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Policy to practice: insights from implementation of a school-based sanitary napkin distribution programme in Odisha, India

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Abstract

Background Recognizing the importance of menstrual health and hygiene, governments worldwide, including India, are working towards improving awareness, infrastructure and access to essential products and services. Odisha's state-led "Khushi" programme, launched in 2018, is one such initiative providing free sanitary napkins to schoolgirls in government and government-aided schools to improve menstrual hygiene and reduce dropouts. Our study aims to explore the perspectives and barriers in the implementation of the Khushi programme in Odisha.

Methodology This paper emanates from a larger study on menstrual health in Odisha, conducted from September 2021 to December 2022, focussing on qualitative insights into the implementation challenges of the Khushi programme. It examines stakeholder perspectives through in-depth interviews with key officials from health and education departments and focus group discussions with schoolgirls. In addition, relevant programme documents and government policies were reviewed.

Results Our study findings related to the systemic bottlenecks in the implementation of the Khushi programme have been summarized under key thematic domains: (1) approach to micro-planning; (2) interdepartmental convergence; (3) indenting and supply chain; (4) capacity building; and (5) monitoring and supervision. This study underscores the importance of designing and implementing a comprehensive behaviour-change strategy that should capitalize on the existing collaboration between the health and education departments, while addressing identified weaknesses.

Conclusions The Khushi programme has the potential to bring about a paradigm shift in menstrual health behaviour among schoolgirls. To maximize its impact, the government may adopt a comprehensive strategy, including strengthening menstrual-hygiene-compliant school infrastructure, providing education and sensitization for both implementers and beneficiaries, and integrating environment-friendly menstrual hygiene products in the programme.

Keywords Adolescent health, Menstrual health, Free sanitary napkin, School health, Odisha

Background

Menstruation, a natural physiological process often stigmatized and marginalized in many cultures, is fast emerging as a predominant driver of gender equity [1–4]. The United Nations recognizes safe and dignified menstruation as a fundamental need for every woman, which it further emphasizes upon as a crucial milestone in advancing the Sustainable Development Goals (SDGs) [5–7]. Further, governments worldwide are progressively

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working towards de-stigmatization of menstruation, and enhancing access to infrastructure, information, products and services in pursuance of the SDGs [8–10]. Access to clean absorbents, private space for changing pads, disposal of used pads, and availability of soap and water for personal hygiene constitute the backbone of effective menstrual hygiene management (MHM) [6].

Evidence from low- and middle-income countries (LMICs) consistently indicate that more than 50% of women and girls experience challenges in achieving adequate MHM [11–15]. Various factors, including age and socioeconomic status (SES), influence menstrual behaviour [16]. Adolescent girls, particularly in LMICs, bear the maximum brunt of poor MHM in terms of several psychological and socioeconomic barriers [17]. For instance, they grapple with feelings of shame, fear and embarrassment, as well as poor social support and cultural taboos. Moreover, in school settings, the need for a private space for changing pads is acutely felt. Recent assessments of the water, sanitation and hygiene (WASH) situation in schools across many states in India have all pointed out the non-availability of gender segregated water, a poor level of teacher sensitivity, the lack of self-confidence among girls and the existence of non-supportive environment as major impediments. Consequently, chronic absenteeism from school, distraction from mainstream education and frequent infections affect the lives of schoolgirls [2, 3, 18–22]. Given that adolescents constitute about 16% of the world's population [23], urgent attention is critical to address their menstrual hygiene needs.

Of late, schools have emerged as focal points for increasing menstrual awareness. Collaborations between the health and education departments are crucial to address some of the gaps related to MHM infrastructure, information and products at school level [18, 24]. Emerging models, such as the "MHM in Ten" consortium, comprising United Nations agencies and civil society organizations, intend to complement this intersectoral collaborative effort [13]. Governments have invested heavily in enhancing the MHM environment in schools [25]; involving access to water, sanitation and hygiene (WASH) facilities and providing sanitary pads [26–29], while imparting menstrual education [30–33].

Optimal access to MHM products and services is at the top of the agenda for the Government of India and many state governments. For instance, the Ministry of Health and Family Welfare launched the menstrual hygiene programme as early as 2011 to promote menstrual health amongst adolescent girls [34]. Similarly, launching of SABLA Yojana in 2011, "reproductive, maternal, newborn, child health and adolescents" (RMNCH + A) in 2013 and "Rashtriya Kishore Swasthya Karyakram" (RKSK) in 2014 have collectively contributed to empowering adolescents [31, 35, 36].

In Odisha, a state in eastern India, the state government launched free distribution of disposable sanitary pads, popularly called the "Khushi" programme in 2018 for schoolgirls in grades 6–12, enrolled in government and/or government-aided schools. The scheme, spearheaded by the Department of Health and Family Welfare, was widely implemented across the state in collaboration with the Department of School and Mass Education, with an aim to improve menstrual health and hygiene and to reduce school dropouts [37].

However, there is a paucity of scientific evidence related to the obstacles encountered in the implementation and functioning of the Khushi programme, and a lack of efforts to document the valuable lessons learned to guide future actions. This gap may have been exacerbated by the coronavirus disease 2019 (COVID-19) pandemic, which necessitated an overwhelming focus on effective COVID management in both national and international contexts [38]. To address this gap, this study aims to explore perspectives and barriers of implementing the Khushi programme in Odisha. It further delves into the user experiences and identifying systemic barriers hindering the adoption of safe menstrual hygiene practices within the school environment. Demand-centric challenges, supply-driven barriers and systemic bottlenecks are the foci of this scientific enquiry. The demand-centric dimensions have already been presented in a recently published paper [39].

Methodology

Study settings

This manuscript emanates from a larger study conducted in three districts (Bhadrak, Koraput and Balangir) of Odisha, India, on a situational analysis of MHM [39]. The districts were chosen purposively in consultation with senior officials of the Department of Health and Family Welfare to represent the coastal, tribal and under-developed regions, respectively.

Study design and participants

We adopted a cross-sectional study design, using a mixed-method approach for data collection and analysis. We undertook a thorough desk review of programme documents and relevant government policies as the first step in the study. Further, to explore the perspectives and experiences of stakeholders on activities undertaken under the Khushi programme, 30 in-depth interviews (IDI) were conducted with key officials of the health and education departments and school staff involved in programme implementation. Brief descriptions about the

characteristics of key informants who participated in the IDI are given in Table 1.

To explore the experiences and perceived barriers regarding menstrual hygiene practices within the school environment, six focus group discussions (FGD) were held, each with 6–7 adolescent girls of class VI–XII, from rural and urban blocks of selected districts. Senior district level officials of the Health and Family Welfare Department guided in the selection of the rural and urban blocks in the study districts.

Data collection tools and techniques

IDIs and FGDs were conducted with the key stakeholders. An IDI guide was developed through an iterative process, followed by piloting and contextualization. The principal investigator reviewed the study tools both in English and the local language (Odia) for accuracy and consistency. All IDIs and FGDs were conducted in Odia, which were subsequently transcribed and translated into English for analysis.

The research team involved in data collection was trained by the principal investigator and co-investigators, and data collection was carried out during September 2021–November 2022. The team members conducted the IDIs and FGDs, along with a field investigator familiar with the local dialect. All the IDIs and FGDs were conducted at a place and time convenient to the participants, and the researchers clearly explained the study objectives and obtained their consent for audio recording the interview beforehand. Respondents voluntarily participated in the study and were not given any financial incentive for participation. The interviews and FGDs lasted between 30 min and 60 min. The sample size was determined using the data saturation technique. All steps were taken to maintain confidentiality and anonymity of the study participants.

Data analysis

Data collection and analysis was undertaken in a parallel manner to look for gaps in the information being collected. The transcripts were anonymized by assigning unique identifiers and secured in a password-protected computer accessible only to the research team. Atlas.ti 8 software was used for text coding and categorization. Thematic analysis by Braun and Clark [40] guided the data analysis. This process required the authors to read and re-read the transcripts to identify potential themes. Transcripts were analysed alongside the original recordings to look for inconsistencies and ensure deeper understanding. In the next step, S.D. and N.P. independently assigned codes to text segments of the transcripts; discrepancies, if any, were collectively resolved. In the third step, similar and related codes were combined and grouped into distinct themes. Themes were refined on the basis of the data and those themes which did not have enough data to support were discarded. Finally, each theme was clearly defined, analysed and given a precise name; relevant quotes were used to illustrate the themes.

Results

Our study findings related to the systemic bottlenecks in the implementation of the Khushi programme have been summarized under key thematic domains: (1) approach to micro-planning; (2) interdepartmental convergence; (3) indenting and supply chain; (4) capacity building; and (5) monitoring and supervision.

Theme 1: Approach to micro-planning

The Khushi programme was appreciated by all respondents for its effectiveness in promoting menstrual hygiene practices and encouraging the use of sanitary pads amongst adolescent girls, in both rural and urban areas. The programme addressed the critical issue of the inaccessibility of sanitary products (due to lack of availability, accessibility and affordability) for adolescent girls. Furthermore, the programme was commended for its initiative to introduce sanitary pads at a crucial stage around menarche, fostering the development of healthy menstrual hygiene habits early on. In addition, the

Table 1 Characteristics of in-depth interview respondents

Level	Respondents from the health department	Respondents from the education department
State	Department of Health and Family Welfare ($n=1$) Odisha State Medical Corporation Limited (OSMCL) ($n=1$) National Health Mission ($n=1$)	–
District	District programme Management Unit officials ($n=3$)	–
Block	Block warehouse in charge ($n=6$) Medical officer in charge ($n=3$)	Cluster resource centre coordinator (CRCC) ($n=3$)
School	–	Headmaster ($n=4$) Nodal teacher ($n=6$) Warden of *Ashram* schools ($n=2$)

programme facilitated open discussions about menstruation within school settings.

"… when we started giving pads, they started sharing about their menstruation-related issues. It is then we also came to know that they were using clothes earlier" (School staff).
"… most of our students belong to poor families, and also their mothers don't discuss this topic often, so most of them were unaware about pads and their proper use when we first distributed" (School staff).

However, some criticized the programme for lacking a structured approach to ensure sustainable menstrual hygiene behaviour among adolescents, leading to reduced absenteeism and improved academic parameters. Respondents emphasized the need for a structured approach to address the multifaceted issue of menstrual hygiene. This approach, they argued, should include efforts to raise awareness, strengthen school infrastructure and a consistent supply of sanitary napkins. A majority of the respondents from the education department viewed Khushi primarily as a sanitary napkin distribution programme with minimal focus on sustained awareness generation. They reported that initial information sessions on menstrual hygiene practices delivered by health department personnel were discontinued, leading the programme to become more focussed on pad distribution and less on education.

"Government is just distributing it, but with limited efforts of awareness generation, it would have no impact" (School staff).
"Initially, during distribution, a doctor and ANM came, and counselled about the usage of pads, and when to change it and how to dispose it, and then distributed the pads. Thereafter no one came" (School staff).
"… and don't give timely supply then everything fails, without consistency it will not work, if we disrupt the process then we won't give substantive results" (School staff).

Furthermore, the programme was seen as inadequate in addressing factors that contribute to school absenteeism during menstruation, such as menstruation-related discomfort and cultural restrictions on girls' movement.

"Some girls experience stomach pain so they don't come. Not having privacy in the schools also restricts them from coming to school" (Block official).
"I get severe stomach pain; hence I sleep on my stomach (prone) to put pressure or use hot compression to relieve pain. So, I don't go to school during that time" (FGD girls).

Participants also highlighted challenges with water, sanitation and hygiene (WASH) infrastructure in schools, which often does not meet menstrual hygiene standards. This lack of adequate privacy and disposal facilities create hygiene and sanitation concerns for both students and staff.

"The Government should do something about the disposal problem. When pads are provided, it is obvious that the girls will use it and then dispose it. For that there should be some facility at schools, which is, currently lacking" (School staff).
"If the girls dispose pads in school, it will be a challenge for us because we don't get people to clean such things" (Teacher).

Theme 2: Interdepartmental convergence

Officials from both the education and health departments opined that the Khushi programme seamlessly integrates with the existing school health initiatives. They believe it leverages their established partnership and facilitates efficient outreach to beneficiaries. However, district authorities raised concerns about the increased workload placed on the front-line workers from both departments due to the programme's implementation.

"Our collaboration involves joint programmes with the health department, where medical officers educate girls on various issues. The school also participates in existing health programmes, such as administering deworming medications and iron folic acid tablets to children" (School staff).
"We are happy to partner with the government on this initiative, because, in rural areas, many girls experience infections related to menstrual hygiene. Khushi is giving them a hygienic option" (School staff).
"For us, it's too much… I feel a lot of pressure because of it; it is an extra workload. We have a shortage of staff, so on the day of pad distribution, we have to suspend classes because we don't have additional manpower available" (School staff).

In addition, the health department's concerns included: a lack of female "nodal teachers" in some schools and the reluctance of some of the teachers to address sensitive topics such menstruation, citing unclear guidelines. While health department informants perceived a lack of commitment from the education department, the latter expressed dissatisfaction with health department's limited support in pad distribution, awareness generation and supportive supervision.

"Someone from the health department should come as a resource person and also oversee the distribution; they can give a broader perspective than us" (School staff).
"The health department should work more closely with schools to sensitize the children" (School staff).

The challenges of day-to-day coordination between both of the departments were conspicuous at the district level, as compared with the block and the school levels where a sense of personal relationship, local innovation and belongingness played a buffer role in navigating through the challenges of co-ordination. A critical communication gap was identified, particularly in regard to keeping beneficiary numbers up-to-date. This resulted in an inadequate allocation of resources for adolescent girls, because the health department relies on an outdated list of beneficiaries provided by the education department during the programme launch, which excludes girls who have reached menarche or recently joined the school following the high school transformation initiative.

"For Khushi, I have created a WhatsApp group, in which the headmaster from every school is added. We share important supply and distribution related information in that group, and we get very good response as well" (Block official).
"We are receiving supplies based on old data. Currently, the student strength has increased, so some girls are not receiving the supplies" (District official).

Theme 3: Indenting and supply chain

Review of reports and documents indicates that an estimated 1.7 million beneficiaries receive quarterly sanitary napkins under the Khushi programme, with an annual government expenditure of roughly INR 500 million [41]. All girls from class VI–XII, regardless of menarche status, are eligible as per the existing guidelines. The Health and Family Welfare Department is responsible for procurement and distribution of pads through Odisha State Medical Corporation Limited (OSMCL), after testing quality compliance by a national laboratory. Often OSMCL selects the three lowest quoting vendors to avoid supply shortages and for ensuring timely delivery to schools.

Despite having a seemingly robust procurement system, timely delivery of pads at the block level warehouse continues to pose challenges. None of the sample districts had received quarterly stocks on time, often resulting in erratic delivery and insufficient storage capacity at block points. The same problem was also expressed by beneficiaries.

"Before the order is placed, a sample of the pads is sent to the national testing laboratory for quality control and the order is placed after receiving the quality control reports. The whole process takes about 1–1.5 months. Therefore, the process is started with delivery times in mind" (State health official).
"Last distribution was done in October 2021, for the last 11 months we have not received any stock" (Block official).
"We have received twice only… Last time I got when I was in class 9th and then once in 10th, this year, that's it" (FGD girls).
"Sometimes they send stock even before the distribution is done. Once we had around 40 to 45 carton boxes and they sent it again so all together we had around 90 to 100 carton boxes" (Block official)-

Delay in the distribution of pads to schools often results in stock accumulation, risking expiry or damage. Suppliers responsible for delivery of pads to the block points lack effective communication with storage point personnel, leading to inconvenience in delivery and storage. Further, the "fixed cost for movement of the stock from the block storage point to the schools (INR 0.90/pack) also creates operational difficulties", said one respondent on condition of anonymity.

"When the stock arrives here, we are worried about the place to store it" (District official).
"Once the stock came in the evening, unloading couldn't happen same day, they said we need safety, we need to alert the police, at night 9 pm I had to go to the police station to alert them, until late night I was with them" (Block official).
"… we try to deliver the stock to four or five schools on the same route, to minimize transportation cost. We negotiate hard and keep good rapport with the vehicle owners to manage at this cost" (District official).

The health department is mandated to transfer the transportation cost to the education department, which in turn pays the cluster resource centre coordinators (CRCC) responsible for transporting stock from the block storage units to the school storage points. However, in some districts another working model existed, as pointed out by some respondents, in which the health department engages a third party and directly pays for the movement of such stocks (Table 2).

Theme 4: Capacity building

Respondents felt that capacity building in the service providers and the managerial cadre was needed, owing to emphasis from the district administration. For example,

Table 2 Supply chain working models

District name	Mechanism of stock transportation (from block storage unit to school storage point)		Status
	Person/agency responsible	Payment mechanism	
Balangir and Koraput	Third party	Directly paid through the health department	Notwithstanding supply irregularities, payment-related delays are non-existent
Bhadrak	CRCCs	Health department to education department to CRCCs	Disrupted supply chain due to delay in payment to CRCCs

despite the need for web portal training on stock management (e-KHUSHI), the in-charge officials across all sample districts lacked adequate training on the portal and warehouse management, resulting in their inability to effectively manage storage points.

> *"The state is asking us to update stock information in the software (e-KHUSHI). But they didn't provide any physical training to the concerned individuals, instead they sent an e-manual" (District official).*
> *"When new stock arrived, it was placed in front of the old stock. When distribution resumed, it started from the front, and by the time we reached the old stock, it had already expired" (Block official).*

Nodal teachers trained by the health department were seen as crucial stakeholders in the Khushi programme, responsible for health messaging, stock management and distribution monitoring. However, frequent transfers and postings left many schools with untrained staff ill-equipped to handle the complexities of implementing the programme. As a result, all the sample districts felt that Khushi is increasingly becoming a pad distribution programme, with less emphasis on awareness generation.

> *"The teachers keep changing, and when a new teacher takes charge, she is unaware of the process. There should be manuals for them to refer to whenever they have any doubts" (District official).*
> *"The health functionaries are oriented already, but the educational functionaries are sensitized only in one or two forums which is not adequate" (District official).*

Theme 5: Monitoring and supervision

Participants in this study highlighted challenges related to poor level of monitoring owing to insufficient fund allocation and delayed reimbursements for such activities. This restricts the frequency and scope of field visits to distribution points. Further, the respondents mentioned that currently there is very limited use of the web-based application for real-time monitoring and stock updating. Most of the respondents felt the need to establish and strengthen an independent review and feedback mechanism under the programme.

> *"We are unsure if the school teachers are genuinely apprising the children or just handing over the packets to them. How can we know?" (District official).*

The health officials emphasized the need for a collaborative platform to address coordination challenges between the education and health departments. This platform could facilitate discussions on identified issues and the development of solutions to prevent their recurrence or escalation.

> *"We provide the supplies up to the storage point, and then the education department takes over. They follow the guidelines, but we do not receive any feedback from them, and there is no meeting between both departments to analyse and resolve implementation issues. There is no established structure or format to review Khushi" (District official).*

Discussion

The Odisha government's Khushi programme aims to improve access to safe menstrual hygiene products for schoolgirls, and in turn, reduce school absenteeism or dropouts. Our research identified systemic bottlenecks and opportunities for intervention (Table 3) to address some of the specific challenges related to fragmented micro-planning, weak interdepartmental convergence, disrupted supply of products, limited capacity building initiatives and inadequate monitoring and supervision, which could be critical in shaping the implementation trajectory of this scheme.

Our findings indicate that mere distribution of free sanitary napkins may not be sufficient to achieve the dual objectives of improved menstrual hygiene behaviour and reduced school absenteeism. Respondents felt strongly about the need to focus more on undertaking activities aimed at strengthening the implementation of various activities under the Khushi programme.

Table 3 Bottlenecks and proposed interventions to strengthen Khushi implementation

Identified bottlenecks	Proposed interventions
Fragmented approach to micro-planning	Assess the system's readiness and identify actionable gaps for redressal Develop strategies and allocate resources for sustained behaviour change of schoolgirls
Weak interdepartmental convergence	Engage with collaborating departments on a regular basis to discuss and flesh out common challenges Establish unambiguous communication channels and delineate responsibilities Allocate resources for hiring, training, monitoring and supervision
Disrupted supply chain	Decentralize budgeting and inventorying Train block officials on indenting, inventory and stock management Introduce phased automation of inventory and stock management Appoint supply chain managers at block level Engage third parties for warehouse-to-stock delivery, with payments facilitated by the health department
Limited capacity building	Train block warehouse in-charge on inventory and stock management Orient school staff on awareness generation and process documentation
Inadequate monitoring and supervision	Ensure financial envelope and timely reimbursement of monitoring activities Establish monthly review mechanism at block level and quarterly at district level Encourage bottom-up feedback

Sustained improvement in the behaviour of schoolgirls with regard to menstrual hygiene management practices and reduction of school absenteeism are organically linked to improved academic performance [42], though there is limited evidence linking menstruation with higher rates of absenteeism [43]. Analysis of longitudinal health data of adolescents in India on menstruation and school attendance was inconclusive [44], which is similar to the findings of another study conducted in Malawi [45]. We found that discomfort due to menstrual cramps and lack of appropriate infrastructure at schools were pointed out as reasons for absenteeism from school during menstruation, which is in sync with other studies [46]. The fear of getting stains on clothes and a lack of proper disposal of used pads/clothes were more of a challenge for girls from government schools as compared with private schools [19, 47]. A study in Malawi also reported similar findings, where girls experienced a challenge in schools due to lack of appropriate toilet facilities [48].

A randomized controlled trial (RCT) in Kenya found sanitary napkin distribution did not culminate in increased school attendance [49]. This signifies that the provision of free sanitary pad distribution cannot be a complete solution to achieve reduction in school absenteeism; however, a MHM-friendly school infrastructure is a critical pre-requisite [22]. The potential of schools in developing a conducive environment and supportive infrastructure for dignified menstruation is yet to be tapped under the Khushi programme.

Initiating dialogue on menstruation in schools necessitates sensitization of teachers and "peer champions" in delivering appropriate messages on sensitive topics, such as menstruation, menstrual health and hygiene and sexual and reproductive health [50]. The importance of schools in raising mass awareness on health issues has often been well recognized, and the health department has also frequently used such platforms to drive the health agenda, but the efforts mostly get narrowed down to distribution of products, such as iron folic acids (IFAs), deworming tablets or sanitary napkins. Studies have also shown that in India the school curriculum is not aptly used to raise awareness about the issues of reproductive health [51]. School teachers need to be empowered to improve knowledge and practices of girls about reproductive health [52]. A vast majority of girls from rural areas are enrolled in government schools. Therefore, while the debate on appropriateness of information to girls at the right age and in the right way continues to divide opinions, the first source of information/misinformation on the subject for a young girl continues to the mother/sister/relative [39], who themselves are grappling with fear and cultural taboos [42, 49, 53]. A study in Ethiopia concluded that educational interventions on MHM and provision of MHM kits resulted in decreased school absenteeism among girls [54]. However, a mere sanitary napkin distribution programme would undermine the capacity of a girl to make an informed choice without accompanying information, education and communication (IEC) [55].

Like other logistics-intensive programmes, Khushi also has many day-to-day challenges with logistics and supply chain management. Appropriate forecasting, warehouse and inventory management, transportation, delivery and distribution have several bottlenecks that need redressal [56, 57]. A study on logistics management in Ghana by Bossert et al. concluded that centralization of planning, budgeting, information management systems and inventory control was associated with greater success [58]. Service providers and managers encounter heavy

workloads and insufficient guidelines for better coordination; therefore, guidelines ought to be developed and percolated down to the subcentre level to address these gaps [59].

The Khushi programme has led to improved access to sanitary pads for most girls; however, the rural ecosystem is not yet fully developed to manage the large amount of menstrual wastes emerging out of the mass use of disposable sanitary products [60]. Moreover, this dimension has long been poorly addressed, which could pose considerable challenges to the environment in the long run [61]. An incremental shift to more sustainable, eco-friendly and bio-degradable sanitary pads is a desirable state, which some studies in Nepal and Kenya have agreed with. Hence, serious efforts need to be initiated to promote such products in a phased manner [53].

To enhance the trustworthiness of the study, triangulation of data sources and analyses was followed. This involved collecting data from multiple key stakeholders within the health and education department at different administrative levels, such as block, district and state levels. In addition, to mitigate potential misinterpretation during data analysis, both English and Odia transcripts were utilized. Furthermore, the authors diverse backgrounds in medicine and social science, coupled with their experience in public health, strengthened the conformability of the findings. This study was conducted in select districts chosen through purposive sampling; therefore, the results may not be representative of the rest of the world, and generalization needs to be done with caution. Further, owing to the small sample size and limited number of sampling units being chosen under this study, we feel some of the specific findings may need further contextualization in other settings. However, the challenges and bottlenecks identified through this study are reflective of the overall situation in the State, which could be comparable in similar socio-cultural contexts. Moreover, our study was carried out in the post-COVID period, suggesting that certain challenges could be mitigated over time and through effective functioning of the system.

Conclusions

Menstrual health and hygiene of young adolescent girls affects millions of lives across the globe. In India, and in Odisha, various departments and stakeholders play crucial roles in the success of implementing government-sponsored programmes. Khushi is a state-specific initiative which has the potential to bring about a paradigm shift in the menstrual health behaviour of schoolgirls. The government may need to invest time and resources for bridging the infrastructural gaps, raise the level of competency of service providers and improve the supply chain management practices to ensure successful implementation of the programme. The use of technology for automation, building capacity of the front-line workforce and financial allocation for programme monitoring are the immediate action points to strengthen the programme. Challenges related to intersectoral convergence could be addressed through periodic stock-taking by officials in the higher rung of the hierarchy. In the long run, it ought to shift towards a more environment-friendly option for product design and procurement. MHM-friendly school infrastructure, imparting education, sensitizing men and boys and optimal interdepartmental coordination are crucial mediators for effective behavioural change among schoolgirls. The healthy menstruation of girls would lead to a healthy womanhood and a better society.

Abbreviations

MHM	Menstrual hygiene management
SDGs	Sustainable Development Goals
LMICs	Low- and middle-income countries
WASH	Water, sanitation and hygiene
RMNCH + A	Reproductive, maternal, newborn, child health and adolescents
RKSK	Rashtriya Kishore Swasthya Karyakram
IDI	In-depth interviews
OSMCL	Odisha State Medical Corporation Limited
CRCC	Cluster resource centre coordinator
FGD	Focus group discussions
ANM	Auxiliary nurse and midwife
RCT	Randomized controlled trial
IFA	Iron folic acid
IEC	Information, education and communication
DOHFW	Department of Health and Family Welfare

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Author contributions

B.P. conceptualized the study. B.P. and S.D. finalized the methodology and developed the data collection tools. S.D., N.P. and R.P.P. were involved in data collection. S.D. and N.P. transcribed and translated the data. B.P., S.D., N.P. and R.P.P. analysed data. S.D. and N.P. prepared the manuscript. B.P. reviewed and finalized it. All authors have read and agreed to the submitted version of the manuscript.

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Availability of data and materials

All the data collected and analysed in this study are available from the corresponding author and can be provided upon request.

Declarations

Ethics approval and consent to participate

Ethical clearance was obtained from an independent ethics committee of the Indian Institute of Public Health (IIPH-B), Bhubaneswar, a unit of the Public Health Foundation of India (PHFI). The study was then approved by the State

Research and Ethics Committee, Government of Odisha, vide letter no. 18003/MS-2-IV-04/2020 (PT-1), dated 13 July 2022. Informed consent was obtained from all the participants. Anonymity and confidentiality of information was ensured throughout the whole study period.

Consent for publication
Not applicable.

Competing interests
The authors declare no competing interests.

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