

“Bridging Knowledge to Practice: Effectiveness of a Nurse-Led Community-Based Intervention on Menstrual Hygiene among Adolescent Girls in Rural Haryana”

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KEYWORDS

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Abstract

Background: Menstrual hygiene management is a significant public health concern among adolescent girls, particularly in rural areas where awareness and access to sanitary resources remain limited. Poor menstrual practices contribute to reproductive tract infections, school absenteeism, and reduced quality of life. Nurses play a crucial role in delivering community-based health education to address these gaps.

Objectives: The study aimed to assess the effectiveness of a Nurse-led community-based intervention on knowledge and practices regarding menstrual hygiene among adolescent girls.

Methods: A quasi-experimental one-group pretest-post-test design was adopted among 120 adolescent girls aged 13–18 years from selected rural areas of Haryana. Data were collected using a structured knowledge questionnaire and practice checklist. The intervention consisted of health education sessions, demonstration of sanitary pad usage, and distribution of informational pamphlets. Post-test assessment was conducted after seven days. Data were analysed using descriptive statistics, paired t-test, and Pearson correlation coefficient.

Results: The findings revealed a significant improvement in knowledge and practices following the intervention. The mean knowledge score increased from 8.4 ± 2.1 in the pretest to 15.7 ± 1.8 in the post-test ($p < 0.001$). Similarly, the mean practice score improved from 6.2 ± 1.9 to 12.8 ± 2.0 ($p < 0.001$). A moderate positive correlation ($r = 0.62$) was observed between knowledge and practice scores, indicating that improved knowledge was associated with better hygiene practices.

Conclusion: The nurse-led intervention was highly effective in enhancing menstrual hygiene knowledge and practices among adolescent girls. The study highlights the importance of community-based nursing initiatives in promoting adolescent health. Implementation of regular educational programs can significantly improve menstrual hygiene management and overall well-being.

Introduction –

Adolescence is a critical developmental phase characterized by rapid physical, psychological, and social changes. Among

these changes, the onset of menstruation marks an important milestone in a girl's reproductive life. Despite being a natural

physiological process, menstruation is often surrounded by myths, misconceptions, and cultural taboos, particularly in rural areas of India. These socio-cultural barriers significantly influence menstrual hygiene practices and contribute to inadequate knowledge among adolescent girls.

Menstrual hygiene management (MHM) is an essential component of adolescent health and well-being. Poor menstrual hygiene practices, such as the use of unhygienic absorbents, infrequent changing of sanitary materials, and lack of proper washing facilities, can lead to various health problems, including reproductive tract infections, urinary tract infections, and dermatological issues. Furthermore, inadequate awareness and lack of access to sanitary products often result in school absenteeism, reduced participation in daily activities, and psychological distress among adolescent girls.

Globally, menstrual health has gained recognition as a key public health issue and is closely linked with the achievement of Sustainable Development Goals, particularly those related to health, education, gender equality, and sanitation. In India, despite various government initiatives and programs promoting menstrual hygiene, a significant

proportion of adolescent girls, especially in rural settings, continue to face challenges related to awareness, accessibility, and affordability of menstrual hygiene products.

Nurses, as frontline healthcare providers, play a pivotal role in community health promotion and disease prevention. Through structured health education, counseling, and community outreach activities, nurses can effectively improve awareness and promote healthy practices among vulnerable populations. Nurse-led interventions have been shown to be cost-effective and impactful in addressing health-related knowledge gaps.

Therefore, the present study was undertaken to evaluate the effectiveness of a nurse-led community-based intervention in improving knowledge and practices regarding menstrual hygiene among adolescent girls in rural Haryana.

OBJECTIVES

General Objective:

To evaluate the effectiveness of a nurse-led community-based intervention on knowledge and practices regarding menstrual hygiene among adolescent girls.

MATERIALS AND METHODS

Research Design: A quasi-experimental research design with a one-group pretest-posttest approach was adopted to assess the effectiveness of the intervention.

Study Setting: The study was conducted in selected rural villages of Haryana.

Study Population: The population comprised adolescent girls aged between 13–18 years residing in the selected rural areas.

Sample Size and Sampling Technique: A total of 120 adolescent girls were selected using a non-probability convenient sampling technique.

Inclusion Criteria:

- Adolescent girls aged 13–18 years
- Those who had attained menarche
- Willing to participate in the study

Exclusion Criteria:

- Girls who were seriously ill during data collection
- Those not available at the time of the study

Research Tool: Data were collected using a structured tool consisting of:

- Section A: Demographic variables (age, education, family income, etc.)
- Section B: Structured knowledge questionnaire (multiple-choice questions)
- Section C: Practice checklist related to menstrual hygiene

Validity and Reliability: The tool was validated by experts in nursing and public health. Reliability was established using Cronbach's alpha method ($r = 0.82$), indicating good internal consistency.

Intervention:

The nurse-led intervention included:

- Health education sessions on menstrual hygiene
- Demonstration of correct use and disposal of sanitary pads
- Distribution of informational pamphlets
- Interactive discussion to clear myths and misconceptions

Data Collection Procedure:

- Pretest data were collected using the structured questionnaire
- The intervention was administered on the same day
- Post-test was conducted after 7 days using the same tool
- Paired t-test to compare pretest and post-test scores
- Pearson correlation coefficient to assess relationship between knowledge and practice
- Chi-square test to determine association with demographic variables

Data Analysis: Data were analysed using descriptive and inferential statistics:

- Frequency, percentage, mean, and standard deviation

RESULTS

Table 1: Comparison of Pretest and Post-test Knowledge and Practice Scores

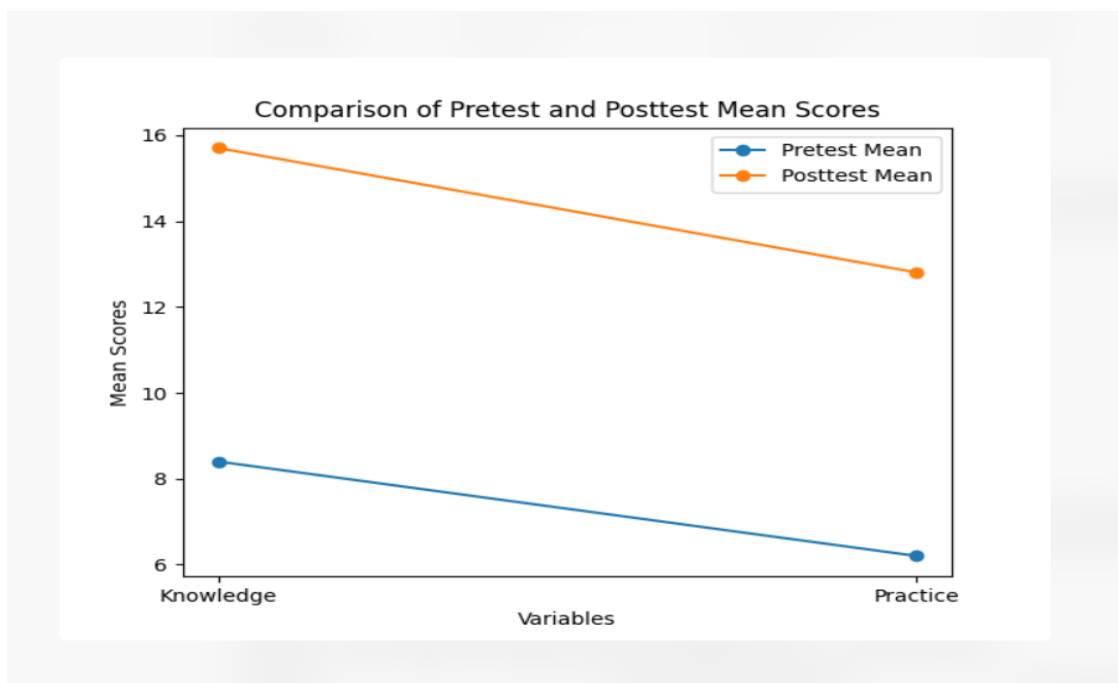
Variable	Pretest Mean $\pm$ SD	Post-test Mean $\pm$ SD	t-value	p-value
Knowledge	8.4 $\pm$ 2.1	15.7 $\pm$ 1.8	18.45	<0.001
Practice	6.2 $\pm$ 1.9	12.8 $\pm$ 2.0	16.72	<0.001

Interpretation:

The above table shows that the mean post-test scores of both knowledge and practice are

significantly higher than the pretest scores. The calculated *t-values* are high and the *p-values* are less than 0.001, indicating that the nurse-led intervention was statistically highly significant.

Graph: Comparison of Pretest and Posttest Mean Scores



Interpretation:

The graphical representation clearly depicts a substantial increase in both knowledge and practice scores after the intervention, confirming the effectiveness of the nurse-led educational program.

Table 2: Correlation Between Knowledge and Practice Scores

Variables	Correlation Coefficient (r)	Interpretation
Knowledge vs Practice	0.62	Moderate positive correlation

Interpretation:

There is a moderate positive correlation between knowledge and practice, suggesting that improvement in knowledge leads to better menstrual hygiene practices.

DISCUSSION

The present study demonstrated a statistically significant improvement in menstrual hygiene knowledge and practices among adolescent girls following a nurse-led community-based intervention. These findings are consistent with emerging global and Indian evidence emphasizing the effectiveness of structured educational interventions in improving menstrual health outcomes.

A recent interventional study (2026) reported that even a brief structured menstrual health education program significantly improved knowledge and literacy among rural adolescent girls, supporting the integration of such programs into school and community settings. This aligns with the present study, where a marked increase in post-test knowledge scores was observed, highlighting the critical role of targeted health education.

The improvement in practice scores in the current study is particularly important, as evidence suggests that knowledge does not always translate into behaviour unless

reinforced through demonstration and supportive environments. A 2025 cross-sectional study conducted in India found that menstrual hygiene practices remain suboptimal and are significantly influenced by factors such as pre-menarche awareness, maternal education, and access to sanitation facilities. This supports the present findings, where the intervention included demonstration and interactive sessions, facilitating behavioural change.

Furthermore, the positive correlation between knowledge and practice ($r = 0.62$) observed in this study is supported by recent global research. A 2025 study published in *Frontiers in Reproductive Health* reported that girls with poor knowledge were 2.64 times more likely to exhibit poor menstrual hygiene practices, emphasizing knowledge as a key determinant of behaviour. Similarly, another 2025 study found that although 69% of adolescent girls had adequate knowledge, only 28.6% practiced good menstrual hygiene, indicating a persistent gap between awareness and implementation.

From an intervention perspective, recent literature highlights that multi-component strategies—including education, access to sanitary products, and community engagement—are most effective in improving menstrual hygiene outcomes. A 2025 narrative review on rural India emphasized that despite increased awareness, disparities in access and cultural barriers continue to hinder optimal practices, necessitating context-specific interventions.

The role of nurses as frontline health educators is strongly reinforced by the findings of this study. Nurse-led interventions are particularly valuable in low-resource settings due to their accessibility, cultural sensitivity, and cost-effectiveness. With recent policy-level developments, such as mandatory menstrual hygiene programs in schools in India, there is increasing recognition of menstrual health as a fundamental right and a public health priority.

However, the study has certain limitations, including the use of a non-probability sampling technique and the absence of a control group, which may limit generalizability. Additionally, the short duration of follow-up restricts assessment of

long-term sustainability of behavioural changes.

Conclusion

In conclusion, the findings provide strong evidence that nurse-led educational interventions significantly enhance menstrual hygiene knowledge and practices among adolescent girls. Integrating such interventions into community and school health programs can play a pivotal role in improving adolescent reproductive health outcomes and achieving broader public health goals.

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