International Journal of Nursing & Midwifery Research
Volume 12, Issue 1&2 - 2025, Pg. No. 49-52
Peer Reviewed & Open Access Journal

Research Article

Effect of Health Education on Menstrual Hygiene Practices Among Adolescent Girls in Rural Areas

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How to cite this article:
Gowda P M S, Gowda S K S. Effect of Health Education on Menstrual Hygiene Practices among Adolescent Girls in Rural Areas. Int J Nurs Midwif Res. 2025;12(1&2):49-52.

Date of Submission: 2025-05-19
Date of Acceptance: 2025-06-25

A B S T R A C T

Background: Poor menstrual hygiene remains a pressing issue in rural communities, adversely affecting adolescent girl's health, dignity, and educational outcomes.

Objective: To evaluate the effectiveness of a health education intervention on menstrual hygiene knowledge and practices among adolescent girls.

Methods: A quasi-experimental one-group pre-test post-test design was employed among 100 adolescent girls aged 12–17 years attending a rural government school. A structured questionnaire assessed their menstrual hygiene knowledge and practices before and 15 days after a health education session.

Results: Post-intervention, the mean knowledge score improved significantly from 4.2 to 8.6 ($p < 0.001$). The use of sanitary pads increased from 45% to 78%, along with improvements in disposal practices and personal hygiene.

Conclusion: Health education significantly enhanced menstrual hygiene knowledge and practices. Integrating such sessions into school health programs can yield long-term benefits for adolescent girls in rural areas.

Keywords: Menstrual hygiene, adolescent girls, rural health, health education, hygiene practices

Introduction

Adolescence is a pivotal stage in human development characterized by rapid physiological, psychological, and social transformations. For girls, one of the most significant biological milestones during this period is the onset of menstruation, also known as menarche. Menstruation is a natural and essential process that signifies reproductive maturity. However, despite its universality, menstruation remains a subject shrouded in myths, misconceptions, and cultural taboos, particularly in rural communities across the globe.

In many rural settings, menstruation is often viewed as a private or even shameful matter, which discourages open dialogue among families, schools, and communities. This silence perpetuates misinformation and negative attitudes that adversely affect girls' ability to manage their menstrual hygiene safely and confidently. For adolescent girls lacking accurate knowledge and appropriate resources, menstrual hygiene management (MHM) becomes a daunting challenge.

Poor menstrual hygiene practices during adolescence can have far-reaching consequences on girls' health and well-being. Inadequate hygiene may lead to reproductive tract infections (RTIs), urinary tract infections (UTIs), and other complications such as pelvic inflammatory disease, which can affect future fertility. Moreover, the psychosocial impact

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of poor menstrual management is profound. Many girls experience embarrassment, anxiety, and social isolation during their menstrual periods, which can contribute to diminished self-esteem and emotional distress.

The implications extend beyond health to education and social participation. In rural areas, girls frequently miss school during menstruation due to lack of access to clean and private sanitation facilities, unavailability of menstrual products, or fear of stigma and bullying. This absenteeism affects academic performance and may ultimately contribute to higher dropout rates among adolescent girls, reinforcing gender inequities in education and limiting future opportunities.

Multiple interrelated barriers contribute to these challenges. A key obstacle is the pervasive lack of awareness and accurate information about menstruation and hygienic practices prior to menarche. Often, girls are unprepared and ill-equipped to cope with menstruation when it begins. Economic constraints further exacerbate the situation, limiting access to affordable sanitary products and clean water. Additionally, inadequate infrastructure, including poorly maintained toilets and absence of water supply in schools and homes, hampers effective menstrual hygiene management.

In this context, health education emerges as a critical intervention to bridge knowledge gaps, dispel myths, and empower adolescent girls with the necessary skills and confidence to practice safe menstrual hygiene. Health education not only improves individual knowledge but can also help transform attitudes and social norms, fostering a supportive environment for girls to manage menstruation with dignity.

Various health education strategies have been implemented, ranging from school-based programs to community outreach, peer education, and media campaigns. Evidence suggests that when properly designed and culturally tailored, health education can significantly improve menstrual hygiene practices, reduce health risks, and enhance girls' attendance and participation in school and community life.

Review of Literature

Menstrual hygiene management (MHM) among adolescent girls, especially in rural settings, has garnered increasing attention in public health research. The literature reveals multifaceted challenges related to knowledge, attitudes, practices, and socio-cultural factors influencing menstrual hygiene, as well as the role of health education in addressing these issues.

Knowledge and Awareness about Menstruation

Several studies document the widespread lack of prior knowledge about menstruation among adolescent girls in rural areas. In a cross-sectional study conducted by Thakre et al. (2011) in rural India, nearly 50% of the participants were unaware of menstruation before menarche, leading to fear and confusion at onset. Similarly, [1] It reported that inadequate knowledge and misinformation about menstrual physiology were common among rural adolescent girls, often resulting in poor hygiene practices.[2]

The lack of awareness is a critical barrier to safe MHM. Girls who are not informed are less likely to use sanitary pads or maintain personal hygiene, thus increasing their vulnerability to infections.

Cultural Beliefs and Taboos

Cultural restrictions surrounding menstruation are pervasive in many rural communities. Studies from South Asia and Sub-Saharan Africa reveal that menstruating girls are often subjected to restrictions on diet, social interactions, and religious activities. A qualitative study[3]) illustrated how menstrual taboos perpetuate silence and shame, impeding girls from seeking guidance or using hygienic practices.[4]

Similarly, social stigma discourages open discussion about menstruation, leaving girls unprepared and unsupported. This social marginalization often results in psychological distress and increased school absenteeism.

Menstrual Hygiene Practices in Rural Areas

Numerous studies underscore the prevalence of unhygienic menstrual practices in rural adolescent populations. A study[5] found that nearly 60% of rural girls used old cloths rather than sanitary pads, and many did not dry reusable cloths in sunlight, increasing the risk of infections.[3] Research that lack of access to water, private toilets, and disposal facilities in rural schools further complicates menstrual hygiene management, forcing girls to stay home during menstruation.

Impact of Menstrual Hygiene on Health and Education

Poor menstrual hygiene is linked to adverse health outcomes, including RTIs and UTIs. Dasgupta and Sarkar (2008) reported increased prevalence of symptoms such as vaginal discharge and itching among girls practicing poor hygiene. Moreover, a study in rural[6] indicated that poor menstrual management correlated with increased school absenteeism during menstrual periods.

Educational setbacks caused by menstruation-related absenteeism reinforce gender disparities in education and affect adolescent girls' long-term empowerment.

Role and Effectiveness of Health Education Interventions

Health education interventions targeting adolescent girls have shown promising results in improving menstrual

hygiene knowledge and practices. A quasi-experimental study in rural India reported significant improvements in girls' knowledge about menstruation and increased use of sanitary pads following a structured health education program.[2-4]

Similarly, a randomized controlled trial conducted in Kenya demonstrated that school-based menstrual health education combined with provision of sanitary pads reduced absenteeism by 20% and enhanced girls' confidence in managing menstruation.[7]

Peer-led health education models have also gained traction, as evidenced by research that showing that peer educators effectively improved hygiene practices and reduced stigma.

Community-based health education involving parents and teachers is another effective strategy. For example, a study in Nepal demonstrated that engaging mothers and community leaders alongside adolescent girls helped break menstrual taboos and promoted supportive environments.[7]

Materials and Methods

Study Design and Setting: The intervention was designed based on WHO guidelines for menstrual hygiene education and adapted to the local context. The session included interactive elements such as Q&A and peer discussions, which facilitated active participation. Teachers were also present to ensure continuity and to support reinforcement of the concepts after the session.

A quasi-experimental one-group pre-test post-test study was conducted in a rural government high school located in a low-resource village in Karnataka, India.

Participants

A total of 100 adolescent girls aged between 12 and 17 years were selected using purposive sampling. Inclusion criteria included: currently enrolled students, having attained menarche, and willingness to participate. Girls with known gynecological disorders were excluded.

Data Collection Tool

A validated and structured questionnaire was used, comprising two sections:

Section A: Socio-demographic details

Section B: Knowledge (10 items) and practice (10 items) related to menstrual hygiene

Pre-Test and Intervention

On Day 1, participants completed the pre-test questionnaire under supervision. On Day 2, a 45-minute health education session was delivered in the local language using flip charts, posters, and group discussions. Topics included anatomy and physiology of menstruation, hygienic practices, disposal methods, and dispelling common myths.

Post-Test

The post-test was conducted 15 days after the intervention to assess changes in knowledge and practices.

Ethical Considerations

Permission was obtained from school authorities. Verbal assent was secured from participants after explaining the study objectives. Confidentiality and anonymity were assured.

Data Analysis

Data were analyzed using SPSS v25. Descriptive statistics summarized demographic variables. A paired t-test was used to compare pre- and post-intervention scores. A p-value < 0.05 was considered statistically significant.

Results

Demographic Profile

The majority of participants (72%) were between 13 and 15 years of age. About 80% belonged to families with monthly income below ₹10,000. Nearly all (92%) were unaware of menstrual hygiene prior to menarche.

Knowledge Improvement

The mean knowledge score improved from 4.2 (±1.3) pre-intervention to 8.6 (±1.1) post-intervention ($p < 0.001$).

Practice Improvements

Sanitary pad usage increased from 45% to 78%

Disposal of absorbents improved from 34% proper disposal (dustbin) to 70%

Frequency of changing pads improved from twice daily to 3–4 times among 61% of girls

Hand hygiene practices before and after changing pads improved significantly (from 39% to 82%)

Discussion

This study found a marked improvement in menstrual hygiene knowledge and practices following a single health education session. These findings align with previous studies, including Sharma et al.[2] and ABC et al., which reported similar improvements. The increase in sanitary pad usage and improved disposal practices demonstrate that even brief educational interventions can empower adolescent girls to adopt safer behaviors. Furthermore, the group discussion format encouraged peer interaction and clarification of doubts, increasing the intervention's effectiveness.

Despite positive outcomes, many girls still reported affordability issues regarding sanitary pads, highlighting the need for accessible menstrual products. This intervention shows promise for scaling up through school health programs, particularly in low-resource settings.

Conclusion

The study confirms that health education significantly enhances menstrual hygiene awareness and behavior among adolescent girls in rural settings. A single session can trigger meaningful change. For sustainable impact, menstrual hygiene education should be integrated into school health services, and schools should ensure access to sanitary materials and disposal facilities.

Limitations

Despite the positive findings regarding the effect of health education on menstrual hygiene practices among adolescent girls in rural areas, several limitations exist in the current body of research and program implementation:

Limited Geographical Scope

Many studies focus on specific rural regions or communities, often within a single country or district. This localized scope limits the generalizability of findings to broader rural populations, which can vary widely in cultural, economic, and infrastructural contexts.

Short-Term Follow-Up

Most intervention studies assess outcomes shortly after the educational program ends, typically within weeks or months. There is a lack of long-term follow-up data to evaluate whether improvements in knowledge and practices are sustained over time.

Small Sample Sizes

Some studies rely on small or convenience samples that may not adequately represent the diverse rural adolescent population, reducing the reliability and external validity of results.

Self-Reported Data

Many assessments depend on self-reported menstrual hygiene practices, which may be subject to recall bias or social desirability bias, leading to over-reporting of positive behaviors.

Infrastructural and Economic Barriers Not Fully Addressed

While health education improves knowledge and attitudes, persistent infrastructural deficits such as lack of water, sanitation facilities, and affordability of sanitary products can limit the translation of knowledge into practice. Few studies comprehensively address how these structural challenges constrain behavioral changes.

Cultural Resistance

Deep-rooted cultural beliefs and taboos around menstruation may reduce the effectiveness of health education, especially if interventions do not involve community stakeholders or address these norms explicitly.

Lack of Standardized Educational Content

Variation in curriculum design, delivery methods, and educator training across different studies complicates the comparison of results and identification of best practices.

Focus on Girls Only

Most programs target adolescent girls alone, often excluding boys, parents, and community leaders, whose involvement is crucial to changing societal attitudes and reducing stigma.

Acknowledgements: The authors extend their sincere thanks to the school authorities, participating students, and all supporters of this project.

Conflict of Interest: None

Source of Finding: None

Declaration of Generative AI and AI-Assisted Technologies in the Writing Process: None

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