correlation between adolescent girls' knowledge of menstruation and schools that have a dedicated MHM area. Adolescent girls' awareness of menstruation is therefore reliant on schools having a committed area for menstrual health management (MHM); in other words, the presence of a committed area for MHM in schools has a major impact on adolescent's awareness of menstruation.

### 3.1.3 H<sub>0</sub>1.3 Testing: Menses Awareness & Sessions for MHM

The working null and alternate hypothesis related to menses awareness and school initiatives are:

**H<sub>0</sub>1.3:** there is no significant association between awareness of menses in adolescent girls and schools conducting sessions for MHM.

**H<sub>A</sub>1.3:** there is a significant association between awareness of menses in adolescent girls and schools conducting sessions for MHM.

The results of the above hypothesis testing are:

Table 3.3: Menses Awareness & Sessions for MHM

		Awareness of Menstrual Cycle	
		No	Yes
Sessions for MHM in Schools	No	66	39



	<b>Yes</b>	87	258
<b>Pearson Chi-Square Test</b>			
	<b>Awareness of Menstrual Cycle</b>		
<b>Sessions for MHM in Schools</b>	<b>Chi-square</b>	50.824	
	<b>Df</b>	1	
	<b>Sig.</b>	.000*	
Results are based on nonempty rows and columns in each innermost subtable.			
*. The Chi-square statistic is significant at the .05 level.			

The above table shows that the p value is 0.000, which is less than the significance level of 0.05. As a result, the null hypothesis  $H_01.3$  may be rejected in favour of the alternative hypothesis  $H_A1.3$ . Therefore, it can be said that schools holding MHM classes and adolescent girls' awareness of menses are significantly correlated. It can be concluded that adolescents girls' awareness of their periods depends on schools holding MHM classes, i.e., MHM classes in schools have a significant impact on adolescent girls' awareness of their periods

### 3.1.4 $H_01.4$ Testing: Menses Awareness & Proper Facilities for MHM

The working null and alternate hypothesis related to menses awareness and school initiatives are:

$H_01.4$ : there is no significant association between awareness of menses in adolescent girls and schools having proper facilities for MHM.

$H_A1.4$ : there is a significant association between awareness of menses in adolescent girls and schools having proper facilities for MHM.

The results of the above hypothesis testing are:

Table 3.4: Menses Awareness & Proper Facilities for MHM

		<b>Awareness of Menstrual Cycle</b>	
		<b>No</b>	<b>Yes</b>
<b>Proper Facilities for MHM in Schools</b>	<b>No</b>	36	69
	<b>Yes</b>	55	290
<b>Pearson Chi-Square Test</b>			
		<b>Awareness of Menstrual Cycle</b>	
<b>Proper Facilities for MHM in Schools</b>	<b>Chi-square</b>	16.790	
	<b>Df</b>	1	
	<b>Sig.</b>	.000*	
Results are based on nonempty rows and columns in each innermost subtable.			
*. The Chi-square statistic is significant at the .05 level.			

The above table shows that the p value is 0.000, which is less than the significance level of 0.05. As a result, the null hypothesis  $H_01.4$  may be rejected in favour of the alternative hypothesis  $H_A1.4$ . Therefore, it can be

said that schools with adequate resources for mental health services and adolescent girls' awareness of menstruation are significantly correlated. It follows that adolescent girls' awareness of their periods depends on



schools having adequate MHM facilities, meaning that adequate MHM facilities in schools have a major impact on adolescent's girls' awareness of their periods.

### 3.1.5 Testing of Main Hypothesis H<sub>01</sub> – Menses Awareness and School Initiatives

The main null and alternate hypotheses formulated are:

- **H<sub>01</sub>**: there is no significant association between awareness level of menses in adolescent girls and school MHM initiatives.

- **H<sub>A1</sub>**: there is a significant association between awareness level of menses in adolescent girls and school MHM initiatives.

As mentioned above the main hypothesis H<sub>01</sub> is tested through applying Additive Property of Chi Square. The total chi square value and degree of freedom for above tested four school initiative are shown in the below table:

Table 3.5: Total Chi Square Value and Degree of Freedom

SN	Awareness Aspect	Chi Sqr. Value	Dof
1	Experienced Person for MHM in Schools	3.202	1
2	Committed Area for MHM Programs in Schools	29.353	1
3	Session for MHM in Schools	50.824	1
4	Proper Facilities for MHM in Schools	16.790	1
<b>Total</b>		100.169	4

As can be seen, the total chi square value with four degrees of freedom is 100.169. The critical value of chi square for four degrees of freedom is 9.488 (for 0.05 significance level), according to the Chi Square table. We have sufficient evidence to reject the null hypothesis **H<sub>01</sub>** in favour of the alternate hypothesis **H<sub>A1</sub>**, as the obtained chi square of 100.169 is greater than the table value of 9.488. Accordingly, we can conclude that there is a significant relationship between school MHM initiatives and adolescents girls' awareness of menstruation.

### General Inference

It can be concluded that school-based menstrual health initiatives have an impact on adolescent girls' awareness of their periods, and that overall awareness of menses in these girls is dependent on these initiatives. It can be concluded that as schools implement different MHM initiatives, students' awareness of their menstruation increases as well.

## 5. Discussion

The results of our research on menstrual hygiene management (MHM) programmes implemented in schools for adolescent girls in District-Dehradun, Uttarakhand, provide important new information to the ongoing discussion about MHM in educational settings. Our study clarifies the unique framework of menstrual health practices and policies in this area, with important ramifications for enhancing adolescent populations'

awareness of menstrual health issues and hygiene habits. Research by Sinha and Paul (2018), in contrast to our study, identifies areas that may require improvement and highlights difficulties with the management of menstrual hygiene in India. This emphasises how critical it is to close any gaps in MHM programmes and put in place all-encompassing plans to encourage adolescent girls to practice good hygiene and menstrual health awareness.

Similar to this, Chinyama et al.'s (2019) study in rural Zambian schools offers insightful information about MHM-related experiences, knowledge, and challenges within a distinct cultural and geographic setting. This research provides a more thorough understanding of MHM practices in various regions by shedding light on the difficulties faced by schoolgirls in rural Zambia. It also emphasises the necessity of context-specific interventions to effectively address menstrual health needs. Additionally, Sommer et al.'s work from 2021 is indicative of a global effort to enhance MHM in educational institutions across the globe. Their status report highlights the ongoing efforts to address this crucial issue globally and highlights the value of teamwork in promoting adolescents' populations' awareness of menstrual health and hygiene practices.

Along with these studies, our research sheds light on the current state of menstrual hygiene management (MHM) practices and policies in District-Dehradun, Uttarakhand, adding to the broader conversation on MHM management in schools. Our study demonstrates the usefulness of focused interventions in promoting



menstrual health in educational settings by examining the effect of school-based MHM initiatives on adolescent's girls' awareness of menstruation.

The combined results of these studies highlight the significance of managing menstrual hygiene as a crucial aspect of adolescent's health and wellbeing. Policymakers and educators can endeavour to create supportive environments that enable adolescent girls to manage their menstrual health with dignity and confidence by leveraging the body of existing research and putting evidence-based strategies into practice.

## 6. Conclusion

The study we conducted on menstrual health awareness and hygiene practices in educational settings, among adolescent girls in District-Dehradun, Uttarakhand, using school-based menstrual hygiene management (MHM) initiatives, offers important new insights. We have found strong relationships between MHM initiatives and adolescents girls' awareness of menstruation through a thorough analysis of these initiatives, which included the presence of knowledgeable staff, designated spaces for MHM programmes, educational sessions, and sufficient facilities.

Our research shows that school-based Menstrual Health (MHM) initiatives have a positive effect on menstrual awareness; however, it also highlights the need for targeted interventions and ongoing improvement to close the gaps in menstrual health education and resource accessibility. Policymakers and educators can work towards implementing evidence-based strategies to promote menstrual health awareness and hygiene practices among adolescent populations by building upon the findings of this study and collaborating with stakeholders.

In addition, our study adds to the larger conversation about managing menstrual hygiene in schools by emphasising the value of context-specific interventions and strengthening previous findings. By recognising the various cultural, geographic, and socioeconomic elements that affect MHM practices, we can create specialised strategies to meet the particular requirements of adolescent girls in various areas.

Our findings highlight the significance of cooperative efforts to establish supportive environments that enable adolescent girls to manage their menstrual health with dignity and confidence, in line with international initiatives aimed at improving MHM in schools. As a vital component of adolescent health and wellbeing, managing menstrual hygiene should be given top priority. By doing so, we can work towards building a more inclusive and equitable society for all.

## Limitations and Further Research

It is crucial to recognise some limitations of our study, even though it provides insightful information about how school-based menstrual hygiene management (MHM) initiatives affect adolescent girls' awareness of menstruation in District-Dehradun, Uttarakhand. The cross-sectional design and geographical specificity of our study limit the generalizability of the findings and the ability to establish a causal association between menstrual awareness and MHM initiatives. To overcome these constraints and improve our comprehension of MHM practices in schools, more investigation is necessary. Subsequent research endeavours may employ longitudinal designs to scrutinise the enduring consequences of mental health management interventions, and integrate qualitative methodologies to delve into the viewpoints and encounters of adolescent girls. Furthermore, studies with a marginalised focus and comparative analyses in various cultural contexts could help design tailored interventions and advance the conversation about promoting menstrual health in adolescent populations.

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