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Menstrual Hygiene Management Among Vulnerable Rural Adolescent Schoolgirls in South Africa's Rural Learning Ecologies

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Abstract: This qualitative research paper examined the menstrual health challenges and hygiene that were faced by vulnerable rural adolescent schoolgirls in South Africa, their negative effects on school attendance, academic performance and wellbeing. Seeing the above challenges as barriers to sustainable development goals (SDG) 4 quality education and SDG 5 gender equality, the study used a critical emancipatory approach alongside the theory of change (ToC) as its framework. The purpose was to give a hearing to the voiceless and lived experiences of this group of people to provided a platform for empowering and transformative actions. The focus group discussions (FGDs) with vulnerable rural adolescent schoolgirls, their parents and teachers and school administrators were held at a designated learning ecology. Open-ended Interviews (OEIs) assisted to collect phenomenological narratives with many ethnographic perspectives. The data was analysed thematically to make major themes inductively reflect their real life conditions. The research findings reflected that the gaps in menstrual information, restricted availability and the use of sanitary products, conformity of cultural norms and inadequate amount of water, sanitation and hygiene facilities (WASH) helped creating considerable barriers for many rural adolescent schoolgirls thereby compelling them to miss school during their menstruation. The study highlighted the importance of comprehensive MHM programmes that envisage availability of materials and amenities, menstruation education and psychological support, as well as stigmatisation measures. To move forward with context relevant and community centred interventions, the study suggested a collaborative, multi-stakeholder approach involving the community. Tackling these converging problems was paramount to the preservation of the menstrual health rights of vulnerable

rural schoolgirls, education gender equity as well as the attainment of the SDG 4 and SDG 5 goals by 2030. The practice would comprehend all-encompassing evidence-based policies and curricula, and promotion of life-long learning opportunities for all vulnerable rural adolescent schoolgirl through active learning ecologies.

Keywords: menstrual hygiene management (MHM), vulnerable rural adolescent schoolgirls, rural learning ecologies, academic performance, theory of change (ToC), menstrual health cycle (MHC).

Introduction

Though there have been major strides in the menstrual hygiene management (MHM) field the health, dignity and well-being of adolescent schoolgirls remain a big concern globally, especially in rural learning ecologies. Even though there has been improvement in a few other areas (Beksinska et al., 2023), MHM remains equally problematic in South Africa, especially for adolescent schoolgirls learning in rural learning ecologies. In order to tackle this problem, the primary step towards it is comprehending its background, barriers, as well as the possible solutions for setting up MHM among rural adolescent schoolgirls. The Republic of South Africa that is well-known for its cultural diverse and complex history remains to struggle with socioeconomic inequality (Anbesu & Asgedom, 2023; Beksinska et al., 2023; Chikulo, 2015), having some educational areas that lack with infrastructure and basic services even. As revealed by the article written by Crankshaw et al. (2020), the complicated MHM of the adolescent schoolgirls in these rural communities is worsened by poverty, insufficient sanitary facilities and cultural restrictions about menstruation. This is due to the prevalence of poverty and limited resources in the rural learning environments of South Africa. The costs of purchasing menstrual hygienic products remains unaffordable to most rural families, leading to schoolgirls taking risks with their health or miss school during menstruation (Siddiqui & Mahomed, 2023). Moreover, the absence of separate clean and private sanitation facilities sometimes disturbs schoolgirls in the rural learning ecologies to control their menstruation in unsanitary condition (Department of Women, 2017). Thus, this research paper aimed at filling the gap by investigating the MHM practices, challenges, and attitudes of South African vulnerable rural adolescent schoolgirls in rural learning ecologies.

Research conducted in South Africa shows that the lack of access to menstrual products significantly affects schoolgirls' attendance rates. The findings indicate that among those with a deficit of MHM personal items, 46% of schoolgirls skipped the school, only 22% out of the schoolgirls with the provision of adequate personal items, recorded this (Anbesu & Asgedom, 2023; Beksinska et al., 2021; Beksinska et al., 2023). Yet another study by Fennie et al. (2023), revealed that more than 87% of female participants in rural communities of Africa resorted to wearing used clothes and rags to take care of menstrual flow due to temporary or permanent lack of sanitary items which is a risky move that may lead to urinary and reproductive infections. Moreover, in one more study in South Africa it was established that those adolescent schoolgirls from vulnerable or remote communities, who were unable to afford menstrual products, turned to engaging in transactional sex as a means of obtaining supplies, highlighting the more severe consequences of this issue (Khamisa et al., 2022; Macleod et al., 2020). These mindsets and behaviors may lead to physical and emotional deterioration for individuals involved in the long run. It was observed that there are limited overall studies conducted by South African provinces that address MHM related topics like free sanitary products distribution and curriculum introduction of pre-menarche education for which society's low-income is a significant challenge. The initiative of linking this gap, this study set out to investigate the MHM behaviour, problems, and attitudes of the rural adolescent schoolgirls in South Africa with the use of a qualitative approach.

Research Problem

Whilst the contribution which MHM has on adolescent schoolgirls' health, self-esteem and educational participation is irrefutable, there is a common lack of knowledge on the specific difficulties that vulnerable rural adolescent schoolgirls face in rural learning ecologies. Inadequate supply of menstrual hygiene products and the lack of proper WASH facilities, along with the socio-cultural barriers, may result in improper MHM, and in turn unhealthy consequences. However, this gap poses a barrier to conducting a comprehensive examination of individuals who are more vulnerable to attacks within the framework of rural educational environments in South Africa. The study placed emphasis on the way in which the study comprehended the existing trends, its shortcomings in accessing products, the influence of the community on an individual's menstrual hygiene, the health consequences of improper practices, and the impact of current interventions. As their own research case, this study attempted to help to fill in a vital gap between the understanding of unusual problems founded in adolescent rural schoolgirls in South Africa when managing menstrual hygiene in the rural learning ecology. The recognition from this research can guide the making of interventions that can address directly, policies and advocacy approaches which can be used to augment period health outcomes and total well-being of a local population. This study was in tandem in the general discourse of menstrual hygiene management in resource-constrained settings with the implication that public health and educational policies within the national and international arena must be aligned.

Research Focus

This research aimed to investigate the current position of MHM among vulnerable rural adolescent schoolgirls in South Africa's rural learning ecologies. It was limited on the factors concerning micro-practices, challenges, and opportunities that occurred within the context of the rural schooling and community. The following vital aspects of the menstrual hygiene management were included in: effective practices, product accessibility, knowledge and awareness, health facilities environment, health implication, social and cultural factors, and finally proposing menstrual hygiene management interventions and programs. In addition to that, the research had a focus on traditional beliefs, social norms and stigma regarding such MHM behaviours and attitudes. The research provided a fundamental input for devising targeting oriented interventions and policies which were geared towards the enhancement of menstrual health and wellbeing among women in this community. Primarily, the study aimed to present on the state of MHM in rural communities in the rural learning ecologies of South Africa to give a way forward in planning interventions that would bring about the betterment of menstrual health and psychological well-being of rural adolescent schoolgirls.

Research Aim and Research Questions

The study sought to investigate the experiences, attitudes, and knowledge regarding MHM practices among schoolgirls in vulnerable rural learning ecologies and propose recommendations for improving the current situation. The study aimed to contribute to the existing scholarly discussion on MHM in South Africa. The aim was to provide valuable insights that can inform the development of contextually appropriate solutions, specifically tailored to address the needs of vulnerable rural adolescent schoolgirls in the country. The following set of research questions guided this study:

i. What are the prevailing MHM practices among vulnerable rural adolescent schoolgirls in South Africa's rural learning ecologies?

ii. How do economic and socio-cultural factors influence MHM practices among rural adolescent schoolgirls in South Africa's rural learning ecologies?

iii. What existing interventions or programmes are in place to address MHM challenges among vulnerable rural adolescent schoolgirls in South Africa's rural learning ecologies?

Literature Review

Menstrual Hygiene Management in South Africa

Period poverty impacts 300 million women and adolescent schoolgirls in South Africa, raising serious concerns due to persistent myths, financial constraints preventing access to sanitary products, subpar sanitation facilities, and a lack of education on menstrual cycle management (Anbesu & Asgedom, 2023; Crankshaw et al., 2020). Department of Women (2017) highlighted the fact that 7 million vulnerable rural adolescent schoolgirls in South Africa miss on average a quarter of their school year due to menstruation management circumstances and practices. According to Siddiqui and Mahomed (2023), vulnerable rural adolescent schoolgirls in South Africa were prone to absenteeism due to mockery, pain during menstruation, and also lack of sanitary products. The role of menstrual hygiene trainings offered before menarche cannot be overemphasised though, however, disposed menstrual materials create school absenteeism which is illustrated by the studies (Beksinska et al., 2021; Khamisa et al., 2022). However, one of the things to bear in mind is that these circumstances often interact and lead to school absenteeism. It also gets on the nerves of vulnerable rural adolescent schoolgirls, who might not confront their problems openly and might miss out on their schooling, which includes involvement in school activities. The lack of attention given to menstrual health in South Africa is a critical issue that has significant impacts on both public health and education (Nassozi et al., 2024; Siddiqui & Mahomed, 2023). Thus, an integration of several approaches covering accessibility, applying mental health elements and attitude change among the vulnerable rural adolescent schoolgirls in South Africa is a must. The study emphasises the need for comprehensive, holistic solutions, thorough evaluation of existing interventions, intersectionality consideration, and long-term outcomes for addressing period poverty among vulnerable rural adolescent schoolgirls in South Africa.

Furthermore, there have been many issues with menstrual disruption for vulnerable rural adolescent schoolgirls in South Africa, and it has both physical and psychological problems for schoolgirls who are experienced and those who were not (Fennie et al., 2023; Macleod et al., 2020). According to the findings from the Department of Women (2017) report, millions of people especially vulnerable rural adolescent schoolgirls are not getting MHM services at their disposal. In addition, according to a study by Khamisa et al. (2022), the stress and anxiety resulting from menstruation can impact both school attendance and participation in school activities. As well, the lack of sanitary products exposes them to compromised mental and physical health (Fennie et al., 2022). In spite of these social ills, the public eye is rarely cast on them. The present study can increase knowledge available by its emphasis on vulnerable rural adolescent schoolgirls, mostly focusing on MHM among rural secondary schoolgirls. This study scrutinizes behaviors, hardships, and attitudes of vulnerable rural adolescent schoolgirls who are influenced by MHM practices in South Africa. This study aimed to explore the physical and psychological impacts of menstrual disruption, inadequate access to MHM services, and the intersection of menstrual issues with school attendance.

Accordingly, there are cultural taboos including stereotypes associated with menstruation that are still rampant in several learning environments in the rural context resulting hence in erroneous information about menstruation as well as shame and stigma (Fennie et al., 2022). These factors turn schoolgirls away from handling their period right, from gaining in confidence and from organising their ways of thinking being influenced outside the school. Additionally, inadequate menstruation education and MHM facilities result in students' school absenteeism during menstruation, which consequently is a significant impediment to their education, education quality, and subsequently the achievement of SDG4. The diversity of these problems demonstrates that an integrated approach is needed to enhance

MHM among the adolescent schoolgirls residing in rural communities of South Africa if aiming to achieve SDG 4 (education) and SDG 5 (gender equality). Khamisa et al. (2022) emphasize the requirement to know the specificities of the challenges, problems, and difficulties that young, vulnerable rural schoolgirls face when developing plans for the provision of practical solutions which are consistent with the realities of their lives. It is argued that women and girls belong to the school, and when they do not have safe and proper disposal channels for menstrual hygiene, their rights to quality education, employment, health and self-esteem are mostly affected. It is through the management of various challenges, promotion of self-esteem, and persistence to have equal access to education, safeguarding overall well-being, MHM is preserving a healthy future (Malik et al., 2023; Nassozi et al., 2024; Siddiqui & Mahomed, 2023). The purpose of this study was to analyse how it is possible to aid the MHM practices of vulnerable rural adolescent schoolgirls in South Africa by incorporating the ToC framework in the selection of those approaches that are appropriate, empowering and with far reaching positive implications. The study highlighted gap in understanding cultural taboos, the lack of menstrual education, the link between MHM and educational outcomes, the need for holistic approaches, and its implications for rural adolescent girls.

South Africa has introduced a program that furnishes free feminine hygiene products to vulnerable schoolgirls in rural and remote communities to promote their school attendance and raise their level of self-esteem (Khamisa et al., 2022; Siddiqui & Mahomed, 2023). Furthermore, it is crucial to improve sanitation facilities, access to clean water, and waste management systems in schools in order to meet these objectives. A lot of schools report better control of menstrual hygiene and overall well-being of vulnerable rural schoolgirls when there is pre-menarche instruction and counselling concerning MHM practices. According to the Department of Women (2017) report, MHM practices entail the following: washing dirty body with clean water and soap; using clean materials for blood absorption or collection during menstrual flow; changing the used materials in a private place after each menstruation cycle; having available and safe facilities for disposing of used materials; and having enough information about menstrual cycle and its related processes. Even with these measures, the South African government's policies and programs for providing knowledge and access to MHM are inadequate (Beksinska et al., 2021; Beksinska et al., 2023; Crankshaw et al., 2020). Therefore, immediate action is needed from the government to enhance menstrual hygiene management education and facilities for schoolgirls and women in rural communities. This should include creating policies that provide free sanitary pads and working to eliminate the stigma around menstruation through the active involvement of key stakeholders. This study filled in the gaps in MHM in South African rural ecologies, including the need for comprehensive evaluation of intervention programs, holistic approach to MHM infrastructure, pre-menarche education, inadequate government policies, and ToC integration.

In addition, Menstrual Hygiene Day (MHD) is annually observed on May 28 in South Africa (Khamisa et al., 2022). MHD as an annual event brings together various stakeholders to challenge the stigmas associated with women and young schoolgirls experiencing their monthly cycle, as well as to promote proper menstrual health and hygiene management (Macleod et al., 2020; Siddiqui & Mahomed, 2023). This endeavour aims to ensure that young women can remain in school, which should ideally be a safe and empowering environment in promoting SDGs 3, 4,5 and 6. On this day, there a campaign for "The MENstruation Foundation", which seeks also to provide vulnerable rural adolescent schoolgirls and other adolescent girls with free access to sanitary pads during their menstrual cycle (Department of Women, 2017). The foundation is a non-profit organisation with the goals of restoring women's dignity and addressing period poverty. As noted by Siddiqui and Mahomed (2023), each schoolgirl who is provided with a token from this charity is able to redeem it for a monthly supply of an eight-pad pack from the Sanitary Pad Vending Machine. These pads are not only locally sourced but also environmentally-friendly as they are compostable. However, it is worth questioning whether this

provision extends to all schoolgirls, particularly those residing in rural learning ecologies? The objective of the study is to provide insight that can inform the development of contextually relevant solutions specifically tailored to address the needs of vulnerable rural adolescent schoolgirls within the country. The study evaluated the effectiveness, access to equitable resources, and development of relevant solutions considering diverse rural situations in South Africa's rural ecologies.

On MHD, South Africa's Department of Women and other partners emphasises the need for schoolgirls sexual and reproductive health knowledge builds up their skills for physical changes (Department of Women, 2017; Siddiqui & Mahomed, 2023). To tackle menstrual harm practices pervasive as well as the changed negative behaviour and cognition, Khamisa et al. (2022) and Macleod et al. (2020) suggest that both education and awareness be accompanied by provision of free sanitary products. Correcting the injustices that exist in women menstruation dignity in our country requires age-based social and behavioral change-communication. This consists of working together with some departments of the provincial governments and the corporate sector, civic society and non-governmental organisations from across the nation to launch a variety of menstrual dignity programs (Beksinska et al., 2023; Crankshaw, 2020). Through these projects the participants exchange implementation strategies, discovered difficulties, oversights, and opportunities both in common and unique with different provinces. It's argued that a multi-dimensional approach is necessary to deal with menstrual health problems in the South African rural learning ecologies among female students from low-income families. This study in included a need for integrated approaches, interdepartmental collaboration, and targeted interventions in finding MHM solutions for vulnerable rural female students.

Conceptual Framework: Theory of Change (ToC)

A theory of change (ToC) is a detailed strategy proposing the composition of processes and interventions having a purpose to create the desired social change (Breuer et al., 2018; Guenther & Falk, 2022; Hendrickson & Henrysson, 2023). Through the theoretical application of the 'pathway to positive change' theory, the following principles can be applied to supporting the women's menstrual challenges: assumptions, pathways, outcomes. According to Boulil and Hanney (2022) and Burbaugh et al. (2017), the ToC is divided into three components: (i) education programmes, (ii) workshops and training, and (iii) access initiatives. According to Breuer et al. (2018), there is a need for inclusion of adolescent and school-going girls in menstrual health and hygiene education programmes within both the school setting and communities. The workshops and training courses offer support and education for parents, teachers, and community leaders to better understand menstruation, address any cultural taboos associated with it, and promote more open and informed conversations about this natural biological process (Phillips & Klein, 2023). Access measures are aimed to boost availability and lower prices of menstrual products (Nassozi et al., 2024), whereas curriculum modification takes care of biological aspects, hygiene practices, and emotional well-being (Rengarajan & Sivasubramaniyan, 2020). It is arguable that, owing to the good implementation of such distribution programmes, the accessibility of MHM has reached almost everyone. It is believed that the effective implementation of these distribution programmes ensures menstrual hygiene management (MHM) accessibility for all, particularly in rural learning ecologies.

On the other hand, ToC embodies that schoolgirls are endowed with knowledge, communication, and access to menstrual hygiene products while evaluating the improvements as well. The research of Hendrickson and Henrysson (2023) proved that ToC can be used to measure reduction of stigma, growth of self-belief and community participation. The ultimate goal is to make the rural schoolgirls able to brave menstruation independently and confidently. Guenther and Falk (2022) have found that the theory aids in normalising menstrual discussions, bringing families and communities together, and creating an environment that encourages open communication and dialogue. Consequently, one should

realize ToC is an approach that gives birth to lasting transformation, and thus fostering respect and inclusiveness in MHM in rural learning ecologies. Additionally, the approach stands as an overarching model highlighting the assumptions and dangers involved in the change process like; the fact that the changes may not be acceptable to all because of other or cultural beliefs. It does not only serve as a platform for the implementation of menstrual health education process but also guides the carrying out of menstrual health education processes (Dogoli et al., 2023; Khamisa et al., 2022; Kumar et al., 2021). The theory not only includes indicators of progress and activities like public gathering and communication measures but as well as the process of continuous learning and reconstructing upon refereeing from participants or stakeholders (Serrat, 2017; Thornton et al., 2023). Therefore, in the real-life setting, ToC improves operational efficiency by facilitating strategy formulation and execution as well as the evaluation of intervention results in the field of menstrual health.

Moreover, ToC is a conceptual approach to increase the efficiency and effectiveness of the MHM (LaMarre & Chamberlain, 2022). Be that as it may, ToC means outlining the hindrances emerging from procedures related to menstrual hygiene like product access, education, cultural taboos and unsatisfactory sanitation facilities as observed in the research conducted by Thornton et al. (2023). The identified constraint is then fully utilized by improving distribution channels, reducing costs, and increasing availability through collaborative efforts with local organizations and government institutions. So, this calls for the supremacy of that factor to any other one to enable it steer all on the paradigm towards supporting MHM. This inclines to planning and implementing educational programmes aimed at sanitation facilities which are designed to meet menstrual hygiene requirements or it entails cultural barriers removal through formulation of advocacy campaign, all for the benefit of the suffering rural schoolgirls.

Additionally, when the first constraint is appropriately dealt with, Siddiqui and Mahomed (2023) notice the next bottleneck in the MHM process and come up with an iteration by tackling different obstacles such as inadequate infrastructure, limited access to clean water, and inadequate funding. This suggests that continual improvement is essential for successfully implementing the ToC. In accordance with Malik et al. (2023), Miiro et al. (2018), Mittal et al. (2023), one should take a periodic check on MHM process to be able to highlight new constraints and introduce new improvements. Organisations and communities can utilise a ToC analysis to identify the major inefficiencies causing the challenges and thus improve the menstrual hygiene products and services which will lead to better health outcomes and reduced stigma concerning menstruation.

Another essential part of MHM is the evaluation stage as mentioned by Pithouse-Morgan and Samaras (2024). It is important to evaluate the outcome and performance of MHM treatments and then make smart choices about which treatments to enlarge or fund by the ToC. If Phillips and Klein (2023) are right, then ToC is a framework that is arranged and visually mapped out to discern the "message" and the fundamental elements of a programme. Primarily, it defines how actions result in the desired changes and how this latter is the program intended objective. ToC determines the impact of MHM interventions on the target populations understood. Likewise, Rengarajan and Sivasubramaniyan (2020) also discuss inputs, actions, outputs, outcomes and long-term impacts of MHM programmes, which to pinpoint the underlying assumptions of the programme. This is the reason why MHM involves a wide range of issues like education; legislation; products; social norms; water and sanitation; and access to education. It is vital to bear in mind the role of each subdivision of MHM in bringing about a total solution that is comprehensive and sustainable. Likewise, it is suggested to take up every intervention within an appropriate linear pathway of change (Kumar et al., 2021; Madziyire et al., 2018; Mahfuz et al., 2021). The ToC helps revealing places for improvements, and any missing factors within the creation process. This approach provides ways for planning, allotment of the resources, and the construction of a sound framework for implementing and assessing the MHM interventions. Therefore,

the use of ToC is crucial for this study, as it ensures that all aspects of the MHC and other study activities are based on data and milestones are continuously adjusted to meet the evolving needs of vulnerable rural adolescent schoolgirls in South Africa's rural learning environments.

Materials and Methods

The study investigated the experiences of girls and effective methods for managing MHM through face-to-face discussions involving teachers, school administrators, parents, and vulnerable rural adolescent schoolgirls. A critical emancipatory research (CER) was used in the study in order to explore the menstruation hygiene experiences of rural adolescent schoolgirls in impoverished rural learning environments (Scheytt & Pflüger, 2024). The CER was used to empower the participants and drive social transformation. Consequently, the participants' experiences and primary concerns were the central focus (Pithouse-Morgan & Samaras, 2024). The primary objective of this approach was to challenge prevailing social injustices and class disparities while also acknowledging the participants as experts in their own lived experiences.

Sample and Participants

This qualitative study aimed to investigate the real-world problems faced by vulnerable rural adolescent schoolgirls in South Africa's rural ecologies. A convenience sampling method (Nassaji, 2020) was used in the study in order to select participants from a representative South African rural community. The participants included two members of the school management, three teachers, five local parents, and ten vulnerable rural adolescent schoolgirls. The selection of the vulnerable schoolgirls was based on their vulnerability status, rural location, and age (13–19 age group). The remaining participants were chosen based on their availability in the villages and their age range of 25 to 50. The study was conducted in a rural district of South Africa. The focus of the study's discussions, interviews, and other sessions was to raise awareness about the SDGs, understand MHM and WASH practices, and identify the challenges that hinder the operationalisation of the SDGs.

Ethical Consideration

The study adhered to appropriate ethical standards. This included obtaining informed consent from participants and their guardians, ensuring anonymity and maintaining confidentiality of collected data, as well as providing referral services when necessary. The University of Johannesburg Ethical Review Committee approved the research procedures under Ethical Clearance Number SEM 2-2023-157. Participants were briefed on the study's goals, methods of data collection, potential risks and benefits, as well as the security and confidentiality measures in place to protect their information. Written consent was obtained from all participants before proceeding with the research. Before conducting FGDs and OEIs, participants were given detailed information about the research objectives and were encouraged to ask any relevant questions. It was emphasised that participants had the right to withdraw their consent at any time and decline to answer any questions they were uncomfortable with. Confidentiality and anonymity were ensured during data collection, analysis, and reporting, as these are fundamental ethical procedures. Participants' identities were protected through the use of pseudonyms, and their participation and data were kept confidential, with only essential information included in the study (see Table 1 below).

Table 1

Participants Demographical Information

Pseudonym(s)	Group	Age	Number
PP (1-5)	Parent participants	Between 25 and 50	5
SP (1-10)	Vulnerable rural schoolgirl participant	Between 13 and 19	10
TP (1-5)	Teacher participant	Between 25 and 50	5

Source: Authors' own development.

Instruments and Procedures

Focus Group Discussions (FGDs) and Individual Open-ended Interviews (OEIs) were employed as data collection instruments to explore the challenges, experiences, and obstacles done by vulnerable schoolgirls in South Africa in the learning environments of rural communities. The interactive group discussions facilitated by OEIs enabled participants to share their lived experiences, resourcefulness and their skill set or identifying the gaps in MHM support (LaMarre & Chamberlain, 2022). These data collection methods were crucial in gaining firsthand insights into the daily struggles of individuals facing MHM challenges. Before, there was only speculation and educated guesses, but now we have direct information from those who are experiencing these issues. The evidence gathered helped the development field to identify audience-specific peculiarities and incapacities in hygiene issues regarding vulnerable rural adolescent schoolgirls in menstrual period management.

Data Analysis

The analysis of data by thematic method was used to analyse most of the FGDs and OEIs during the course of this study. This process of differentiating the data patterns (themes) was what had to be done before they could be given as a report (Nassaji, 2020). The study was organised in a way that it would give an account of MHM in the rural ecologies through the first-hand perspectives, personal experiences, and interpretations of the local inhabitants and those involved. A qualitative, interpretive approach of FGDs, OEIs and a CER design was used. Thus, capable of perceiving rural adolescent girls' MHM experience and views in the backdrop of South African rural learning ecologies (Kalpokaite & Radivojevic, 2019; LaMarre & Chamberlain, 2022). The thematic analysis of this novel is vital in not just hearing the voices, but also in enabling readers to understand and empathise with the intricacies of the structural, social, and environmental systems impacted by MHM.

Results

Theme 1: Menstrual Restrictions and Rural Female Students' Absence from School

According to participant findings, the parent-girl connections were hampered by cultural customs around menstruation and its management, which kept vulnerable rural adolescent schoolgirls from attending school. Most vulnerable rural adolescent schoolgirls' participants indicated that their parents frequently experienced awkwardness while talking to them about these matters, which results in a "lack of understanding and confidence" regarding proper menstrual management. The vulnerable rural adolescent schoolgirls' confidence was further undermined by the lack of positive interactions with their parents/guardians and the limited accessibility of hygienic items. Parents acknowledged that they frequently "... *disengage from discussions regarding menstruation with daughters*" [PP2], as another PP4 noted,

> "... *we as parents feel reluctant or uncomfortable discussing these things with our young schoolgirls*." "*We, later on, choose to have interactions with our female teachers and classmates..., of which the later can divulge to other classroom students about our present situation, making us feel out of place and absent ourselves from school*,"

vulnerable rural adolescent schoolgirls stated when parents withdraw from discussions [SP5]. Owing to this circumstance, TP5 was forced to state that "*inadequate communication with guardians... and lack of access to suitable menstrual hygiene products at home and at school compromise schoolgirls' confidence*." Vulnerable rural adolescent schoolgirls found it challenging to control their periods at home and school as a result "*One cannot come to school in such a circumstance*," said one female student. [SP3]

Importantly, some key factors like period and impoverishment also shaped vulnerable teen schoolgirls' attendance. The poverty was mentioned more often as a problem because of "... the insufficient number of sanitary napkins ...[PP1] and girls saw it as an important problem. One of the rural adolescent girls narrated: "I skip class to …achieve this financial objective" [SP2] while the other one was like: "If my monthly cycle occurs, I miss classes until their monthly days are over" [SP4]. Such interrelated problems hindered among girls to meet school; the lack of menstruation products caused them to stay away from school which was then exacerbated by poverty which also led to lack of the products. This was additionally proven by other teasing rural student schoolgirls in the verbatim;

> "*I never go to school if I wake up in the morning during my menstrual cycle because I experience horrible pains. I've stopped attending school when I'm menstruation*" [SP7].

> "*There are moments when I don't bother going because my mother doesn't have the money to buy sanitary pads*." [SP8].

The evidence presented made it abundantly evident that there were substantial barriers to menstrual hygiene product access, understanding, and confidence, as well as communication difficulties between parents and girls. Moreover, the research revealed that cultural stigma and limited product availability led to gaps in the knowledge and skills of rural schoolgirls about the comfortable and confident management of menstruation. To assist address these difficulties, it was further noted that there was a need for "..., *enhanced access to menstrual hygiene products*" [SP9] and "..., *better communication and education from parents, teachers, and peers*" [TP3]. According to the findings of this study, these problems must be resolved to protect vulnerable rural adolescent schoolgirls' comfort and well-being as they manage this significant health concern.

Theme 2: Perceptions of Comfort, Routines, and Surroundings Among Vulnerable Rural Adolescent Schoolgirls

Menstruating vulnerable rural adolescent schoolgirls' perceptions of comfort differed greatly depending on cultural, social, economic, and infrastructure issues in rural learning ecologies. Participants in this study emphasised how vulnerable rural adolescent schoolgirls' comfort during menstruation was impacted by limited access to sanitary facilities, clean water, adequate menstrual hygiene products, and privacy at school. There had also been reports that school attendance is impacted by the dread of having menstruation at school and the embarrassment that the male counterparts would cause. Many vulnerable rural adolescent schoolgirls had similar thoughts:

> "*When you mess up your uniform and you're not aware of it, the boys laugh at us. They call their friends to share with them that I have messed up my uniform, rather than notifying me*." [SP10]

> "*Fear of leaking or odour caused by menstrual hygiene concerns creates psychological discomfort in us schoolgirls, resulting in worry and tension about attending school during menstruation*." [SP6]

Furthermore, it was noted that limiting vulnerable rural adolescent schoolgirls from using washrooms during class periods made rural vulnerable rural adolescent schoolgirls feel uncomfortable and impairs their ability to focus. It was found that vulnerable rural adolescent schoolgirls in rural learning ecologies experienced embarrassment or humiliation when they ask for permission to use the restroom during their menstrual cycle, as they fear criticism or mockery from their peers or teachers. One vulnerable rural adolescent schoolgirls had to voice the following thoughts:

> "*We are restricted in our ability to use the toilets during break, lunch, and evening hours because if boys see you asking for permission during class, they will mock you because they will know that you are menstruating due to my frequency of toilet visits*." [SP1]

> "*This humiliation leads some schoolgirls to isolate themselves from friends and avoid participating fully in school activities*." [SP4]

This implied that vulnerable rural adolescent schoolgirls will have to wait till it's quiet to use the washroom. On the other hand, holding in urine or failing to change feminine hygiene products regularly can result in physical pain, urinary tract infections (UTIs) and other health problems that eventually affect focus and learning. Schoolgirls' emotions of shame and uncleanliness, as well as their acute knowledge of what boys and teachers think of menstruation schoolgirls impacted them at school. Inadequate menstrual hygiene products would have contributed to this suffering by causing emotions of shame, fear, and physical distress.

> "*I felt like, oh no… I didn't want to stand up in class. My friends told me to go for lunch* (with them). *I told them I didn't want to because I was having my periods …. I thought, like, I didn't want anyone to come near me. I thought, like, they will get to know. Maybe I'm smelling* …." [SP8]

> "*Schoolgirls feel embarrassed and "dirty" after menstruation. They are concerned about what males and instructors may think*." [SP10]

In rural learning ecologies, the adequacy of menstrual hygiene products and sanitation facilities significantly impacted the well-being of schoolgirls during menstruation. In order to effectively tackle this issue, it is imperative to implement a comprehensive strategy encompassing enhanced accessibility to menstrual hygiene products and facilities, deconstructing menstrual taboos, and fostering education and awareness regarding MHM.

Theme 3: Supporting Rural Schoolgirls' Education Through Menstrual Health Resources

The key findings indicate that menstruation was universally recognized as a common health issue, highlighting the importance of schools in providing necessary facilities, supplies, information, and support to help schoolgirls manage their menstrual health. A comprehensive approach was deemed essential in overcoming barriers to education for vulnerable rural adolescent schoolgirls. The results of the qualitative data analysis suggested that to facilitate schoolgirls' personal hygiene and safe disposal of old pads, school facilities and the availability of MHM supplies should be improved. Among the suggestions made by participants most frequently was that:

> "*Schoolgirls should get comprehensive support from parents, educators, and school administration if they are informed about the first menstrual cycle, how to use*

menstrual products, and how to maintain good hygiene at home and school. It is crucial to communicate openly." [TP1]

"*Schools ought to step up and offer females supplies to manufacture during their period. Since other schools don't have sick bays, they should at the very least purchase some medicines for [us]*." [TP5]

"*To identify areas for development and make sure that interventions are sensitive to the needs of the community, the school should gather input from students, staff, and parents*." [TP3]

Another common mention was the need for school facility improvements. Participants emphasised the importance of having a regular supply of soap and water at schools in particular.

"*Invest in renovating rural schools' restrooms to make sure they are hygienic, private, and equipped with running water, trash cans, soap, and sanitary facilities*." [TP2]

Additionally, vulnerable rural adolescent schoolgirls repeatedly suggested that schools took up their concerns regarding privacy violations, particularly while they were menstruating.

"*Given that [male] students can come and pull the door when you are still cleaning up yourself, provide restrooms which can be locked and away from the reach of male students*." [SP6]

"*Comprehensive programmes for teaching schoolgirls about menstrual cleanliness, reproductive health, and body literacy must be put into place*." [SP4]

"*There is need to create a welcoming and inclusive environment where menstruation is freely discussed and de-stigmatized, and these programmes should also include boys*." [PP3]

Community involvement was identified as a key factor in supporting vulnerable rural adolescent schoolgirls in managing their menstrual health. Recommendations included providing training for school staff, teachers, and healthcare professionals on menstrual health management, encouraging the production of menstrual hygiene products for use at home and school, ensuring proper facilities in classrooms, providing accurate information and support to menstruating females, and recognising signs of menstrual health issues that may require medical attention.

"*There is need for community involvement in promoting workshops, distributing resources, and creating a safe space for creating menstruation products from locally sourced materials in order to improve schoolgirls' menstrual health*." [PP3]

Through the implementation of these measures, stakeholders may collaborate to enhance menstrual health resources and promote the education of vulnerable rural adolescent schoolgirls, enabling them to fulfil their academic potential and stay in school. Other suggestions included "*software*" problems, like the need to identify senior female teachers who would serve as point people for the students in case they needed pads or counselling, or the need to sensitise male teachers and male students to the difficulties vulnerable rural adolescent schoolgirls face during their periods in the hopes that they will treat them less harshly. It is essential to offer specified private areas with access to water to solve the problem of females not feeling enough privacy. The environment may be made more supportive and stigma-free by educating and sensitising both male and female educators. Finding female mentor teachers may give schoolgirls confidence and advocate on their behalf. It is ensured that vulnerable rural adolescent schoolgirls' viewpoints and experiences are taken into consideration while working directly with them to understand their issues and work towards solutions.

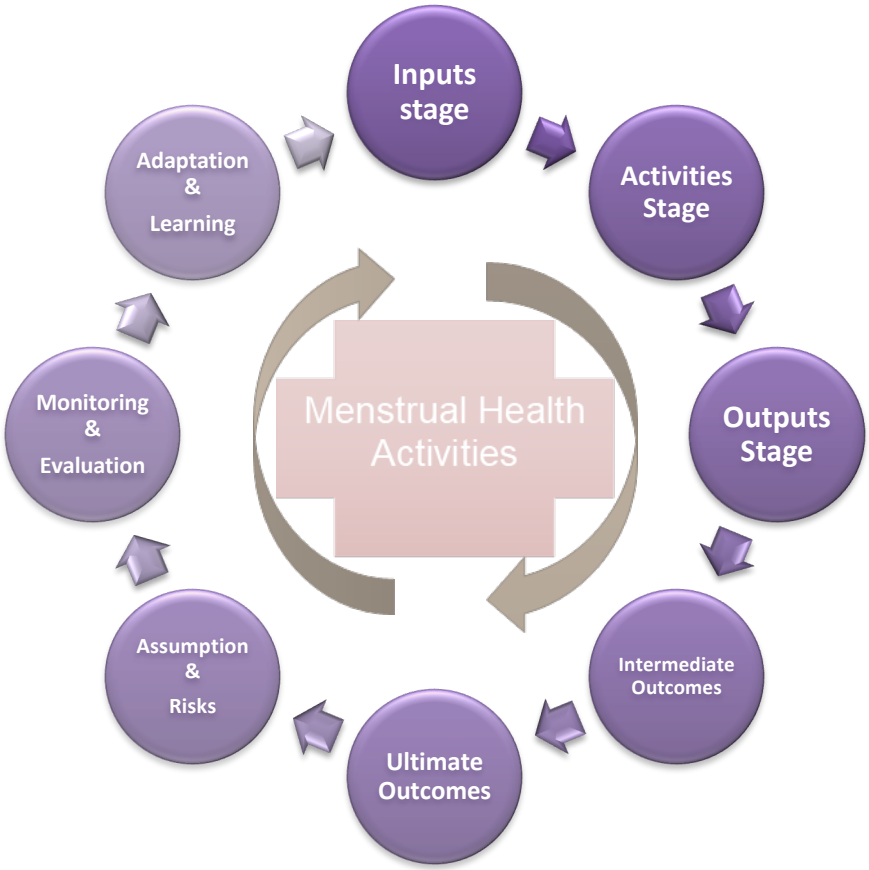
Theme 4: Translating Theory into Practical Menstrual Health Cycle (MHC) Activities

A holistic approach that takes into account the unique requirements and difficulties of the target group is needed to translate theoretical information about menstrual health into practical activities. The idea can be used to manage issues related to menstrual health. It entails community workshops, curriculum integration, partnerships for reasonably priced menstruation products, extensive education programmes, and distribution initiatives. "*To improve their awareness of menstruation, cultural implications, and communication tactics, we need to offer training sessions for parents, teachers, and community leaders*," stated PP4. It was mentioned that access to MHM products, improved communication, and more understanding would be the main results of such sessions. In addition, TP5 identified "... *empowering of rural learning ecologies with sustainable skill on how to cope with MHM challenges they experience*..." and "... *stigma reduction and community participation*..." as the project's "*ultimate achievements*" in the battle against MHM in rural schools. With all of these elements in place, PP1 argued that developing the requisite skills to effectively manage the present tasks is essential, "*frequent reviews, comprehensive monitoring systems, and continuous learning processes*" are necessary. It was therefore claimed that the ToC's iterative design permits ongoing improvement based on practical experiences and stakeholder input.

Consequently, a very feasible approach to cyclic menstrual health activities was created and endorsed by the participants, necessitating ongoing assessment of the method. This method used a practical activity plan in a rural ecology by following the four phases of participatory action research. The first eight major process activities, the "*input stage*," "*activity stage*," "*output stage*," "*intermediate outcomes*," "*ultimate outcomes*," "*assumptions and risks*," "*monitoring and evaluation*," and "*adaptations and learning*", were prioritised in the ToC. Plans for activities were created at school level in conjunction with various partners. Figure 1 below illustrates the planning process for converting a theory into useful Menstrual Health Cycle (MHC).

Figure 1

Plan-Do-Check-Act Menstrual Health Cycle



Source: Authors' own development.

Participants collaborated on addressing menstrual health and hygiene through "*education programmes*", "*workshops*", "*training*", and "*access initiatives*" in the **input stage**. These educational programmes should identify knowledge gaps, involve community leaders and women's groups, and use diverse approaches. Workshops should include perspective-taking exercises, communication toolkits, and continued education. During **activity stage**, participants proposed working with "*curriculum creators*", "*performing pilot testing*", and "*providing education training*" as ways to improve the implementation of the ToC. They argued community exploration, workshops, and distribution programmes assist in meeting goals and offer more information on how to carry them out stage one activities

The **outputs stage** would have planned MHM activity, assessing "*knowledge improvement*", "*communication improvement*", and "*monitor access*". It was argued that participatory assessment methods, follow-up assessments, and factual knowledge and attitude shifts would be more effective in assessing the culturally appropriate techniques to be utilised for easy communication techniques. The **intermediate outcomes** would be enhanced by "*partnering with local artists*", musicians, and influencers to amplify messages, "crowd sourcing *stories and perspectives*", and "*evaluating attitude shifts through surveys*". These self-confidence-building practical activities can be conducted using mindfulness practices community engagement events, setting up listening circles for community members to share experiences, and celebrate milestones related to menstrual health initiatives to achieve desired behavioral and attitudinal changes in the current community.

As intermediate and final objectives, participants suggest empowerment initiatives, normalised discourse efforts, and sustainable planning. Participants in rural learning ecologies lead seminars, connect women, and offer vocational training as part of these programmes. The **ultimate goals** are long-term, revolutionary changes rather than merely Band-Aid solutions. That being said, risks must be

evaluated for every programme. Participants in the discussion maintained that in order to evaluate and address **assumptions and risks**, "*an updated assumptions and risks register*" and "*community identified assessors*" should be identified. These individuals should then conduct a SWOT analysis to uncover hidden assumptions and risks, as well as develop risk mitigation plans with contingencies for high priority risks. As a result, there would be open lines of communication for interested parties to express worries about risks and assumptions.

The participants contended that a strategy for **monitoring and evaluation** must be created, taking into account intermediate milestones, programme objectives, and both "*quantitative*" and "*qualitative*" indicators. Incorporate data collection procedures, tools, and responsible parties into the plan. This may be accomplished by encouraging community people to get involved, utilising methods like contribution analysis, and developing local capacity for assessment through training sessions. In order to create ongoing **adaptable and learning** processes, the chosen monitoring and assessment teams should also organise project meetings with fixed agenda items and do frequent after-action evaluations. Impact stories are shared via case studies, newsletters, and community events. Other strategies for promoting innovation include cultivating an environment of open communication, soliciting feedback, and incorporating community participation. Such activities might be incorporated into the programme to keep it flexible and responsive.

Discussion

Literature examining menstrual restrictions, absenteeism, and academic underperformance among schoolgirls aligns with existing research highlighting the impact of inadequate menstrual knowledge, limited access to sanitary materials, and societal taboos on menstruation as significant factors contributing to school non-attendance during menstruation periods (Miiro et al., 2018; Rossouw & Ross, 2021). In this regard, parent participants stated in a research that they had difficulties related to talk about period with their daughters. According to another research (Chandra-Mouli & Patel, 2017), this communication is often not sufficient. It is often the situation that due to the unavailability of menstrual information coupled with the inadequacy of acquaintance and the absence of confidence regarding menarche, rural vulnerable schoolgirls have no comprehension and no confidence in handling their first bloody period (Beksinska et al., 2021; Beksinska et al., 2023; Crankshaw et al., 2020; Siddiqui & Mahomed, 2023). The revelations turn the focus on the problem regarding parents' inadequacy in counseling on this menstruation phenomenon, leaving the girl counterparts in the schools out of the essential information, which consequently leads to shyness, shame, and absenteeism from schools. The report stated that in addition to the absence of menstruation guidance at home and in schools, the main reason to the lack of female school attendance was pronounced as the other reason (Anbesu & Asgedom, 2023). Integrating health information and resources into WASH programs can effectively boost attendance rates of low and vulnerable girls in secondary schools. Education, especially in schools, and awareness programs targeting the subject of menstruation should be improved to address a certain degree of ignorance about menstrual activities (Khamisa et al., 2022; Macleod et al., 2020; Rossouw & Ross, 2021), thus educating boys/teachers as well regarding the specific experiences of schoolgirls (Fennie et al., 2023). The programme education information is intended to benefit both the female school students and their teachers and they can train teachers as "change champions". According to the study effectuated for 15 months in 2 rural schools in Uganda showed an elevation of schoolgirls' attendance of 70% during their menstruation (Nassozi et al., 2024). Certain young girls who took part in the survey stated that they felt "more confident" now attending school since the beginning of MHM lessons in school. Consequently, a communalistic method is recommended which combines support services from parents, teachers, and school executive; supplying materials for menstrual management; and collecting in pupils, staff, and parents' opinions. Directly-targeted programs can greatly assist vulnerable schoolgirls in managing their menstrual needs and participating actively in school, ultimately

unlocking their full potential. By implementing measures to enhance educational opportunities for rural adolescent schoolgirls, they can better utilise these resources to stay in school and reach their academic aspirations.

Likewise, there is ample evidence that poverty affects the capacity to gain access to adequate menstrual supplies (Hennegan et al., 2021; Rossouw & Ross, 2021; Sommer et al., 2021). Earlier researches emphasise that inadequate access to sanitary products is one out of many leading causes behind schoolgirls' absence from school (Miiro et al., 2018; Sommer et al., 2017). This shows that the economic problems expressed by participants are what explains the fact that families with low incomes cannot be able to access sanitary pads which are commercial. Based on Rossouw and Ross (2021), a few noticeable studies in several nations saw a large number of adolescent schoolgirls missing schools as a result of the menstrual problem. Study outcomes revealed that as many as 95% of these girls in rural areas experience such a phenomenon. To a certain degree, it is imperative that we acknowledge and address these issues to ensure that every adolescent girl has access to education. The research explored the role of socio-economic factors in increasing these schoolgirls' vulnerability to various health problems and, as a consequence, their low academic achievements. Hence most of these students missed school which caused them to struggle in their transition to secondary schooling. In some cases, the result might be a school dropout, sometimes this drop out will be only temporary. These results consequently exhibited another strong argument which the voices of rural schoolgirls revealed that the poverty was the key cause of the lacking WASH facilities in rural schools. Closing these social support loopholes evident through examined literature on MHM, is a necessity.

The study also focused on the experiences of vulnerable rural adolescent schoolgirls during menstruation, highlighting the challenges they faced due to a lack of access to proper facilities, clean water, menstrual hygiene products, and privacy at school. The participants in this study reiterated the subject of harassment, an issue that has been addressed in previous studies (Kansiime et al., 2020; Kumar et al., 2021; Madziyire et al., 2018), alongside feelings of soiling and uncleanliness associated with sanitation challenges. Social stigma of menstruation generates atmosphere where menstruating girl students express feeling of shame and isolation. As this is a violation of WASH guidelines and has been pointed out to be a major hindrance in previous studies (Nassozi et al., 2024; UNESCO, 2023), it did not contribute to laying the groundwork for the enforcement of these guidelines. On the contrary with the poor choice of changing menstrual supplies frequently, schoolgirls become so vulnerable to the leakage, stains and smells that feed shame into them. In a similar way, leading quantitative researchers Chowdhury and Chowdhury (2023) in India and Kansiime et al. (2020) in Uganda found schoolgirls complaining about distress and shame due to non-availability of clean and private toilets that were equipped with water for sanitary changing and cleaning while at school. Earlier studies have also firmly pointed out to schoolgirls' permanent absence from school as one of the most pressing and fundamental issues on schoolgirl-leaning in the vulnerable communities (Miiro et al., 2018; Sommer et al., 2021). It is tragic to see that the challenges faced by the participants reflect the hardships of a community that lacks proper cleanliness, privacy, and access to clean water or sanitary products (Hennegan et al., 2020; Krusz et al., 2023; Kumar et al., 2021). The reason, therefore, the walking to the bathroom school is embarrassed and fearing the mockery they will get from the peers and teachers. It will lead to a mental stress and shame, unclean perceptions of being impure by the society that makes the adolescent girl withdrawn from the public ‘space’. Showing up with the intention of solving the issue is the improvement of the availability of menstrual materials and sanitation facilities, removal of the mental shackles and sensitization about menstrual hygiene through a holistic strategy to build a favourable setting for the rural schoolgirls.

The prejudice and culture of silence that surround the subject of menstruation, as reported in this study, helped to extend myths and the taboo that impacted schoolgirls to greatly increase their feelings

of shame, fear, anxiety, and isolation during their periods. Singh et al. (2022) indicated that stigma is cross-cultural and, through aptitude, girls on periods are put under severe restrictions. As researches conducted by Fennie et al. (2022) and Fennie et al. (2023) allow an understand that girl's living in rural communities coming from poorer background and get less or no education at all rarely manage to take care of their menstruation periods with any self-confidence or comfort. The study determines that social stratifications of the gender contribute to intensification of women schoolgirls health issues that also adversely affect academic progress and consequently encourage absenteeism of the schools. In other words, this practice predisposes for schoolgirls which the ultimate effect are school dropouts (Siddiqui & Mahomed, 2023). This study confirmed the findings of previous research by highlighting the challenges faced by schoolgirls in rural communities during their menstrual cycles. These challenges include limited access to knowledge, resources, and societal norms that restrict their activities. So, for that reason to be solved the necessity of creating the atmosphere of open communication and disproportion of the stigma becomes the vital thing. Experts highlight the need to apply a complex set of measures to obtain a balanced solution in this regard.

This study drew attention to the importance of menstruation as a common health topic and of providing schoolgirls with the basic needs, supplies, and support they require in this area. The study is in line with the previous studies and the global recommendations (Dogoli et al., 2023; Nassozi et al., 2024; Wilbur et al., 2019) which promote the accessibility of facilities and the support systems of WASH facilities, menstrual education, and resources. The study highlighted the importance of ensuring that females have the access to menstrual hygiene supplies, WASH, comprehensive menstrual education and follow-up support that are in accord with guidelines and advocacy frameworks on MHM. Numerous studies have indicated that the multicomponent model, comprised of materials usage, WASH (Water, Sanitation, and Hygiene), education, and psychosocial support, is essential for achieving success (Hennegan et al., 2021; Krusz et al., 2019; Sommer et al., 2017). As a result of the findings from this study, there was a need for a multi-stakeholder approach, with teachers, parents and school administrators providing comprehensive support (Anbesu & Asgedom, 2023; Chikulo, 2015; Crankshaw et al., 2020; Hennegan et al., 2020; Khamisa et al., 2022). Henceforth, the school is the key in the integration of the comprehensive MHM actions. The school supply system should be fixed as well to afford the students daily soap, water and refurbished stalls for easy access to privacy and sanitation. Moreover, the schools should have to devise complete programs which would teach the young girls about hygienic menstruation, reproductive health care, and body literacy. The 2014 UNICEF guidelines, for example, call for priority in availing sanitary materials that are hygienic, private sanitation facilities with water on demand, and menstrual health education tailored for adolescents. In a similar way, the MHM Virtual Conference of Columbia University and its partners of 2017 identified these as the most important issues (UNESCO, 2023). Ultimately, we need to build an atmosphere that is inviting and inclusive. On top of that, boys and the communities should be involved in addressing stigma as was determined by the general agreement that MHM programmes must be conducted with consideration of the specific culture of the country and the key contributors of the menstrual stigma and discrimination (Malik et al., 2023; Nassozi et al., 2024). It may be mentioned that a rich pool of studies finds a lot of support in the implementation of tactics like the involvement of community leaders and parents to alter conventional notions. Hence, the implemented model presents a holistic, multi-faceted approach which is supported by the current evidence-based thoughts recommending the combination of practical measure tools with the non-material components such as education, counselling, and stigma reduction (Patel et al., 2022). These steps can be implemented in order to increase the resources on menstrual health and provide for education for these schoolgirls in rural communities who are vulnerable and this would ensure that they can achieve their academic dreams and remain physically and mentally strong. The study supports the recommendation of an integrated method as suggested by MHM blueprint and guidelines.

The study has identified a number of operations the Menstrual Health Cycle (MHC) aimed to solve the menstrual problems. Besides the fact that different recreational activities were characterised by their unique features, it was essential to consider the best time and place for them (Abayneh et al., 2022). To begin with, study points out the importance of obtaining a complete picture about the problem. The MHC, being a comprehensive strategy, tends to transform theoretical menstrual health knowledge into practical actions by applying a ToC methodology (Seneviwickrama, 2020). The study could incorporate these functions such as education, product provision, monitoring, and adaptability into its ToC model. It brings forth the significance of locally oriented menstrual health projects guided by professionals. This approach aligns with the need for a participatory and iterative program design, as well as recognizing the importance of continuous improvement (Fennie et al., 2023; Vaughn et al., 2020). These elements contained in the ToC (education, product provision, monitoring and evaluation, and adaptability) are the important components that the experts recommend be comprised of successful menstrual health programmes (Barbrook-Johnson & Penn, 2022; Guenther & Falk, 2022; Hendrickson & Henrysson, 2023). The approach offers comprehensive menstrual health education and makes it a habit to mention the issue of accessing affordable menstrual products as a necessary intervention to the problem of menstrual knowledge stigma and to meet basic material needs of schoolgirls during menstruation (Hennegan et al., 2021; Miiro et al., 2018).

Moreover, these programmes should have monitoring systems which comprising both quantitative and qualitative indicators. The research conducted by Chowdhury and Chowdhury (2023) provides a framework for monitoring and evaluating educational programs in schools. By engaging in regular follow-up assessments, educators can track the effectiveness of their programs and make data-driven decisions to improve student outcomes. An aide to the monitoring, evaluation, identification of gaps and improvement the implementation can be provided by these systems (Krusz et al., 2019; Mahfuz et al., 2021; Vaughn et al., 2020). The recommendation is thus to make sure this happens by creating a local evaluation capacity at community level. By incorporating elements such as design, delivering, implementing, and learning, this process is known as a cycle and often involves repeating many times. Further, conforming to expert advice on making sure interventions are specific to clients' needs, local context, and their problems in critical in making any programme a success (Malik et al., 2023; Rossouw, & Ross 2021; Siddiqui & Mahomed 2023; Wilbur et al., 2019). This is an ideal model of the established best practices in designing sustainable menstrual health programmes. It has a favourable experience of the community involvement, piloting, skills building, and data monitoring. This requires addressing the challenges from various perspectives, such as holding community workshops, integrating curriculum, forming partnership networks for access to low cost sanitary products, conducting extensive education programmes and distribution efforts. Beside this, talking sessions for parents, teachers as well as leaders of the community who are responsible for the improvement of culture may be conducted so that the entire community becomes aware of menstruation and its cultural implications. Insufficient and irrelevant with the reality of the topic evidence imply that the results only serve as a theory and should not provide a genuine evidence based framework for the transformation of menstrual health policies into useful community programmes (Macleod et al., 2020; Seneviwickrama, 2020; Singh et al, 2022). As a result, not only will the communities be equipped with rural diversified skills through training, but there will also be a decrease in stigma towards individuals living with disabilities. Consequently, there should be constant change in the midst of the implementation that would result referring to the practical experiences and the feedback from the stakeholders. This project is meant to minimise the information gap, boost communication, and lessen the level of stigmatisation in the rural schools. Risks should be employed and methods for monitoring and evaluation should be developed until the results are brought into fruition.

Conclusions and Implications

Therefore, based on the evidence presented, it can be concluded that a correlation exists between crimping school attendance and menstrual challenges in South African rural areas. This suggests that there is a lack of provision for basic needs for schoolgirls in these regions. This study provided an in-depth qualitative examination of the broad ranges of education, well-being and dignity of health of the most disadvantaged rural adolescent schoolgirl due to the obstacles and consequences of lacking menstrual health and hygiene. The findings of this study are consistent with existing literature that emphasizes the significance of menstrual health in the context of gender, education, and public health. The perspectives of adolescent female students and their parents, as revealed in the research, align with this body of knowledge. This reaffirms the notion that addressing menstrual health is crucial for promoting gender equality, fostering educational attainment, and safeguarding public health. This study stated that cultural shaming caused by absence of knowledge, poverty, few sanitary products come together to make this situation even worst to a girl who is experiencing period for the first time. Additionally, the study delved into the discomfort, disrespect, and unhygienic conditions that schoolgirls face due to inadequately maintained bathrooms, as well as the stigma associated with menstruation. They were common challenges amongst the rural people in these contexts. Besides guidance and a holistic solution that actually involved the provision of menstrual hygiene products, WASH resources, education, psychological support as well as challenging of the negative and harmful social and cultural norms, there were other recommendations that followed that aim at the same direction. Also, the ToC model would be the most effective instruction for participatory menstrual health project for context-specific but would maintain adaptive effect through monitoring and modification. Developing community-driven initiatives that address both physical and mental aspects of menstrual healthcare is vital for advancing women's health and reducing marginalization. A more supportive and inclusive environment can build up a benevolent and friendly atmosphere all around women by providing their necessary menstrual requisites and amenities, sharing knowledge, and raising their status. It demonstrated that the root cause of this issue centered on rural schoolgirls should not only be understood by the researchers and social workers but by the community and schoolgirls themselves who have lived the experience thus enhancing the evidence based on their ability to manage their periods safely, comfortably, and with dignity. The study confirmed that the different forms of barriers and the stereotyping of menstruation became the first planks that block those girls within rural communities from managing their periods. The drawback of this shortcoming stems from financial constraints, building infrastructure issue, scientific knowledge incompatibility and the norms in the society. Paying an immediate attention to these phenomenon is also on gender-responsive policies and programmes but others should be placed at equal priority. The conclusion is that the schools, communities, governments and non-profit organisations should be the actors and the responsibility of these resources is to zero in on these problems and implement the actions that will bring the rural environment back to normalcy.

Suggestions for Future Research

The recommendations that emerged emphasise the need for global guidance and call for a comprehensive approach that includes the provision of menstrual hygiene materials, WASH resources, education, psychosocial support, and efforts to challenge harmful sociocultural norms. Moreover, the ToC approach demonstrated how lean avenues of local quick menstrual health programs can be successfully achieved using participatory designing and the continuing monitoring and adapting them amidst changes. As is integrating all the material and axiological sides of girls' menstrual health is a main tool to girls' emancipation as well as stigmatizing body elimination. The stakeholders are the agents of change for women who cannot afford to have a welcoming and more equalising environment through sanitary supplies, facilities, education, and empowerment for female students. If the focus is shifted from

prioritizing the knowledge on how a rural adolescent schoolgirl can manage her menstrual cycle with dignity and comfort over her voice and experiences, then there can be a significant enhancement in the effectiveness and thoroughness of that knowledge. The research was conducted and led to the realisation that the hitherto different ways of oppression girls undergo especially during this period of menstruation together with obsessive behaviors of gender in the rural societies present them difficulties to manage their cycle well. By this the economic challenges, the infrastructure and knowledge deficits as well as the socio-cultural norms are developed. Therefore, they should be implemented as priority measures among the gender-oriented initiatives in the design of female problem-addressing policies and programs in the rural communities. Therefore, the school authorities, government organisations, communities and private not for profit institutions must come together and implement suitable practical solutions for improving the abuse situation in rural populations.

Limitations of the Study

The study on menstrual hygiene management in rural South Africa has the main limitation that include the small sample size used. The small sample size may restrict the transferability of the outcome to the larger population of vulnerable rural schoolgirls in South Africa. Furthermore, the research might be impacted by the location of this rural geographic area, which may not be a representative sample of all rural places. It should be highlighted that this study was based on self-reported data, which may be susceptible to social desirability bias.

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References

Abayneh, S., Lempp, H. & Kohrt, B. A. (2022). Using participatory action research to pilot a model of service user and caregiver involvement in mental health system strengthening in Ethiopian primary healthcare: A case study. *International Journal of Mental Health Systems, 16*(1), Article 33. https://doi.org/10.1186/s13033-022-00545-8

Anbesu, E. W., & Asgedom, D. K. (2023). Menstrual hygiene practice and associated factors among adolescent girls in sub-Saharan Africa: A systematic review and meta-analysis. *BMC Public Health, 23,* 1–14. https://doi.org/10.1186/s12889-022-14942-8

Barbrook-Johnson, P., & Penn, A. S. (2022). *Theory of change diagrams: In systems mapping*. Cham: Palgrave Macmillan. https://doi.org/10.1007/978-3-031-01919-7_3

Beksinska, M., Milford, C., Devaki, R., Zulu, B., Mona, A., & Cavanagh, T. (2023). *Menstrual hygiene management in schools in South Africa: Knowledge, experience and impact on school attendance.* Research Square. http://dx.doi.org/10.21203/rs.3.rs-3574433/v1

Beksinska, M., Nkosi, P., Zulu, B., & Smit, J. (2021). Acceptability of the menstrual cup among students in further education institutions in KwaZulu-Natal, South Africa. *The European Journal of Contraception & Reproductive Health Care, 26(1)*, 11–16. https://doi.org/10.1080/13625187.2020.1815005

Boulil, D., & Hanney, R. (2022). Change must come: Mixing methods, evidencing effects, measuring impact. *Media Practice and Education, 23*(2), 126–137, https://doi.org/10.1080/25741136.2022.2056790

Breuer, E., De Silva, M., & Lund, C. (2018). Theory of change for complex mental health interventions: 10 lessons from the programme for improving mental healthcare. *Global Mental Health*, *5*, Article e24. https://doi.org/10.1017/gmh.2018.13

Burbaugh, B., Seibel, M., & Archibald, T. (2017). Using a participatory approach to investigate a leadership program's theory of change. *Journal of Leadership Education, 16*(1), 192–204. http://dx.doi.org/10.12806/V16/I1/A3

Chandra-Mouli, V., & Patel, S. V. (2017). Mapping the knowledge and understanding of menarche, menstrual hygiene and menstrual health among adolescent girls in low- and middle-income countries. *Reproductive Health*, *14*(1), Article 30. https://doi.org/10.1186/s12978-017-0293-6

Chikulo, B. C. (2015). An exploratory study into menstrual hygiene management amongst rural high school for girls in the North West province, South Africa. *African Population Studies, 29*(2), 1971–1987. http://dx.doi.org/10.11564/29-2-777

Chowdhury, D., & Chowdhury, I. R. (2023). Knowledge and practices of menstrual hygiene of the adolescent girls of slums in Siliguri City, India: A cross-sectional study. *Global Social Welfare, 10*(2), 167–79. https://doi.org/10.1007/s40609-023-00281-y

Crankshaw, T. L., Strauss, M., & Gumede, B. (2020). Menstrual health management and schooling experience amongst female learners in Gauteng, South Africa: A mixed method study. *Reproductive Health Journal, 17*(1), Article 48. https://doi.org/10.1186/s12978-020-0896-1

Department of Women, Republic of South Africa. (2017). *Sanitary dignity policy framework*. https://static.pmg.org.za/180612Sanitary_Dignity_Policy.pdf

Dogoli, M. A., Nunbogu, A. M., & Elliott, S. J. (2023). Attention to the needs of women and girls in WASH: An analysis of WASH policies in selected sub-Saharan African countries. *Global Public Health, 18*(1), Article 2256831. https://doi.org/10.1080/17441692.2023.2256831

Fennie, T., Moletsane, M., & Padmanabhanunni, A. (2022). Adolescent girls' perceptions and cultural beliefs about menstruation and menstrual practices: A scoping review. *African Journal of Reproductive Health, 26*(2), 88–105. https://doi.org/10.29063/ajrh2022/v26i2.9

Fennie, T., Moletsane, M., & Padmanabhanunni, A. (2023). Teachers' reflections on menstrual management among urban and rural schoolgirls in South Africa. *African Journal of Reproductive Health, 27*(2), 34–44. https://doi.org/10.29063/ajrh2023/v27i2.3

Guenther, J., & Falk, I. (2022). "Change" in micro/macro contexts. In R. Baikady, S. Sajid, V. Nadesan, J. Przeperski, M. R. Islam, & J. Gao (Eds.), *The Palgrave handbook of global social change* (pp.1–18). Cham: Palgrave Macmillan. https://doi.org/10.1007/978-3-030-87624-1_74-1

Hendrickson, C. Y., & Henrysson, M. (2023). Theories of change and results-based management for the sustainable development agenda. In L. Simeone, D. Drabble, N. Morelli, & A. de Götzen (Eds.), *Strategic thinking, design and the theory of change* (pp. 56–75). Cheltenham, UK: Edward Elgar Publishing. https://doi.org/10.4337/9781803927718.00010

Hennegan, J., Nansubuga, A., Akullo, A., Smith, C., & Schwab, K. J. (2020). The Menstrual Practices Questionnaire (MPQ): Development, elaboration, and implications for future research. *Global Health Action, 13*(1), Article 1829402. https://doi.org/10.1080/16549716.2020.1829402

Hennegan, J., OlaOlorun, F. M., Oumarou, S., Alzouma, S., Guiella, G., Omoluabi, E., & Schwab, K. J. (2021). School and work absenteeism due to menstruation in three West African countries: Findings from PMA2020 surveys. *Sexual and Reproductive Health Matters, 29*(1), 409–424. https://doi.org/10.1080/26410397.2021.1915940

Kalpokaite, N., & Radivojevic, I. (2019). Demystifying qualitative data analysis for novice qualitative researchers. *The Qualitative Report, 24*(13), 44–57. https://doi.org/10.46743/2160-3715/2019.4120

Kansiime, C., Hytti, L., Nalugya, R., Nakuya, K., Namirembe, P., Nakalema, S. … Weiss, H. A. (2020). Menstrual health intervention and school attendance in Uganda (MENISCUS-2): A pilot intervention study. *BMJ Open*, *10*(2), Article e031182. https://doi.org/10.1136/bmjopen-2019-031182

Khamisa, N., Nanji, N., Tshuma, N., & Kagura, J. (2022). The relationship between menstrual hygiene management, practices, and school absenteeism among adolescent girls in Johannesburg, South Africa. *South African Journal of Child Health, 16*(1), 7–12. http://www.sajch.org.za/index.php/SAJCH/article/view/1659

Krusz, E., Hall, N., Dani J., Barrington, D. J., Creamer, S., Anders, W. … Hennegan, J. (2019). Menstrual health and hygiene among Indigenous Australian girls and women: Barriers and opportunities. *BMC Women's Health, 19*(146), 2–7. https://doi.org/10.1186/s12905-019-0846-7

Kumar, D., Vaiyam, P., & Thakur, R. S. (2021). Management of menstrual hygiene, practices and perceptions among vulnerable Bharia women in Madhya Pradesh: A pilot survey. *Journal of Community Health Management, 8*(4), 169–175. https://doi.org/10.18231/j.jchm.2021.038

LaMarre, A., & Chamberlain, K. (2022). Innovating qualitative research methods: Proposals and possibilities. *Methods in Psychology, 6*, Article 100083. https://doi.org/10.1016/j.metip.2021.100083

Macleod, C. I., Du Toit, R., Paphitis, S., & Kelland, L. (2020). Social and structural barriers related to menstruation across diverse schools in the Eastern Cape. *South Africa Journal of Education, 40*(3), Article 1663. https://doi.org/10.15700/saje.v40n3a1663

Madziyire, M, G., Magure, T. M., & Madziwa, C. F. (2018). Menstrual cups as a menstrual management method for low socioeconomic status women and girls in Zimbabwe: A pilot study. *Women's Reproductive Health, 5*(1), 59–65. https://doi.org/10.1080/23293691.2018.1429371

Mahfuz, M. T, Sultana, F., Hunter, E. C., Fahan, F., Akand, F., Khan, S. … Winch, P. (2021). Teachers' perspective on implementation of menstrual hygiene management and puberty education in a pilot study in Bangladeshi schools, *Global Health Action, 14*(1), Article 1955492. https://doi.org/10.1080/16549716.2021.1955492

Malik, M., Hashmi, A., Hussain, A., Khan, W., Jahangir, N., Malik, A., & Ansari, N. (2023). Experiences, awareness, perceptions and attitudes of women and girls towards menstrual hygiene management and safe menstrual products in Pakistan. *Frontiers in Public Health, 11,* Article 1242169. https://doi.org/10.3389/fpubh.2023.1242169

Miiro, G., Rutakumwa, R., Nakiyingi-Miiro, J., Nakuya, K., Musoke, S., Namakula, J. … Weiss, H. A. (2018). Menstrual health and school absenteeism among adolescent girls in Uganda (MENISCUS): A feasibility study. *BMC Women's Health, 18*, Article 4. https://doi.org/10.1186/s12905-017-0502-z

Mittal, S., Priya, S., & Kumar, R. (2023). Menstrual hygiene practices in Indian tribal females: A systematic review and meta-analysis. *Cureus, 15*(7), Article e42216. https://doi.org/10.7759/cureus.42216

Nassaji, H. (2020). Good qualitative research. *Language Teaching Research, 24*(4), 427–431. https://doi.org/10.1177/1362168820941288

Nassozi, P., Muweesi, C., & Sserwadda, L. (2024). Integration of water and sanitation facilities programs for menstruation management: A focus on university planning and budgeting processes at Kyambogo University, Uganda. *Sexuality, Gender & Policy, 7*(1), 65–84. https://doi.org/10.1002/sgp2.12086

Patel, K., Panda, N., Sahoo, K. C., Saxena, S., Chouhan, N. S., Singh, P. … Panda, B. (2022). A systematic review of menstrual hygiene management (MHM) during humanitarian crises and/or emergencies in low- and middle-income countries. *Frontiers in Public Health*, *10*, Article 1018092. https://doi.org/10.3389/fpubh.2022.1018092

Phillips, J., & Klein, J. D. (2023). Change management: From theory to practice. *TechTrends*, *67*(1), 189–197. https://doi.org/10.1007/s11528-022-00775-0

Pithouse-Morgan, K., & Samaras, A. P. (2024). Rethinking qualitative data analysis in a co-creative experimental approach. In J. DeHart & P. Hash (Eds.), *Arts-based research across textual media in education* (pp. 12–27). Routledge. https://doi.org/10.4324/9781003294597

Rengarajan, V., & Sivasubramaniyan, K. (2020). Theories of change in the process of rural transformation: A refined way forward. *International Journal of Research*, *8*(7), 279–297. https://doi.org/10.29121/granthaalayah.v8.i7.2020.727

Rossouw, L., & Ross, H. (2021). Understanding period poverty: Socio-economic inequalities in menstrual hygiene management in eight low- and middle-income countries. *International Journal of Environmental Research and Public Health*, *18*(5), Article 2571. https://doi.org/10.3390/ijerph18052571

Scheytt, C., & Pflüger, J. (2024). Conducting qualitative research in organizations ethically: Organizationality as a heuristic to identify ethical challenges. *International Journal of Qualitative Methods, 23*. https://doi.org/10.1177/16094069241237548

Seneviwickrama, K. L. M. D. (2020). Theory of change: Can its application really make a change?. *Journal of the College of Community Physicians of Sri Lanka, 26*(4), 234–237. https://doi.org/10.4038/jccpsl.v26i4.8391

Serrat, O. (2017). Theories of change. In *Knowledge solutions: Tools, methods, and approaches to drive organizational performance* (pp. 237–243). Singapore: Springer. https://doi.org/10.1007/978-981-10-0983-9_24

Siddiqui, N., & Mahomed, A. (2023). Menstrual health in South Africa. *Wits Journal of Clinical Medicine, 5*(2), 125–128. https://doi.org/10.18772/26180197.2023.v5n2a6

Singh, A., Chakrabarty, M., & Singh, S. (2022). Menstrual hygiene practices among adolescent women in rural India: A cross-sectional study. *BMC Public Health, 22*, Article 2126. https://doi.org/10.1186/s12889-022-14622-7

Sommer, M., Caruso, B. A., Torondel, B., Warren, E. C., Yamakoshi, B., Haver, J. … Phillips-Howard, P. A. (2021). Menstrual hygiene management in schools: Midway progress update on the "MHM in Ten" 2014–2024 global agenda. *Health Research Policy and Systems, 19,* Article 1. https://doi.org/10.1186/s12961-020-00669-8

Sommer, M., Figueroa, C., Kwauk, C., Jones, M., & Fyles, N. (2017). Attention to menstrual hygiene management in schools: An analysis of education policy documents in low- and middle-income countries. *International Journal of Educational Development, Volume 57,* 73–82. https://doi.org/10.1016/j.ijedudev.2017.09.008

Thornton, P., Cramer, L., Kristjanson, P., Schuetz, T., & Szilagyi, L. (2023). Theories of change for transformation. In B. Campbell, P. Thornton, A. M. Loboguerrero, D. Dinesh, & A. Nowak (Eds). *Transforming food systems under climate change through innovation* (pp. 171–184). Cambridge University Press. https://doi.org/10.1017/9781009227216.015

UNESCO. (2023). *Menstrual health and hygiene management: A module for gender empowerment*. New Delhi: UNESCO. https://unesdoc.unesco.org/ark:/48223/pf0000385604

Vaughn, L., Burkins, P., & Judd, J. (2020). *Exploration and self-control: Differences in regulatory focus and need support*. PsyArXiv. https://doi.org/10.31234/osf.io/xamdu

Wilbur, J., Torondel, B., Hameed, S., Mahon, T., & Kuper, H. (2019). Systematic review of menstrual hygiene management requirements, its barriers and strategies for disabled people. *PLoS ONE 14*(2), Article e0210974. https://doi.org/10.1371/journal. pone.0210974