



IMPACT OF MENSTRUAL HEALTH AND HYGIENE MANAGEMENT INTERVENTIONS ON ADOLESCENT GIRLS OF PALI AND BANDHA CLUSTERS IN TAKHATPUR BLOCK, CHHATTISGARH

Education

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ABSTRACT

This study evaluated the impact of integrated menstrual health and hygiene management (MHHM) interventions in primary, middle, and high schools across Pali and Bandha clusters in Takhatpur Block, Chhattisgarh. A pre-post intervention design was used, with baseline and post-intervention data collected from 20 schools serving adolescent girls aged 10–16 years. The intervention included the distribution of disposable and reusable sanitary pads, the construction of low-cost incinerators, health education workshops, regular menstrual management training, WASH habit development, and community awareness rallies. Present findings demonstrated significant improvements in average student attendance (rose from 45% to 75%), increased enrollment from 170 to 220 (29.4% improvement), and usage rates of sanitary products reached up to 50% in schools. Qualitative indicators improved substantially, with learning levels shifting from low to gradual improvement, mental wellbeing evolving from average to logical and confident, and teacher engagement advancing from basic to competitive and supportive. Community participation also increased from negligible to meaningful engagement. The study outcomes indicate the transformative potential of school-based MHHM programs in reducing stigma, improving health, and supporting girls' education. Prospects include replicating this holistic model in other regions to promote gender equity and educational inclusion. However, limitations include reliance on self-reported data, absence of long-term follow-up, and challenges in fully quantifying behavioral change. Future research should adopt longitudinal designs and explore culturally sensitive strategies to ensure sustainable, scalable improvements in menstrual health management.

KEYWORDS

Menstrual Health and Hygiene Management, Adolescent Girls, School-Based Intervention, Hygiene Education, Attendance and Enrollment, WASH Practices

INTRODUCTION

The World Health Organization (WHO) stated that health encompasses physical, mental, and social well-being. Yadav M. (2022) mentioned that good health can be maintained through balanced nutrition, regular exercise, adequate sleep, stress management, and preventive medical care. A healthy diet and routine optimize the physiological functions of the body and minimize the risk of diseases (Witkamp, 2021). Menstrual Health and Hygiene Management (MHHM) is increasingly recognized as a critical public health and educational issue in low- and middle-income countries (Sommer et al., 2015). Despite its essential role in the health and empowerment of adolescent girls, menstruation remains stigmatized and poorly addressed at the school level (Patel et al, 2022). Inadequate access to sanitary materials, lack of appropriate facilities, limited awareness, and rooted social taboos lead to absenteeism, dropout, and poor academic performance (Sharma et al., 2020).

The United Nations Sustainable Development Goals (SDGs), especially SDG 3 (Good Health and Well-being) and SDG 4 (Quality Education), highlight the need for inclusive and equitable quality education and the promotion of lifelong learning opportunities for all (Sorooshian, 2024). Best practices related to menstrual health and hygiene are integral to achieving it. Menstrual health interventions in India are driven by a collaborative effort involving the United Nations International Children's Emergency Fund (UNICEF), the Indian central government, state governments, and numerous NGOs. They are contributing to a multi-faceted approach to improve menstrual hygiene and break social taboos (Singh et al., 2022). The National Institution for Transforming India (NITI) Aayog stated that UNICEF leads initiatives like the MAHIMA project in Jharkhand and trains adolescent girls as peer educators. UNICEF also supports women's self-help groups in Gujarat to produce affordable, biodegradable sanitary pads (Vayeda et al., 2021). Additionally, they advocate for awareness through campaigns like Menstrual Hygiene Day.

The Indian government, through the National Health Mission's Menstrual Hygiene Scheme, distributes subsidized sanitary napkins to rural adolescent girls via ASHA workers, supplemented programs like Rashtriya Kishor Swasthya Karyakram and Swachh Bharat Mission, which enhance Water, Sanitation, and Hygiene (WASH) infrastructure with girl-friendly toilets and pad incinerators (Department of Health & Family Welfare, 2024). State governments tailor interventions, such as Rajasthan's Udaan (RajRAS, 2021), Andhra Pradesh's Swachha (The Times of India, 2021), Kerala's She Pad (Joseph, 2017), Karnataka's Shuchi (The Times of India, 2023), Odisha's Khushi (Bhatia, 2019), Chhattisgarh's Pavna (Observer Research Foundation, 2022), Maharashtra's Asmita Yojana (Gahlot and John, 2023), Sikkim's

Bahini (Pradhan, 2023), and Bihar's Kishori Shakti Yojana (Kalhapure, 2024). These programs provide free or subsidized menstrual products and awareness activities, often including sustainable options such as menstrual cups and biodegradable pads. NGOs such as Goonj, Pinkishe Foundation, SK Vision Foundation, Uninhibited (Sukhibhava Foundation), and Humanity Foundation (SK Vision, 2025) further put their efforts by distributing reusable pads, menstrual cups, and educational resources.

These interventions combine awareness campaigns, access to eco-friendly menstrual products, improved WASH facilities, community engagement through SHGs and ASHA workers, and policy advocacy. Although challenges like limited scope, poor implementation, urban-rural disparities, and persistent taboos remain. Recently, the Supreme Court's 2023 push for a national policy on free sanitary napkins and India's leadership in Menstrual Hygiene Day 2024 exemplify ongoing progress toward a #PeriodFriendlyWorld (Savant, 2025). In this context, the present study investigates the effect of introducing innovative MHH interventions in schools. The research draws on data collected from primary, middle, and high schools, measuring indicators such as attendance, enrollment, health, mental well-being, and community involvement. This study provides evidence on the efficacy of school-based menstrual health programs and identifies pathways for scaling up such initiatives by comparing these indicators before and after the implementation of targeted interventions.

RESEARCH METHODOLOGY

This study employed a pre-post intervention design to assess the impact of menstrual health and hygiene management (MHHM) programs on adolescent girls in schools. Data were collected from a range of primary, middle, and high schools within the Pali and Bandha clusters of the Takhatpur block in Chhattisgarh, India.

STUDY AREA AND SAMPLE

The intervention was implemented in selected schools across two clusters. The status of Adolescent Girls at the School Level in Pali and Bandha Clusters of Takhatpur Block is shown in Table 1.

Table 1: Status of Adolescent Girls at the School Level in Pali and Bandha Clusters of Takhatpur Block

S. No.	School Level	Number of Schools	Cluster	Age of Students (Years)
1.	Primary	7	Pali	10-12
2.	Primary	9	Bandha	
3.	Middle	2	Pali	13-14
	Middle	1	Bandha	

4.	High School	1	Pali	14-16
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DATA COLLECTION

Baseline data were collected prior to the intervention to measure existing conditions related to attendance, enrollment, health status, hygiene practices, teacher engagement, and community participation. The intervention data were then collected after the implementation of menstrual health programs to assess changes over time. Average student attendance (%), student enrollment numbers, learning levels, community participation, mental wellbeing of students, teacher engagement levels, health outcomes, and girls self-confidence were included as key indicators. Data were gathered through school records, teacher interviews, surveys, and direct observation.

INTERVENTION DESIGN

The menstrual health interventions consisted of multiple integrated components, which include organization of menstrual awareness rally, regular workshop on menstrual management, construction of low-cost incinerator in school for menstrual hygiene management, school-level waste management development of WASH habits, development of clean water practices school-level, and menstrual health and hygiene awareness campaign.

DATA ANALYSIS

The study employed a descriptive analytical approach. Quantitative data on attendance, enrollment, and usage rates were compared before and after intervention to assess percentage changes. Qualitative indicators, viz., learning levels, teacher engagement, mental wellbeing, and community participation, were assessed through thematic analysis of survey responses and observational data.

RESULTS AND DISCUSSION

We have successfully implemented a series of structured and impactful menstrual health interventions in the school clusters of Pali and Bandha within the Takhatpur block of Chhattisgarh, to improve adolescent girls' health, hygiene, and educational outcomes. One of the key initiatives was the organization of menstrual awareness rallies, which helped in breaking taboos, promoting open discussion, and sensitizing both students and the community on menstrual health. Additionally, regular workshops on menstrual management were conducted to educate girls about menstruation, proper hygiene practices, and the safe use and disposal of sanitary products. A significant infrastructural advancement was the construction of low-cost incinerators within school premises for the hygienic disposal of used sanitary napkins. This model was considered highly effective and was later published in a UNICEF booklet. To support broader environmental hygiene, school-level waste management systems were also developed and integrated into the daily school operations. Furthermore, focused efforts were made on the development of WASH habits, which included educating students on personal hygiene, handwashing, and maintaining clean surroundings. Alongside this, emphasis was placed on the development of clean water practices, ensuring access to a safe and adequate water supply within the school environment. These efforts were reinforced through a school-level menstrual health and hygiene awareness campaign, designed to create a supportive and stigma-free environment for adolescent girls. Collectively, these interventions represent a holistic approach to menstrual health management, combining education, infrastructure, and community involvement to foster long-term, sustainable impact shown in Table 2.

Table 2: Comparison of Key Indicators Before and After Implementation of Menstrual Health Interventions

Indicator	Before Intervention	After Intervention
Student Attendance (Average)	45%	75%
Student Enrollment	170 students	220 students
Learning Level	Low	Gradual Improvement
Community Participation	Negligible	Meaningful Engagement
Students' Mental Wellbeing	Average	Logical and Confident
Teacher Engagement	Basic	Competitive and Supportive
Health Outcomes	Average	Improved
Girls' Self-Confidence	Low	Increased

The intervention produced significant qualitative improvements

across multiple indicators. Student attendance increased substantially, rising from an average of 45% before the intervention to 75% afterwards (Fig 1). This indicates a strong positive link between menstrual hygiene support and school participation. School enrollment grew from 170 to 220 students, which reflects a 29.4% increase that suggests improved perceptions of school safety and suitability for adolescent girls (Fig. 1). The usage rates of sanitary products were recorded at up to 50% in schools. Health and well-being outcomes improved, with students self-rated health shifting from "average" to "better." Psychological outcomes also advanced as mental well-being improved from "average" to "logical and confident," while self-confidence increased from "low" to "growth."

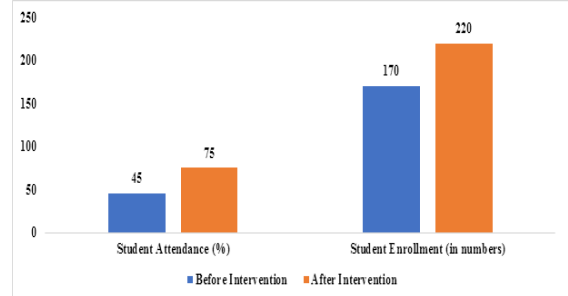


Fig.1: Student attendance and enrollment before and after intervention

Teacher engagement improved from an "ordinary" to a "supportive and competitive" environment, indicating greater teacher involvement and sensitivity to menstrual health needs. Additionally, community participation moved from being "negligible" before the intervention to "meaningful" afterward, highlighting increased parental and local engagement in supporting menstrual health management in schools. Shah et al. (2013) investigated menstrual health and hygiene practices among adolescent girls in a rural, tribal region of South Gujarat, India. They used both qualitative and quantitative methods in a community-based, six-month pre- and post-intervention study involving 164 adolescent girls from eight villages. Survey questions addressed knowledge of menstruation, menstrual practices, quality of life, satisfaction with different materials, and self-reported symptoms of reproductive tract infections. Their findings revealed that knowledge about puberty changes, the source of menstrual blood, and the anatomical routes for urine and menstrual flow was low among participants. At baseline, 90% of girls were using old clothes. By the end of the study, 68% of adolescent girls reported that their first choice was falan cloths (100% pure cotton soft woven fabric), while 32% preferred sanitary pads. Notably, none preferred old clothes anymore. Similarly, Singh et al. (2022) examined patterns in the exclusive use of hygienic menstrual methods among adolescent women in rural India. These findings exhibit significant geographic disparities at both state and district levels. Overall, only 42% of adolescent women in rural areas used hygienic methods exclusively. At the state level, usage varied widely, from a low of 23% in Uttar Pradesh to a high of 85% in Tamil Nadu. This reflects a pronounced north-south divide. Even greater variation was observed at the district level, which emphasize localized differences in menstrual hygiene practices. Their research findings indicated the intersection of education, social category, media exposure, and wealth in shaping menstrual hygiene practices among rural adolescent women in India. The results confirmed the significant and multidimensional impact of well-structured menstrual health interventions implemented in schools. Earlier, a comprehensive review published by van Eijk et al. (2016) also recommended the same. Most recently, Joshi and Mendhe (2025) emphasized that meaningful community and school engagement are essential for effective interventions. Their deep review highlights the need for future initiatives to strategically address persistent awareness gaps among underserved and marginalized populations. These interventions not only addressed critical health issues but also directly influenced educational outcomes, particularly by increasing student attendance and enrollment. The health outcomes improved notably as girls reported better personal hygiene, fewer infections, and greater comfort in managing menstruation, further validating the holistic benefits of school-based menstrual health interventions.

CONCLUSION

This study provides compelling evidence for the effectiveness of integrated menstrual health and hygiene management interventions in schools. These programs have demonstrably improved school

attendance, enrollment, health outcomes, and student confidence by supplying sanitary products, delivering health education, engaging teachers and communities, and fostering supportive environments. Present results make clear that menstrual health is foundational to achieving educational equity. Programs must recognize the intersectionality of health, education, and gender norms. For policymakers and practitioners, these findings underline the need to institutionalize menstrual health education, ensure sustainable supply chains for sanitary products, and invest in teacher training and community outreach. Future research should expand on these findings with larger samples, longitudinal designs, and qualitative studies exploring student, teacher, and parent perspectives. Such work will be crucial in refining interventions and ensuring that every adolescent girl can manage her menstruation safely, confidently, and with dignity. It is an essential step toward realizing the vision of inclusive, quality education for all.

ETHICAL DISCLOSURE

Informed consent was obtained from school authorities and participants. The study ensured confidentiality and respected cultural sensitivities related to menstrual health.

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