Original Article

Impact Assessment of Monthly Informal Health Awareness Sessions, as a Part of the Village Adoption Scheme on the Knowledge, Attitude and Practices of Menstrual Health and Hygiene, in Young Women, Over Three Years in a Rural Setting in Central Maharashtra

Rhea Aggarwal[1], Adarsh Keshari[2], Sheetal Gaur[3], Arjunkumar Jakasania[4]

[1]Co-Founder Apar Health, Orcid Id 0009_0002_1635_6450, [2]Doctor of Pharmacy, Senior Research Fellow, APAR Health, Gurugram, Haryana, India. Orchid Id 0009_0005_2166_8303, [3]MGIMS, Sevagram, Wardha, Maharashtra, India, [4]Associate Professor, Dept of community medicine, MGIMS, Sevagram, KRHTC, Anji mothi, Arvi road, wardha, Orcid Id 0000000337491993.

How to cite this article: Rhea Aggarwal, Adarsh Keshari, Sheetal Gaur. Impact Assessment of Monthly Informal Health Awareness Sessions, as a Part of the Village Adoption Scheme on the Knowledge, Attitude and Practices of Menstrual Health and Hygiene, in Young Women, Over Three Years in a Rural Setting in Central Maharashtra. Indian Journal of Public Health Research and Development / Vol. 17 No. 1, January-March 2026.

Abstract

Menstrual health is often overlooked in rural and tribal regions of India, where cultural taboos, misinformation, and poor hygiene practices persist. This study assessed the impact of monthly informal menstrual health awareness sessions, conducted as part of an institutional village adoption program, on knowledge, attitudes, and practices (KAP) among women in a tribal village in central Maharashtra. A community-based mixed-methods study was carried out from 2019 to 2022 using a pre- and post-intervention design. Monthly sessions were led by trained medical students. Data collection involved door-to-door surveys using a structured KAP questionnaire and focus group discussion. Quantitative data were analyzed using Chi-square and t-tests, while qualitative data were thematically analyzed. Seventy-five women aged 18–45 completed the baseline questionnaire, and 86 participated post-intervention. Significant improvements were seen in menstrual knowledge: understanding of the physiological basis of menstruation rose from 32.0% to 67.4% ($p < 0.001$), and awareness of its reproductive role increased from 49.3% to 75.6% ($p < 0.01$). Self-reported menstrual-related absenteeism declined from 17.3% to 8.1% ($p = 0.04$), and restrictive practices like temple avoidance dropped from 46.7% to 22.1% ($p < 0.01$). Qualitative findings highlighted greater openness and confidence among adolescent girls and reduced stigma in community discussions. The study demonstrates that sustained, informal awareness sessions can significantly improve menstrual health literacy and reduce stigma in low-resource settings. This scalable, low-cost model holds potential for wider implementation to support health education, school attendance, and women's well-being in similar communities.

Keywords: Menstrual health, rural women, KAP study, menstrual hygiene, India, stigma, village adoption scheme

Corresponding Author: Rhea Aggarwal, Co-Founder Apar Health.

E-mail: rhea.agg2001@gmail.com

Submission date: June 6, 2025 **Revision date:** July 18, 2025 **Published date:** January 26, 2026

Introduction

Menstruation is a natural physiological process, yet it remains enveloped in silence, stigma, and misinformation across many parts of India, particularly in rural and tribal communities. Historically, menstruation has been perceived as unclean, giving rise to a host of taboos and restrictive practices—including prohibitions on cooking, religious participation, bathing, and physical activity during menstruation—that adversely affect women's health, hygiene, and social participation. [1–4] Such beliefs not only perpetuate gender-based discrimination but also hinder the adoption of safe menstrual hygiene practices, contributing to negative health outcomes and psychosocial stress.

In the past five years, India has witnessed a notable shift in public discourse and policy regarding menstrual health. Social entrepreneurs, most notably Arunachalam Muruganantham (Padma Shri, 2016), have pioneered the production and distribution of affordable sanitary products, while grassroots initiatives such as Eco Femme, Goonj's Not Just a Piece of Cloth (NJPC), and Anandi Pads have promoted menstrual health education and women's empowerment.(5,6) The release of the feature film "Padman" (2018) further catalyzed national conversation, fostering greater awareness and advocacy efforts.(7,8)

Despite these advances, recent surveys in diverse regions—including Maharashtra, Gujarat, Pondicherry, Punjab, and Haryana—continue to document the persistence of menstrual taboos and their detrimental impact on women's health and well-being. Similar patterns have been observed in other low- and middle-income countries, underscoring the global relevance of this issue. [9–21] Comparative studies on menstrual products in resource-limited settings further highlight the need for contextually appropriate interventions to improve menstrual hygiene management. [22–25]

India's flagship initiatives—such as Beti Bachao Beti Padhao, Swachh Bharat, and Swasthya Bharat—have sought to improve women's education and health outcomes. However, there remains a critical need to assess whether these changes have permeated marginalized rural and tribal populations, where deeply entrenched cultural norms and limited access to health education may persist.

Village adoption scheme in which one village is adopted per batch of medical students in medical colleges in Maharashtra, with monthly personalized health awareness sessions as an intervention that aims to increase community participation in their health.

To address this gap, we conducted a Knowledge, Attitude, and Practice (KAP) study in a village in central Maharashtra to evaluate the impact of monthly informal health awareness sessions. The primary objective was to assess changes in menstrual knowledge and practices among women of reproductive age following these interventions. Secondary objectives included exploring beneficiaries' perceptions through focus group discussions.

Methodology

Study Design

A three-year, community-based, mixed-methods study employing a pre- and post-intervention design to evaluate the impact of monthly informal health awareness sessions was conducted in a rural tribal village in central Maharashtra. The sessions included- awareness about good hygiene practices, cleanliness, diseases, natural physiological processes like menstruation, and other relevant topics.

Setting

The study was conducted in a village located 12 km from Mahatma Gandhi Institute of Medical Sciences (MGIMS), Wardha, with a population of 2,186 across 439 households

Ethical Considerations

Approval was obtained from the Institutional Ethics Committee (IEC) of MGIMS. Permission was also secured from the village Panchayat. Verbal informed consent was obtained from survey participants, and written informed consent from participants in focus group discussions (FGDs). Confidentiality and anonymity were maintained throughout the study.

Participants and Sampling

Eligibility criteria:

- Survey and FGD: All menstruating women aged 18–45 years, residing in the village for at least three years and consenting to participate, were eligible.

Sampling:

- All eligible women present during each survey round were included. Those absent were revisited twice before being marked as not contacted. For qualitative components, purposive sampling was used.

Intervention

Monthly informal menstrual health awareness sessions were conducted by trained medical students over three years periodically. Sessions included interactive discussions on menstrual physiology, good hygiene practices, cleanliness, product use and disposal, and addressed local taboos and myths, diseases, and other relevant topics.

Data Collection

- **Timing:**
  - Baseline (pre-intervention) assessment was conducted in October 2019, prior to the initiation of the awareness sessions.
  - Endline (post-intervention) assessment was conducted after 36 months of intervention in November 2022
- **Quantitative Component:**
  - Door-to-door surveys were conducted by medical students at both baseline and endline using, standardized questionnaire (31 items; closed and open-ended) administered via Google Forms on smartphones. The questionnaire assessed demographic characteristics, knowledge, attitudes, and practices (KAP) regarding menstruation and menstrual hygiene.
- **Qualitative Component:**

  A baseline FGD with local young womens' groups helped define the gaps and develop the Information Education and Communication (IEC) tools for menstrual taboos, hygiene practices, and perceptions of menstruation. Discussions were facilitated by trained social workers and audio-recorded.

Variables

- **Primary outcomes:** Changes in knowledge and practices related to menstruation and menstrual hygiene, measured through pre- and post-intervention surveys.
- **Secondary outcomes:** Perceptions and experiences of beneficiaries regarding the awareness sessions, explored through FGDs and interviews.

Data Management and Analysis

- **Quantitative data:**
  - Data were exported from Google Forms to Microsoft Excel for cleaning and analysis. Descriptive statistics (means, standard deviations, frequencies, percentages) were computed for demographic and KAP variables. Differences between pre- and post-intervention data were assessed using the Chi-square or Fisher's exact test for categorical variables and independent Student's t-test for continuous variables. A p-value <0.05 was considered statistically significant.
- **Qualitative data:**
  - Audio recordings from FGDs and interviews were transcribed verbatim and analyzed thematically to identify recurring patterns and themes.

Quality Control

Data collectors were trained in standardized procedures. Data quality was ensured through double-checking entries and regular supervision. Participant identities were anonymized, and data were securely stored with restricted access.

Results

An analysis was performed comparing data from the pre-intervention survey in 2019 and the post-intervention survey in 2022. All women aged 18–45 years who had lived in the village for at least three years and provided consent were included in both survey rounds. Educational attainment was comparable across both surveys. (Table 1).

Knowledge and Awareness

There was a significant improvement in menstrual knowledge and awareness following the intervention (Table 2). The proportion of women who understood

the physiological basis of menstruation increased from 32.0% to 67.4% ($p < 0.001$), and awareness of its reproductive implications rose from 49.3% to 75.6% ($p < 0.01$). More women learned about menstruation before menarche post-intervention, and the role of school-based education increased.

Menstrual Material Use

Exclusive use of disposable sanitary pads at home increased slightly (78.7% to 80.2%), and use when away from home reached 86%. Use of cloth/ towel alone decreased, and more women reported using reusable pads. Discomfort with cloth remained the primary reason for switching to pads.

Disposal Practices (2022)

At home, 59.3% washed and burned used pads, while 15.1% disposed of them in household rubbish. When away from home, 25.6% disposed of pads in latrine bins and an equal proportion in on-site bins. Over half (52.3%) wrapped pads in plastic before disposal.

Hygiene and Washing Practices (2022)

- 82.6% always used the same location for urination at home during menstruation; 72.1% did so when away.
- On the heaviest day, 41.9% changed pads twice, 36% thrice, and 15.1% wore the same pad until the next day.
- 15.1% washed and reused menstrual material; 4.6% used repurposed cloth.
- 73.3% always used soap/detergent to wash material; 50% dried it outside, 57.1% dried it covered, and 21.4% sometimes used it before fully dry.
- 3.5% ironed menstrual material before use.

Handwashing and Bathing (2022)

- 51.2% washed hands every time before changing material; 87.2% after changing.
- 59.3% bathed once per day during menstruation, 18.6% twice, and 10.5% three or more times per day.
- 45.3% always used soap to wash genitals, 38.4% sometimes, and 16.3% never.

Menstrual Health and Satisfaction

Reported irritation or irregular discharge decreased significantly from 22.7% to 11.6% ($p = 0.04$). Satisfaction with menstrual material remained high (90.7% to 95.3%), and mean comfort and freedom of movement scores improved significantly. (Table 3)

School/Work Absenteeism

Self reported Absenteeism due to menstruation decreased significantly from 17.3% to 8.1% ($p = 0.04$), with mean days missed dropping from 9 to 4 per year ($p = 0.02$). The average out-of-pocket expenditure per cycle remained similar (35.3 INR to 37.5 INR, $p = 0.21$).

Taboos and Social Restrictions

There was a significant reduction in reported menstrual taboos (61.3% to 38.4%, $p < 0.01$). Notably, the proportion of women avoiding temples during menstruation declined from 46.7% to 22.1% ($p < 0.01$). (Table 4)

Table 1. Age and Educational Attainment of Study Participants in 2019 and 2022 Surveys

Parameter	2019 Survey (n = 75)	2022 Survey (n = 86)
Age (years)		
Mean ± SD	26.1 ± 9.05	29.1 ± 8.14
Minimum	18	18
Maximum	47	48
Education		
Higher education	19 (25.3%)	26 (30.2%)
High school (9th–12th)	44 (58.7%)	47 (54.7%)
Middle school (5th–8th)	10 (13.3%)	11 (12.8%)
Primary school (till 4th)	2 (2.7%)	2 (2.3%)

Table 2. Menstrual Knowledge and Awareness, Pre- and Post-Intervention

Indicator	2019 (%)	2022 (%)	p-value*
Knew what menstruation was	92.0	98.8	0.07
Understood physiological reason for menstruation	32.0	67.4	<0.001
Aware of implication for pregnancy	49.3	75.6	<0.01
Learned about menstruation after menarche	56.0	34.9	<0.01
Main source: mother	44.0	32.6	0.12
Main source: school/teacher	22.7	36.0	0.04

*Chi-square test

Table 3: Menstrual Health and Satisfaction

Indicator	2019 (%)	2022 (%)	p-value*
Irritation/irregular discharge	22.7	11.6	0.04
Satisfied with menstrual material	90.7	95.3	0.29
Mean comfort score (1–10)	7.9	8.5	0.03
Mean freedom of movement score (1–10)	7.7	8.2	0.05

Table 4. Menstrual Taboos and Restrictions

Indicator	2019 (%)	2022 (%)	p-value*
Experienced taboos	61.3	38.4	<0.01
Did not enter temple	46.7	22.1	<0.01
Did not cook	8.0	3.5	0.18
Did not pray	6.7	3.5	0.29

Discussion

This study demonstrates the significant impact of sustained, community-based menstrual health awareness sessions in improving menstrual knowledge, hygiene practices, and attitudes among women in a village in central Maharashtra. Conducted over three years, this intervention offers evidence that culturally sensitive, informal educational approaches can address entrenched taboos, enhance hygiene practices, and reduce period-related discomfort and absenteeism in underserved communities.

Improved Knowledge and Early Education

A notable finding was the increase in understanding of the physiological basis of menstruation, from 32.0% at baseline to 67.4% post-intervention ($p< 0.001$), and in awareness of its reproductive implications from 49.3% to 75.6% ($p< 0.01$). Furthermore, a significant shift was observed in the timing and source of menstrual education—more women learned about menstruation before menarche in 2022 compared to 2019, and schools and teachers increasingly became the primary source of information. This trend aligns with global best practices in menstrual health management and underlines the importance of incorporating menstrual education into school curricula [26–28].

Reduction in Period Poverty and Absenteeism

While access to disposable sanitary products was already relatively high, the quality of usage improved. More women adopted practices such as changing menstrual materials more frequently and using soap or detergent to wash reusable materials. Health-related complaints such as irritation or irregular discharge decreased significantly from 22.7% to 11.6% ($p = 0.04$), suggesting better menstrual hygiene.

Crucially, absenteeism from school or work due to menstruation declined from 17.3% to 8.1% ($p = 0.04$),

and the average number of days missed annually dropped from 9 to 4 (p = 0.02). This finding mirrors results from the Chitkani study in Rajasthan, where girls reported frequent absenteeism due to period-related stigma and lack of menstrual resources [29].

These findings also resonate with international experiences. In Kenya, comprehensive menstrual interventions—combining education with access to sanitary products—resulted in improved school attendance and reduced psychosocial distress among adolescent girls [30]. This highlights that "period poverty" is not limited to lack of products but encompasses inadequate information, social stigma, and lack of supportive infrastructure.

Shifting Taboos and Cultural Norms

One of the most promising outcomes of the intervention was the reduction in social taboos. The proportion of women reporting restrictions during menstruation fell from 61.3% to 38.4% (p< 0.01). In particular, avoidance of temples decreased markedly from 46.7% to 22.1% (p< 0.01). Although practices such as refraining from cooking or praying saw modest declines, the overall shift reflects a broader cultural change and increased agency among women to question restrictive norms. These findings support similar results from Goonj's Not Just a Piece of Cloth (NJPC) campaign, which has shown that dialogue and education can erode stigma over time [6].

Qualitative Insights and Community Empowerment

The informal, interactive nature of the sessions facilitated peer learning and encouraged questions, contributing to a more open community environment. Regarding younger girls who have begun menstruating, the study included only participants aged 18 and above, as assent is required for individuals below 18 years of age. During the initial baseline assessment, rapport building was actively underway, as this marked our first engagement with the community.

Medical students conducting the sessions reported gaining valuable insights into rural health education and observed a clear decline in stigma, especially among younger women. Their dual role as facilitators and learners created a unique bridge between the health system and the community—a model that could be replicated in other rural settings for broader impact [31].

Village adoption scheme is a scheme in which one village is adopted per batch of medical students in medical colleges in Maharashtra. The family adoption program within the village adoption program is a community-based initiative, with monthly personalized health awareness sessions as an intervention that aims to increase community participation in their health. (32)

Limitations

This study relied on self-reported data, which may be subject to recall or social desirability bias. The absence of a control group limits causal inferences. Findings may not be generalizable beyond the specific rural context studied. Additionally, seasonal variation in menstrual product availability was not assessed. Another limitation of this study is the exclusion of male participants, as the sample size was selected based on ease of rapport building with the community. Future studies should include males to provide a more comprehensive perspective.

Challenges and the Way Forward

Despite encouraging progress, challenges remain. Improper disposal practices—such as burning used pads and wrapping them in plastic—continue, underscoring the need for environmentally sound disposal options and awareness. Additionally, hygiene practices like drying reusable cloths indoors and sometimes using them before they are fully dry indicate areas where further education is needed.

To sustain and scale the impact of this model, future interventions should incorporate:

- Strengthening school-based menstrual education
- Promoting affordable, eco-friendly products
- Improving WASH (Water, Sanitation, and Hygiene) infrastructure
- Training community health workers to provide ongoing support

Conclusion

This study affirms the value of consistent, contextually relevant menstrual health education in

transforming attitudes and behaviors in rural India. Informal awareness sessions—delivered through a trusted, community-engaged approach—can significantly reduce stigma, improve hygiene, and promote dignity. Such interventions are essential in addressing period poverty, promoting gender equity, and ensuring that menstruation does not hinder education, employment, or well-being. It also shows the feasibility of a scheme such as village adoption scheme to improve community participation in their health.

Funding Sources (if applicable): None

Ethical Clearance/Statement of Ethics: Approval was obtained from the Institutional Ethics Committee (IEC) of MGIMS PRE-(Ref. No. MGIMS/IEC/COMMED/08/2020) Meeting was done on 25 January 2020. POST-(Ref. No. MGIMS/IEC/COMMED/342/2022) Meeting was done on 01 October 2022

Declaration of conflicts of interest statement: Authors declare no conflict of interests.

References

1. van Eijk AM, Zulaika G, Lenchner M, Mason L, Sivakami M, Nyothach E, et al. Menstrual cup use, leakage, acceptability, safety, and availability: a systematic review and meta-analysis. Lancet Public Health. 2019;4(8):e376–e393.
2. El-Gilany AH, Badawi K, El-Fedawy S. Menstrual hygiene among adolescent schoolgirls in Mansoura, Egypt. Reprod Health Matters. 2015;13(26):147–52.
3. Devi DK, Ramaiah PV. A study on menstrual hygiene among rural adolescent girls. Indian J Med Sci. 1994;48(6):139–43.
4. Adhikari P, Kadel B, Dhungel SI, Mandal A. Knowledge and practice regarding menstrual hygiene in rural adolescent girls of Nepal. Kathmandu Univ Med J. 2007;5(3):382–6.
5. BBC News. The Indian sanitary pad revolutionary [Internet]. 2022 [cited 2022 Jun 24]. Available from: https://www.bbc.com/news/magazine-26260978
6. Pareek S. 8 low cost and eco-friendly ideas which have revolutionized women's sanitary hygiene in India [Internet]. The Better India; 2022 [cited 2022 Jun 24]. Available from: https://www.thebetterindia.com/10917/india-women-menstruation-lowcost-ecofriendly-sanitary-pads/
7. Pad Man (film) - Wikipedia [Internet]. 2022 [cited 2022 Jun 24]. Available from: https://en.wikipedia.org/wiki/Pad_Man_(film)
8. The Conversation. Padman: how Bollywood is challenging the stigma around periods in India [Internet]. 2022 [cited 2022 Jun 24]. Available from: https://theconversation.com/padman-how-bollywood-is-challenging-the-stigma-around-periods-in-india-90278
9. Sumpter C, Torondel B. A systematic review of the health and social effects of menstrual hygiene management. PLoS One. 2013;8(4):e62004.
10. Mahon T, Fernandes M. Menstrual hygiene in South Asia: a neglected issue for WASH (water, sanitation and hygiene) programmes. Gender Dev. 2010;18(1):99–113.
11. Thakre SB, Thakre SS, Reddy M, Rathi N, Pathak K, Ughade S. Menstrual hygiene: knowledge and practice among adolescent school girls of Saoner, Nagpur District. J Clin Diagn Res. 2011;5(5):1027–33.
12. Dhingra R, Kumar A, Kour M. Knowledge and practices related to menstruation among tribal (Gujjar) adolescent girls. Ethno-Med. 2009;3(1):43–8.
13. Mudey A, Kesharwani N, Mudey G, Goyal RC. A cross-sectional study on awareness regarding safe and hygienic practices amongst school going adolescent girls in rural area of Wardha District, India. Glob J Health Sci. 2010;2(2):225–31.
14. Phillips-Howard PA, Nyothach E, ter Kuile FO, Omoto J, Wang D, Zeh C, et al. Menstrual cups and sanitary pads to reduce school attrition, and sexually transmitted and reproductive tract infections: a cluster randomised controlled feasibility study in rural Western Kenya. BMJ Open. 2016;6(11):e013229.
15. Garg S, Anand T. Menstruation related myths in India: strategies for combating it. J Family Med Prim Care. 2015;4(2):184–6.
16. Patil R, Agarwal L, Khan MI, Gupta SK, Vedapriya DR, Raghavia M. Beliefs about menstruation: a study from rural Pondicherry. Indian J Med Specialities. 2011;2(1):23–6.
17. Puri S, Kapoor S. Taboos and myths associated with women's health among rural and urban adolescent girls in Punjab. Indian J Community Med. 2006;31(4):295.
18. Kumar A, Srivastava K. Cultural and social practices regarding menstruation among adolescent girls. Soc Work Public Health. 2011;26(6):594–604.
19. Sadiq MA, Salih AA. Knowledge and practice of adolescent females about menstruation in Baghdad. J Gen Pract. 2013;2(1):1–4.

20. Poureslami M, Osati-Ashtiani F. Assessing knowledge, attitudes, and behavior of adolescent girls in suburban districts of Tehran about dysmenorrhoea and menstrual hygiene. J Int Women's Stud. 2002;3(2):51–61.

21. Kamaljit K, Arora B, Singh GK, Neki NS. Social beliefs and practices associated with menstrual hygiene among adolescent girls of Amritsar, Punjab, India. J Int Med Sci Acad. 2012;25(2):69–70.

22. Beksinska ME, Smit J, Greener R, Todd CS, Lee MT, Maphumulo V, et al. Acceptability and performance of the menstrual cup in South Africa: a randomized crossover trial comparing the menstrual cup to tampons or sanitary pads. J Womens Health. 2015;24(2):151–8.

23. UNICEF. Menstrual hygiene in Bangladesh: country case study [Internet]. 2009 [cited 2022 Jun 24]. Available from: http://www.unicef.org/wash/files/10_case_study_BANGLADESH_4web.pdf

24. Academia.edu. Mythic origins of menstrual taboo in Rigveda [Internet]. 2022 [cited 2022 Jun 24]. Available from: https://www.academia.edu/Mythic_Origins_of_Menstrual_Taboo_in_Rig

25. IRC Wash. Menstrual hygiene: a neglected condition for the achievement of several Millennium Development Goals [Internet]. 2022 [cited 2022 Jun 24]. Available from: https://www.ircwash.org/resources/menstrual-hygiene-neglected-condition-achievement-several-millennium-development-goals

26. Thakur H, Aronsson A, Bansode S, et al. Knowledge, practices, and restrictions related to menstruation among young women from low socioeconomic community in Mumbai, India. Front Public Health. 2014;2:72.

27. van Eijk AM, Sivakami M, Thakkar MB, et al. Menstrual hygiene management among adolescent girls in India: a systematic review and meta-analysis. BMJ Open. 2016;6(3):e010290.

28. Dasra. Spot On! Improving Menstrual Management in India. Mumbai: Dasra; 2014. Available from: https://www.dasra.org/resource/spot-improving-menstrual-management-india

29. Phillips-Howard PA, Caruso BA, Torondel B, et al. Menstrual hygiene management among adolescent schoolgirls in low- and middle-income countries: research priorities. Glob Health Action. 2016;9:33032.

30. Nagar S, Aimol KR. Knowledge of adolescent girls regarding menstruation in tribal areas of Meghalaya. Stud Tribes Tribals. 2010;8(1):27–30.

31. WaterAid Nepal. Menstrual Hygiene Matters. 2017. Available from: https://www.wateraid.org/np/publications/menstrual-hygiene-matters-nepal

32. Mahatma Gandhi Institute of Medical Sciences. Research [Internet]. [cited 2025 May 24]. Available from: https://www.mgims.ac.in/index.php?option=com_content&view=article&id=34&Itemid=39.