Frontiers in Health Informatics
ISSN-Online: 2676-7104
www.healthinformaticsjournal.com
2023; Vol 12
Open Access

Integrating Technology into Menstrual Health Education in India: A Pathway to Awareness

Shikha Pandey*, Dr. Priyadarshini Tewari**
*PhD Scholar, Department of Vikriti Vigyan, Faculty of Ayurveda, Institute of Medical Science, Banaras Hindu University, Varanasi
**Assistant Professor, Department of Vikriti Vigyan, Faculty of Ayurveda, Institute of Medical Science, Banaras Hindu University, Varanasi.

Received: 12 Feb 2023, Accepted on: 27- Aug 2023, Published: 10-Sep-2023

Cite this paper as: Shikha Pandey, Dr. Priyadarshini Tewari (2023 Integrating Technology into Menstrual Health Education in India: A Pathway to Awareness. *Frontiers in Health Informatics*, *Vol.12(2023), 687-693*

Abstract: In India, menstrual health management, or MHM, is an important but frequently disregarded public health and educational concern. The lives of millions of women and adolescent girls are nevertheless impacted by pervasive cultural taboos, ignorance, and restricted access to sanitary menstruation products, even in the face of continuous legislative efforts. Only 64% of women between the ages of 15 and 24 employ hygienic menstruation protection techniques, with notable socioeconomic and urban-rural differences, according to NFHS-5 (2021). Menstrual silence increases sensitivity to reproductive tract infections, causes stigma, and results in absenteeism from work and school. However, India has a special chance to address these issues in the digital age. With more than 750 million people using the internet, smartphones becoming more and more common, and social media becoming more and more popular, technology has the potential to revolutionise menstrual health teaching. Access and awareness are being reshaped by digital ads, mobile applications, online learning environments, and government-backed e-health programs. The integration of technology into menstrual health education in India is examined in this research. It also critically examines issues including gendered access to digital technologies, cultural resistance, disinformation, and the digital divide.
Keywords: menstrual health education, digital health, adolescent health

Introduction

Menstruation is a normal biological process, yet in India, it is still associated with shame, silence, and myths. Menstruating women are often excluded from social events, kitchens, and religious rituals. Using ash, cloth, or husk as absorbents puts women at risk for infection, and other dangerous behaviors are further perpetuated by a lack of precise understanding.Menstrual health is a critical issue in India due to its population situation. Achieving gender equality, public health, and economic productivity requires providing access to education and hygienic practices for the roughly 355 million women and girls who menstruate.

Menstruation is still a taboo and stigmatised topic in India. According to a UNICEF (2021) survey, over 71% of Indian adolescent girls do not know about menstruation until they menarche, which causes them to be confused, afraid, and to practise poor hygiene. Cultural taboos frequently

impede candid conversations, preventing girls from going to school, engaging in everyday activities, or receiving medical care. Even with advancements in awareness and policy, including the 2015 Swachh Bharat: Menstrual Hygiene Management Guidelines and the Rashtriya Kishor Swasthya Karyakram (RKSK), gaps still exist. Community opposition and a shortage of qualified teachers are two major obstacles to traditional school-based menstruation education.

Traditional menstruation education approaches, such as those used by schools, community health workers, and non-governmental organisations, have been limited by a lack of qualified staff, social humiliation when bringing up the subject, and opposition from traditional families. Nonetheless, technology presents a fresh approach: digital platforms allow women and girls privacy, accessibility, and creative communication techniques to empower them.

This paper explores the Indian context of integrating technology into menstrual health education, analysing both opportunities and challenges.

Current Status of Menstrual Health Education in India

Awareness Gaps: Research indicates that about 71% of Indian teenage girls do not know the fundamentals of menstruation before menarche. Fear, bewilderment, and embarrassment are frequently experienced during the first menstrual cycle. Typically, boys are left out of the discussion, which perpetuates gendered silences.

Social Taboos and Stigmas: During menstruation, cultural norms prohibit women and girls from engaging in everyday activities like cooking, going to temples, or going to school. Because of this stigma, people miss employment and school, which feeds the cycle of exclusion.

Policy Efforts: Access to sanitary goods and raising awareness are key components of national initiatives like the Menstrual Hygiene Scheme (MHS) and Rashtriya Kishor Swasthya Karyakram (RKSK). Free sanitary pads and educational materials are offered by state-level programs like Maharashtra's menstrual hygiene drives and Kerala's "She Pad" program. Outreach remains uneven in spite of these initiatives, especially in rural and tribal areas.

Education Gaps: While biology classes in schools frequently include reproductive health, there are no thorough modules on menstrual health. Students receive fragmented and perhaps erroneous information from teachers who express anxiety while discussing menstruation.

Digital Transformation in Menstrual Awareness

Digital technology has become an innovative tool in raising awareness of menstrual health, filling in the gaps caused by inadequate health infrastructure, lack of information access, and cultural taboos. Digital platforms are revolutionising the delivery of menstrual health education by providing scalable, easily available, and private tools, especially for women and youth in settings where candid conversations are still scarce. The literature identifies some crucial areas for digital intervention:

Mobile apps and period trackers: Mobile apps like Clue, Flo, Maya (all extremely popular in India), and Oky (created by UNICEF for youth) give users the ability to track menstrual cycles, symptoms, and reproductive health. By giving users self-awareness and predictive data, these applications assist users in tracking anomalies and preparing for menstruation. Period-tracking apps may help detect menstruation problems, including endometriosis and polycystic ovarian syndrome (PCOS), early on and improve menstrual literacy, according to research (Apter et al., 2018). Maya has had a particularly significant influence in India since it provides content in a variety of regional languages, allowing users to reach beyond English-speaking metropolitan

areas.

Social Media and Digital Campaigns: Activists, non-governmental organisations, and health educators are increasingly using social media sites like Instagram, YouTube, and TikTok to normalise discussions around menstruation. Indian movements like #HappyToBleed and international campaigns like #PeriodPositive (UK) have fought against the stigma and taboos associated with menstruation. Bollywood's 2018 PadMan Challenge in India inspired both men and women to have conversations on menstrual hygiene by generating millions of digital impressions. These digital efforts, according to scholars, serve two purposes: they change cultural attitudes and offer health education (Johnston-Robledo & Chrisler, 2020).

E-Learning Platforms and Digital Curricula: Educational platforms are frequently employing interactive techniques to incorporate menstruation health into more comprehensive courses on reproductive health. An innovative program called Menstrupedia (India) teaches children about menstruation through comics, blogs, and online workshops. Its digital materials, which break the taboo around menstruation in culturally sensitive ways, are widely used in community organisations and schools. The inclusion of menstrual health modules in Massive Open Online Courses (MOOCs) has also led to their formalisation within e-learning ecosystems. Adolescents and adults, especially parents and educators who are crucial in forming attitudes, can now obtain information about menstruation thanks to these platforms.

AI and Chatbots:A growing number of people are using artificial intelligence to offer private, stigma-free menstrual health counselling. While WhatsApp-based bots in Africa have been used to anonymously respond to questions from teenage females, chatbots such as Ask Tia (US) provide tailored health advice. Girls can ask delicate questions in private thanks to some experimental initiatives in India that have tried using WhatsApp groups for menstrual education. These technologies tackle the stigmas of shame and anxiety that keep teenagers from getting treatment.

Telemedicine and Online Consultations: Menstrual and reproductive health consultations can now be conducted remotely thanks to the COVID-19 epidemic, which hastened the introduction of telemedicine. Previously limited to in-person hospital visits, gynaecological consultations have become more accessible in India because of platforms like Practo and mfine. For women in rural or semi-urban regions, where access to gynaecologists is limited, this digital transition has been particularly significant. According to research, telemedicine provides anonymity, lowers travel expenses, and increases access—all of which are critical in removing obstacles to menstrual health care (Bateson et al., 2021).

Impact of Technology Integration

In India, the incorporation of technology into menstrual health education has resulted in quantifiable advancements in behaviours, attitudes, and knowledge. Its impact is discernible in some ways:

Increased Awareness and Knowledge Gains: Adolescent girls' menstruation literacy has greatly increased because to digital interventions like smartphone applications and e-learning courses. According to research done in areas like Maharashtra and Bihar, pupils who had access to online modules or digital comics (like Menstrupedia) reported knowing more about myths, cleanliness habits, and the menstrual cycle than their counterparts who only received traditional education.

Positive Behavioral Change: Healthy menstruation practices have become more popular as a

result of having access to internet platforms. For example, the use of reusable items like menstrual cups and sanitary pads has increased as a result of period-tracking apps. Additionally, telemedicine consultations and educational movies have decreased the usage of risky behaviours like reusing unclean clothing, which can lead to infections.

Stigma reduction and dialogue normalisation: Social media efforts like #HappyToBleed and #PadManChallenge have changed public discourse by lowering stigma and promoting acceptance. Online forums offer anonymity, enabling young girls and women to express questions without fear and promoting men's and boys' participation in conversations on menstrual health.

Educational and Social Outcomes: Digital education initiatives have been associated with higher attendance during period days, and improved menstrual literacy has been linked to lower school absenteeism. Young women have also expressed increased confidence in their ability to manage their periods in public, at work, and in sports.

Community Engagement and Collective Action: NGOs and government initiatives may now reach entire communities instead of just individuals, thanks to digital means. For instance, peer-to-peer support networks have been established through WhatsApp groups run by Accredited Social Health Activists (ASHAs), allowing women to share their experiences and collectively break taboos.

Improved Access to Healthcare: Access to healthcare has improved thanks to telehealth consultations and chatbots driven by AI, especially in underprivileged rural and tribal areas. Women who previously shied away from gynaecological advice because of stigma or a lack of resources can now access appropriate, private medical advice online.

Challenges in Technology Adoption

India faces challenges in integrating technology into menstruation health education, and a number of variables restrict its efficacy. One of the biggest obstacles is still the digital divide, since many rural and tribal areas still do not have constant access to energy or dependable internet connectivity. Girls and women frequently lack personal smartphones, and male family members typically control the devices, which limits their access to menstruation health applications or internet resources in private, even in situations where connectivity is available. The situation is further complicated by language and literacy. Many digital services are only available in Hindi or English, which leaves out sizable populations that are more accustomed to speaking regional languages. While non-literate or semi-literate users find it challenging to use text-based resources, low levels of digital literacy make it challenging to use even translated apps.

Additionally, adoption is severely constrained by cultural resistance. Teenage females may not be allowed to use cell phones or access reproductive health content in conservative homes due to parental or guardian restrictions. Menstruation applications are frequently not downloaded or freely accessed by users due to fear of stigma. Adding to this issue is the absence of boys and men, which perpetuates the notion that menstruation is a private female concern rather than a public health and gender equality issue. The issue of affordability is another challenge. Even though India's mobile data rates are modest by international standards, they nonetheless pose a barrier for low-income households, especially when paired with additional expenses like premium features or paid teleconsultations. Additionally, the potential for the sustained success of many NGOs' digital initiatives is constrained by their heavy reliance on grant support.

Security and privacy are another difficulty. Concerns regarding surveillance, third-party exploitation, and the absence of robust legislative protections are raised by the collection of private reproductive health data by period trackers and AI-powered chatbots. Girls are frequently deterred from providing information by the lack of trust surrounding digital health apps. Furthermore, the majority of menstruation health platforms are made with educated, metropolitan users in mind. These one-size-fits-all strategies fall short in meeting the requirements of LGBTQ+ menstruators and rural teenagers with poor literacy levels.

Regional differences in the cultural taboos and beliefs around menstruation reduce the effectiveness of standardised digital solutions. Lastly, monitoring and assessment are lacking. Few studies thoroughly evaluate behaviour change, long-term health effects, or stigma reductions; instead, many gauge success in terms of downloads or reach. The majority of interventions continue to be short-term pilots with no planning for long-term monitoring or scaling.

Collectively, these challenges show that the intricate social, cultural, and institutional obstacles surrounding menstruation health education cannot be overcome by digital solutions alone. To guarantee equal impact, they must be combined with community involvement, inclusive design, robust privacy protections, and consistent investment.

Recommendations for India

In order to fully utilise technology in menstrual health education, India needs to take a thorough and inclusive strategy. The recommendations fall into three main categories: community-education integration, digital innovations, and policy-level activities.

Policy and Institutional Support: In accordance with the Ayushman Bharat Digital Mission and Digital India, the Indian government ought to develop a National Digital Menstrual Health Strategy. This will set precise guidelines for data security, inclusion, and accuracy in platforms and apps for menstrual education. Menstrual health must be incorporated into current initiatives like Samagra Shiksha Abhiyan, Beti Bachao Beti Padhao, and Rashtriya Kishor Swasthya Karyakram (RKSK).

Digital Innovation and Accessibility: Digital platforms should put an emphasis on inclusivity by providing offline-compatible apps that work even without internet connectivity, visual and audio resources for low-literacy people, and content in regional languages. SMS and IVRS (Interactive Voice Response Systems) can be useful substitutes in areas where smartphone usage is low.Apps that track cycles and health data must have stringent data privacy policies in place to preserve user confidence, particularly among teenagers. Confidential digital counselling services, like chatbots powered by AI or helplines based on WhatsApp, can offer knowledge and direction without causing stigma. To make gynaecological consultations more accessible, telemedicine platforms such as Practo and e-Sanjeevani ought to incorporate specific modules for menstruation and reproductive health.

Last but not least, India ought to fund innovative research and encourage the creation of interactive resources for menstrual education, such as gamified applications, virtual reality awareness campaigns, and AI-powered menstrual literacy initiatives.

Community and Educational Integration: Families, communities, and schools must all be intimately connected to digital initiatives. Schools should use YouTube classes, WhatsApp groups, or smart classrooms to incorporate menstruation health e-learning modules into their curricula. In addition to providing parents, particularly mothers, with digital awareness tools so they can mentor their daughters, teacher training programs should be improved to help them feel

more at ease discussing menstruation.

ASHA and Anganwadi employees can act as Digital Saathis at the local level by sharing certified e-content in local languages via tablets or phones. The National Rural Livelihood Mission's Women's Self-Help Groups (SHGs) can oversee Telegram or WhatsApp-based menstrual awareness channels, assisting in the dissemination of information within their local communities. Digital campaigns must involve men and boys to normalise menstruation as a common social and health concern. Digital platforms can be used to mobilise local cultural leaders, sports figures, and influencers to dispel misunderstandings and promote positive attitudes.

Conclusion

By empowering people to make educated decisions, removing the culture of silence, and offering new forums for information exchange, technology is changing the face of menstrual health education in India. Increasing awareness, providing privacy, and reaching people that traditional means frequently overlook have all been accomplished with the use of social media campaigns, mobile apps, and digital learning resources. However, issues including disparities in digital access, cultural shame, cost, and privacy concerns underline that technology cannot be used as a panacea. Digital interventions need to be culturally sensitive, inclusive, and localised in order to truly impact society. This includes making them accessible to low-literate users, rural communities, and people with a variety of gender identities. To scale up sustainable models that integrate online platforms with offline community participation, collaborations between governmental organisations, non-governmental organisations, educators, and digital entrepreneurs will be essential. The use of technology in menstrual health education can be a potent means of promoting awareness, dignity, and empowerment for all menstruators by coordinating with India's health and gender equity objectives as well as the Sustainable Development Goals.

References

1. Apter, D., et al. (2019). The role of digital tools in menstrual health awareness. *Reproductive Health Journal*.
2. Dasgupta, A., & Sarkar, M. (2019). Menstrual hygiene: How hygienic is the adolescent girl? *Indian Journal of Community Medicine*.
3. Gopalan, S. (2022). Breaking taboos: Technology and menstrual equity in South Asia. *Asian Journal of Gender Studies*.
4. Kumar, A., & Pandey, R. (2021). Digital health literacy in India: Challenges and opportunities. *Health Policy and Planning, 36*(5), 715–725.
5. Menstrupedia. (2020). *Menstrual education through comics*. https://www.menstrupedia.com
6. Ministry of Health and Family Welfare, Government of India. (n.d.). *Rashtriya Kishor Swasthya Karyakram*. https://nhm.gov.in
7. Sharma, N., & Singh, P. (2022). Technology and menstrual hygiene in India: A review. *Journal of Public Health Policy, 43*(2), 210–225.
8. UNESCO. (2020). *Puberty education and menstrual health management*. Paris: UNESCO. https://unesdoc.unesco.org.
9. UNICEF. (2021). *Oky: The world's first period tracker app for young people*. https://www.unicef.org/innovation/stories/oky-trailblazing-girl-centered-tech

10. Tuli, A., Dalvi, S., Kumar, N., & Singh, P. (2019). "It'sa girl thing" Examining Challenges and Opportunities around Menstrual Health Education in India. *ACM Transactions on Computer-Human Interaction (TOCHI)*, *26*(5), 1-24.

11. Tuli, A., Chopra, S., Kumar, N., & Singh, P. (2018). Learning from and with menstrupedia: Towards menstrual health education in India. *Proceedings of the ACM on Human-Computer Interaction*, *2*(CSCW), 1-20.

12. Banerjee, S., Chowdhury, A., & Srivastava, A. (2021). Creating awareness about health and hygiene during menstrual cycle among Indian adolescent girls using virtual reality. In *Advanced Manufacturing Systems and Innovative Product Design: Select Proceedings of IPDIMS 2020* (pp. 327-339). Singapore: Springer Singapore.

13. Ganguly, M., Ganguly, A., Chattaraj, S., & Midya, D. K. (2025). A review on menstrual health in adolescent girls emphasizing multi-omics and machine learning strategies for preventing reproductive tract infections. *Discover Public Health*, *22*(1), 105.

14. Bhaghamma, G. (2023). Exploring the Intersection of Menstrual Leave and the Right to Health in India. *Journal on Vulnerable Community Development*, *1*(1), 168-177.

15. Ashcroft, N., Shelus, V., Garg, H., McLarnon-Silk, C., & Jennings, V. H. (2017). Implementation of CycleTel Family Advice: an SMS-based service to provide family planning and fertility awareness information in India. *Mhealth*, *3*, 20.