INFLUENCE OF CULTURE ON MENSTRUAL HYGIENE MANAGEMENT AMONG IN-SCHOOL ADOLESCENT GIRLS IN MALAWI: WASH PERSPECTIVE

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Dissertation submitted to Ndata School of Climate and Earth Sciences of the Malawi University of Science and Technology in partial fulfilment of the requirements for the Bachelor of Science degree in Water Quality and Management.

May, 2026

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ABSTRACT

This study explored the influence of cultural beliefs and practices on menstrual hygiene management (MHM) among in-school adolescent girls in Malawi from a Water, Sanitation and Hygiene (WASH) perspective. The research focused on four cultural groups namely the Ngoni, Tumbuka, Mang'anja and Lomwe, to examine how cultural norms and traditions shape menstrual experiences, hygiene practices and the use of WASH facilities in schools and communities. Although global efforts have increasingly recognized the importance of MHM, many adolescent girls in Malawi continue to face challenges associated with menstrual stigma, cultural restrictions and inadequate sanitation infrastructure. The study employed a convergent parallel mixed methods design with a qualitative dominant approach. Data were collected from Chikwawa, Phalombe, Rumphi and Mzimba districts. A sample size of 384 participants was calculated using Cochran's formula at a 95% confidence level, with a p-value of 0.5 and a margin of error of 0.05. Structured questionnaires, four Focus Group Discussions (FGDs), five Key Informant Interviews (KIIs) and direct observations of WASH facilities were used to collect data. Quantitative data were analyzed using descriptive statistics in Microsoft Excel, while qualitative data were analyzed through thematic analysis.

The findings showed that culture influences MHM in both supportive and restrictive ways. Positive cultural practices encouraged regular bathing, proper washing of reusable menstrual materials and responsible disposal of menstrual waste. Careful disposal of menstrual materials was reported by 93% of Tumbuka participants, 73% of Mang'anja participants, 71% of Lomwe participants and 69% of Ngoni participants. However, some beliefs and taboos contributed to shame, secrecy and social restrictions during menstruation. The study further established that 46% of girls relied on cloth materials, 35% used reusable pads and only 19% used disposable sanitary pads due to poverty, limited availability of products and cultural misconceptions surrounding disposable pads. Inadequate WASH facilities, including lack of privacy, soap and functional changing rooms, also negatively affected girls' ability to manage menstruation safely and comfortably at school. The study recommends the implementation of culturally responsive WASH

interventions that promote positive cultural practices while addressing harmful myths and stigma surrounding menstruation. It further recommends improving menstrual health education, constructing safe and private sanitation facilities in schools and introducing subsidies or tax reductions on menstrual hygiene products to make sanitary pads more affordable and accessible to schoolgirls.

ACKNOWLEDGEMENTS

We would like to express our sincere gratitude to Almighty God for His grace, strength, wisdom and guidance throughout the entire period of conducting this study. Without His blessings, this work would not have been possible.

We are deeply indebted to our supervisor, Dr J.B.J Njalam'mano, for his invaluable guidance, constructive criticism, patience and continuous support throughout the research process. His professional advice and encouragement greatly contributed to the successful completion of this dissertation.

Special appreciation is also extended to Mr. F. Chauluka for his support, motivation and insightful contributions during the study. His assistance and willingness to provide direction whenever needed are highly appreciated.

We would also like to sincerely thank the headteachers of the selected schools for granting us permission to conduct data collection in their schools. Their cooperation, hospitality and support during the research process made this study possible.

Our heartfelt gratitude also goes to all the adolescent girls, teachers and participants who willingly took part in this study and shared their experiences and perspectives. Their contributions provided valuable information that greatly enriched this research.

We would also like to sincerely thank our beloved parents for their endless sacrifices, prayers, encouragement and financial as well as emotional support throughout our academic journey. Their unwavering belief in us gave us the strength to persevere.

Finally, we extend our heartfelt appreciation to our friends and classmates for their encouragement, cooperation and moral support during this research. Their companionship and assistance made this journey easier and more meaningful.

To everyone who contributed directly or indirectly to the success of this study, we remain truly grateful.

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ACRONYMS AND ABBREVIATIONS

FDGs	Focus Group Discussions
KIIs	Key Informant Interviews
MHM	Menstrual Hygiene Management
SDGs	Sustainable Development Goals
WASH	Water Sanitation and Hygiene
WHO	World Health Organization

1. INTRODUCTION

1.1. Background Information

Menstruation is a physiological and recurring biological process experienced by adolescent girls and women globally (Jana et. al., 2024). It involves the shedding of the uterine lining (endometrium) through the vagina, accompanied by blood and tissues and occurs roughly every 28 days in the absence of pregnancy. Menarche is the onset of first menstruation and usually happens between the ages of 11 and 15years, marking the start of reproductive maturity (Cleavand, 2022). The way menstruation is managed, known as MHM is heavily influenced by social, economic, environmental and cultural factors. MHM is an essential aspect of adolescent girls' health, education and dignity (The Sparkle Foundation, 2025). The World Health Organization (WHO) explains that proper MHM involves using clean materials to absorb or collect menstrual blood, having access to clean water and soap for washing both the body and reusable products, ensuring privacy to change materials whenever needed and safely and respectfully disposing of used items (Hinton et al., 2024),privacy for changing materials as often as necessary and safe and dignified disposal of used materials. These needs are closely tied to the Water, Sanitation and Hygiene (WASH) framework, which aims to ensure universal access to clean water, safe sanitation and hygiene education(UNICEF, 2015). Despite its relevance to WASH, menstrual hygiene has often been overlooked in traditional water and sanitation programs (Khalid, 2023). MHM is directly linked to both global and national goals.

At a global level, MHM contributes significantly to the achievement of several Sustainable Development Goals (SDGs). It supports SDG 3 (Good Health and Well-being) by reducing the risk of infections and improving the physical and mental well-being of adolescent girls. MHM also contributes to SDG 4 (Quality Education) by helping girls attend school regularly and reducing absenteeism or dropout associated with inadequate menstrual facilities. In addition, it promotes SDG 5 (Gender Equality) by empowering girls and women to participate fully in social and educational activities without stigma or restrictions related to menstruation. Furthermore, MHM aligns with SDG 6 (Clean Water and Sanitation) by emphasizing the importance of adequate WASH services, including access to

water, privacy and safe disposal systems necessary for effective menstrual hygiene management (Sommer, et al., 2021).

At the national level, Malawi's MW2063 vision emphasizes human capital development, gender equality and inclusive access to services as foundations for building an inclusively wealthy and self-reliant nation (National Planning Commission , 2021). Without proper MHM, girls' educational and health are disrupted, weakening Malawi's efforts to build strong human capital. Cultural taboos and stigma further undermine gender equality by excluding girls from roles and opportunities while poor disposal of menstrual products threatens environmental sustainability, another key enabler of MW2063. Addressing MHM is an investment in Malawi's long-term development and in achieving the SDGs, ensuring that adolescent girls grow into educated, health and empowered women who can actively contribute and participate to national transformation.

For girls and women to manage their menstruation hygienically, WASH services must go beyond providing infrastructure; they must also address sociocultural contexts that influence how menstruation is understood and managed. In many communities, menstruation is viewed as a taboo subject, shaped by long-standing cultural beliefs and traditions that can severely restrict a girls' behavior, movement and access to water or sanitation facilities during her menstrual cycle (NFM Tohit, 2024). For example, in some communities, it is believed that menstrual blood falling on the ground or into a river can harm plants and animals, while others believe that a well will run dry if a menstruating woman fetches water from it (Manpreet Kaur Uppal, 2023). In other cases, girls are considered impure during their periods (The Sparkle Foundation, 2025) and girls during their period are forbidden from adding salt to food as it may cause an illness called tsempho to those who eat it and never jump over the feet of a man or boy or hit a man at the back because this may make a man or boy fall sick (Malawi Human Rights Commission, 2006).

These beliefs directly affect WASH by restricting women's and girls' access to safe water during menstruation, which may force them to rely on unsafe sources, increasing the likelihood of waterborne diseases and making it harder to manage menstrual hygiene effectively. Being barred from collecting water also limits opportunities to wash reusable

menstrual materials or maintain body cleanliness, which can lead to discomfort and health issues. Prohibitions related to food preparation can exclude girls from household responsibilities, indirectly influencing safe food handling and hygiene. Such practices not only undermine health and hygiene but also contribute to gender-based marginalization, underscoring the importance of culturally aware WASH initiatives that challenge these taboos and promote equal access to water and sanitation. The influence of culture on menstrual hygiene practices is complex and highly variable across different regions, ethnic groups and religious backgrounds. Therefore, understanding how diverse cultural contexts shape menstrual hygiene behaviors is critical for designing inclusive, context-specific WASH programs that meet the needs of all users, particularly adolescent girls.

1.2. Problem Statement

Global efforts have improved access to water and sanitation facilities in many regions, but MHM remains a neglected component of WASH programs, especially in culturally diverse communities(Sommer et al., 2015). One key reason is that most WASH interventions are planned and implemented with a technical focus emphasizing on infrastructure like toilets and water points but with insufficient attention to the cultural and gender-related barriers that limit their use by menstruating girls(Chidya, et al., 2024). Cultural taboos, misinformation and restrictions related to menstruation remain widespread. As a result, many girls practice poor menstrual hygiene, such as reusing unclean cloths, hiding their periods or avoiding WASH facilities altogether (Castrol & Czura, 2024). This has significant consequences for their health, with studies linking poor MHM to an increased risk of reproductive tract infections such as yeast infection, bacterial vaginosis while education is disrupted as girls often miss school during menstruation and psychosocial well-being is undermined through feelings of shame, fear, or isolation (UNFPA, 2022).

In Malawi, WASH facilities significantly affect MHM, contributing to school absenteeism among adolescent girls (Chidya, et al., 2024). Studies show that many schools lack private changing areas, soap and proper disposal systems, causing girls to miss several days of school per menstrual cycle (Matonga, 2018). Globally, over 500 million girls and women lack adequate facilities for managing menstruation (UNICEF, 2017), but in Malawi, these

challenges are compounded by culturally specific beliefs and taboos. Among the Tumbuka, Lomwe, Mang'anja and Ngoni, menstruation is surrounded by secrecy and restrictions, which discourages girls from using WASH facilities even when they are available(Roxburgh et al., 2020). Cultural norms may limit drying menstrual cloths in the open, participating in household or community activities or discussing menstrual needs openly, which forces girls to practice poor hygiene, reuse unclean materials or miss school entirely (Rebekah Hinton, 2024). These intersecting cultural and infrastructural barriers highlight the urgent need to assess how WASH programs can be adapted to the realities of Malawi's diverse cultural context, ensuring that facilities are both physically accessible and socially acceptable for menstruating girls.

1.3. Objectives

1.3.1. Main Objective:

To investigate the influence of different cultural beliefs and practices on MHM among adolescent girls.

1.3.2. Specific Objectives:

i. To identify cultural norms, taboos and beliefs related to menstruation in different communities and how these affect girls' behaviors and perceptions of menstruation.

ii. To examine the impact of the identified cultural beliefs on access to and use of WASH facilities (toilets, water points, bathing areas) for MHM at school and in the community.

iii. To analyze how current WASH programs address (or fail to address) cultural barriers that affect safe and dignified MHM.

iv. To compare menstrual hygiene practices across culturally diverse settings, identifying similarities, differences and culturally specific needs.

1.4. Research Questions

i. What cultural beliefs in your community influence how you manage menstruation?
ii. How do these cultural beliefs affect your behavior during menstruation?
iii. Which materials do you use during menstruation?

iv. Do you feel safe and comfortable changing materials at school?

v. Do cultural beliefs in your home affect how you use school toilets?

1.5. Scientific Significance

This study contributes to a deeper scientific understanding of how cultural beliefs, norms and practices influence MHM among in-school adolescent girls within the WASH context in Malawi. While many studies on menstrual hygiene mainly focus on access to sanitary products, infrastructure and economic barriers, limited attention has been given to the cultural factors that shape how girls experience and manage menstruation. By examining cultural beliefs, taboos and traditions across different communities, this research will generate context-specific evidence that explains how social norms influence menstrual behaviors, attitudes and the use of WASH facilities. In doing so, the study adds to existing scientific literature by providing locally grounded data that enhances understanding of the sociocultural dimensions of MHM among adolescent girls.

The findings of this study will also provide valuable evidence that can support the design of more culturally responsive WASH interventions and menstrual health programs. Insights from the research can inform policymakers, development practitioners and organizations working in water, sanitation, health and education sectors when developing strategies that address both infrastructure needs and cultural realities affecting menstrual hygiene practices. The results may also assist schools, community leaders and educators in promoting menstrual health awareness and reducing stigma associated with menstruation. In addition, the study can serve as a useful reference for researchers and academics interested in the relationship between culture, gender and sanitation, particularly in developing country contexts such as Malawi.

2. LITERATURE REVIEW

2.1. Global Context of MHM

MHM is now recognized globally as a critical part of WASH and adolescent well-being. Good menstrual hygiene requires accurate knowledge, affordable menstrual products, safe disposal facilities, private toilets and clean water (Pednekar & Some, 2022). Studies show that period poverty remains high in many countries worldwide. In Kenya, 7% of women still rely on old clothes, blankets, chicken feathers, mud and newspapers for MHM, while some young females report engaging in transactional sex with older men to obtain money for sanitary pads. Similarly, in India, women face significant barriers to accessing menstrual products due to limited resources and inadequate information (Patel, et al., 2022). In South Africa, more than a third of girls miss a week of school each month because they lack access to basic menstrual products and hygiene facilities (Kristen, 2025). Many studies, however, emphasize poverty while downplaying the cultural stigma that contributes to avoidance of facilities. In Malawi, fewer than 5% of schools provide handwashing facilities with soap and some schools lack sanitation facilities altogether (Mwangonde, 2025).

2.2 Cultural Influences on MHM

Menstruation is strongly shaped by cultural norms, beliefs and taboos that influence what girls know, what products they use and how they behave in schools and communities (Chidya, et al., 2024). While global studies have consistently shown that menstruation is often treated as subject, leading to silence and secrecy (Bobel et al., 2020; Mwalabu et al., 2024), many of these studies stop at description and without investigating the deeper cultural logic behind these silences. Families and schools may avoid discussing menstruation, leaving girls unprepared for menarche (Bobel et al., 2020; Mwalabu et al., 2024). Beliefs about disposal of menstrual blood or products are sometimes linked to fears of witchcraft or shame, which pushes girls into unsafe disposal practices (Kaur et al., 2018; Roxburgh et al., 2020). These cultural influences are inseparable from WASH, yet many interventions still treat them as secondary concerns rather than central barriers.

2.3 Study Themes

2.3.1 Cultural norms, beliefs and practices around menstruation

Cultural taboos and beliefs play a decisive role in shaping menstrual practices. In Tanzania, stigma and secrecy limit girls' confidence, but most studies fail to examine how these norms are reproduced from one generation to the other (Chaula, 2020). In Zambia, myths about menstrual blood and cultural disposal practices create shame that discourages school attendance (Chinyama , et al., 2019), yet few researchers interrogate why such myths persist despite modern health education. In Malawi, initiation rites and menarche rituals provide instructions about womanhood and menstruation, but the content of these rituals is highly variable, some empower, others reinforce silence (Bobel , et al., 2020). This inconsistency underscores how cultural practices can both support and undermine adolescent girls' confidence, a nuance often missing in prior studies.

2.3.2 Cultural influence on access and use of WASH facilities

Cultural beliefs and taboos significantly shape adolescent girls' access to and use of WASH facilities, often undermining their ability to manage menstruation safely and with dignity. In many communities, menstruation is surrounded by prohibitions that restrict girls from collecting water, bathing or even using certain sanitation facilities due to perceptions of impurity or fears of contamination (Manpreet Kaur Uppal, 2023). Such restrictions force girls to rely on unsafe water sources or choose not to wash reusable menstrual products, increasing health risks such as urinary tract infections and bacterial vaginosis (Girigoswami, 2024; Priya & Nand, 2020). In Malawi, some initiation practices reinforce secrecy and exclusion, limiting open discussion about menstrual hygiene and perpetuating gendered access to WASH resources (Bobel et al., 2020; Enzler, 2018). Schools also reflect these cultural barriers; as inadequate toilets, lack of privacy and absence of soap or disposal systems intersect with stigma to discourage girls from using available facilities (Mwangonde, 2025). Thus, cultural norms not only dictate behaviors around menstruation but also directly influence whether and how WASH infrastructure is accessed, highlighting the need for culturally sensitive and gender-responsive WASH interventions.

2.3.3 WASH programs and cultural responsiveness

Most WASH programs emphasize infrastructure provision but neglect cultural barriers that prevent usage. For example, interventions in rural Lilongwe introduced reusable pads and menstrual cups, which reduced absenteeism, yet they did not adequately interrogate cultural barriers to adoption (Chidya, et al., 2024). Globally, few studies have gone beyond measuring uptake to question why communities resist certain technologies. This lack of cultural analysis weakens program effectiveness and sustainability. Facilities and products alone cannot ensure dignified menstrual management without deliberate attention to taboos and norms (Castrol & Czura, 2024).

2.3.4 Comparative menstrual hygiene practices across cultures

Comparisons across contexts reveal both similarities and differences, but many remain descriptive rather than analytical. In Tanzania, secrecy restricts participation (Okello, et al., 2024), while in Zambia, cultural myths discourage safe disposal (Chinyama et al., 2019) In South Africa, poverty intersects with cultural expectations to worsen barriers (Kristen, 2025). In Malawi, secrecy, lack of preparation and the exclusion of men and boys from discussions continue to undermine progress (Maria, 2018). Yet few comparative studies critically analyze why these patterns persist or how interventions might adapt across different cultural contexts. This lack of comparative depth leaves a gap that this research seeks to fill.

2.3.5 Integrating culture into WASH for sustainable solutions

For MHM interventions to be sustainable, cultural sensitivity must be integrated rather than treated as an add-on. Studies emphasize that stigma and taboos are inseparable from WASH challenges (Enzler, 2018), but recommendations often remain broad. Global advocacy papers, such as Sommer et al., 2016, call for culture-sensitive programs yet provide little evidence of how to operationalize them locally. In Malawi, interventions that ignore initiation traditions, taboos around water and secrecy risk irrelevance. Sustainable solutions must therefore challenge harmful beliefs, involve boys, fathers and community leaders and provide affordable menstrual products that are culturally acceptable. Without this integration, well-intentioned WASH programs risk failure.

2.4 Gaps from Previous Studies

Although several studies have examined MHM in Malawi and beyond, they each leave important aspects unexplored.

2.4.1. Overemphasis on infrastructure and product provision

Some studies emphasize improving access to sanitary products and WASH facilities but overlook how cultural taboos and beliefs affect their use. Consequently, the cultural factors influencing acceptance or rejection of WASH interventions remain underexplored (Chidya et al., 2024; Water Aid, 2020; The Sparkle Foundation, 2025).

2.4.2. Limited analysis of cultural taboos and secrecy

Menstrual disposal and hygiene in Malawi is examined but it overlooks how stigma, intergenerational silence and beliefs about impurity shape girls' experiences and limit their use of WASH facilities (Roxburgh, et al., 2020).

2.4.3. Lack of comparative cultural studies within Malawi

Studies on MHM among Malawian girls did not compare ethnic groups, limiting understanding of how diverse cultural beliefs affect menstrual experiences and access to WASH resources (Hinton & Tremblay-Levesque, 2024; Mwalabu et al., 2024).

2.4.4. Weak integration of culture into WASH programming

Global frameworks acknowledge menstruation within WASH but often treat cultural factors as secondary, focusing on infrastructure without addressing how beliefs and taboos should inform design and implementation (Sommer et al., 2015; WHO, 2023)

2.4.5. Absence of localized evidence and practical cultural strategies

Global reviews call for culturally sensitive MHM but lack Malawi-specific evidence, making it difficult to apply their recommendations in local contexts with varying taboos, secrecy and gender roles (Bobel , et al., 2020).

2.5 Theoretical Framework

The influence of culture on menstrual hygiene management (MHM) among in-school adolescent girls can be better understood through a multi-theoretical lens that connects culture, health behavior, and gender dynamics within the WASH perspective.

2.5.1. Cultural Relativism Theory

This theory says that every culture has its own way of understanding life, and practices should be studied within their cultural setting rather than judged as good or bad (Arat, 2022). When looking at menstrual hygiene, this means that instead of criticizing traditions, researchers should first understand why a community believes or practices certain things about menstruation. For example, some cultures may restrict girls from cooking or attending school during menstruation. Cultural relativism encourages us to study the reasons behind these practices and how they affect adolescent girls (Cleavand Clinic, 2022; Nickerson, 2023).

2.5.2. Social Constructivist Theory

This theory says that people's understanding of the world is shaped by their culture, traditions, and social interactions. In the case of menstrual hygiene, it means that the way adolescent girls think about menstruation and how they manage it depends on what their culture teaches them. For example, if a culture teaches that menstruation is shameful, girls may hide it or avoid proper hygiene practices. But if a culture talks openly about menstruation, girls are more likely to learn positive ways of managing it (Agrusa, 2019).

2.5.3. Gender and Power Theory

This theory explains how differences in power between men and women affect daily life, including health and decision-making (Koester, 2015). In many cultures, men are given more power than women and this can limit the support that adolescent girls receive for menstrual hygiene. For example, if men control money and decisions in the home, girls may not get sanitary pads or privacy during their periods. This theory shows how cultural power imbalances can directly affect how girls manage their menstruation.

2.5.4. Health Belief Model (HBM)

This model says that people's health behavior depends on what they believe about health risks and benefits (Alyafi &Easton-Carr, 2024; Boskey, 2024). In relation to menstrual hygiene, if girls are taught that periods are dirty or shameful, they may be too embarrassed to use proper hygiene practices. On the other hand, if they believe that good menstrual hygiene can prevent infections and keep them healthy, they are more likely to practice it. This model helps us understand how beliefs formed by culture influence girls' choices in managing menstruation.

2.5.5. Feminist Theory

This theory focuses on how society treats women and girls and works toward equality between genders. In terms of menstrual hygiene, feminist theory explains that stigma, silence and lack of support around menstruation are connected to gender inequality. Many societies ignore the needs of girls during their periods; this makes it harder for them to manage menstruation with dignity. By applying feminist theory, researchers can highlight how empowering girls and giving them equal rights can improve MHM (Guy-Evans, 2024; Becknuss, 2022).

3. METHODOLOGY

3.1. Research Design

This study adopted a convergent parallel mixed methods design, with a qualitative dominant orientation. A qualitative approach was appropriate because the research sought to explore the cultural norms, beliefs and practices that influence MHM among adolescent girls. Quantitative methods (structured questionnaires) complemented the qualitative findings by capturing prevalence and patterns across a wider sample.

3.2. Study Area

The research was conducted in four districts of Malawi to capture cultural and ethnic diversity across different regions of the country. The selected districts included Chikwawa in the Southern Region, representing the Mang'anja culture; Phalombe in the Southern Region, representing the Lomwe culture; Rumphi in the Northern Region, representing the Tumbuka culture and Mzimba in the Northern Region, representing the Ngoni culture. These districts were purposively selected because they represented distinct cultural groups whose beliefs and practices significantly shape adolescent girls' menstrual experiences.

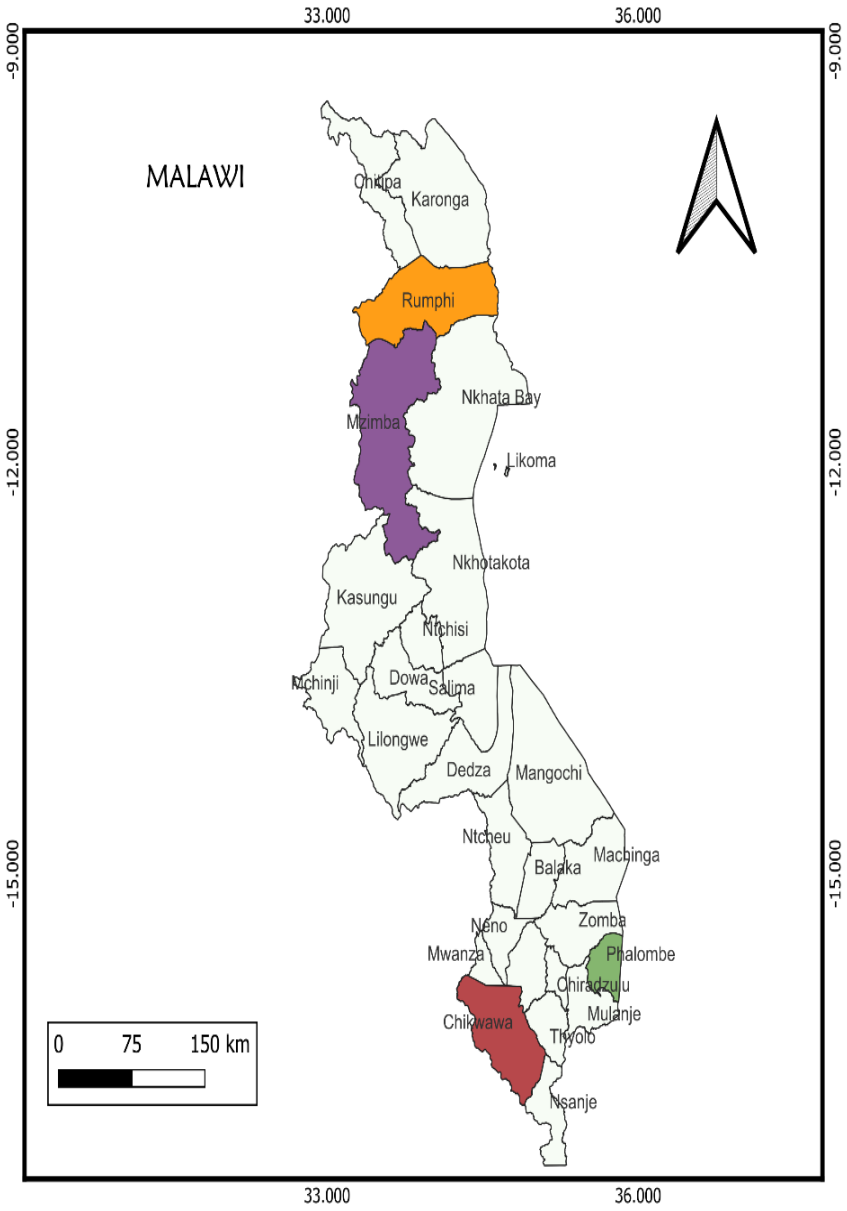


Figure 1: Map of Malawi showing the region of interest

3.3. Study Population

The target population were adolescent girls aged 10-19 years enrolled in schools within the selected districts. Additional key informants included teachers, as they played an important role in reinforcing or challenging cultural norms surrounding menstruation.

3.4. Sampling Techniques and Sample Size

Purposive sampling was used to select schools in the four study districts based on their cultural significance and relevance to the objectives of the study. The selected districts were characterized by a predominant single-ethnic majority, which provided an opportunity to examine the influence of specific cultural practices on MHM among adolescent girls. The selected schools were also accessible during the study period and had adequate numbers of adolescent female learners.

Stratified random sampling was then employed to select participants from the schools to ensure representation across different age groups and educational levels. The study targeted adolescent girls aged between 10-14 and 15-19 because these categories represent early and late adolescence, respectively, according to WHO classification. Girls aged between 10-14 were included because many begin menstruation during early adolescence and are often vulnerable to menstrual-related stigma, misinformation and inadequate hygiene support. The 15-19 age group was included because older adolescents generally have greater menstrual experience and may face different cultural expectations, restrictions and coping mechanisms. Including both age groups therefore enabled a broader understanding of how age and maturity influence menstrual hygiene practices and experiences.

The sample size for the study was determined using Cochran's formula for calculating sample sizes in large populations and the sample size was 384.

$$\boldsymbol{n = \frac{Z^2 \cdot p(1-p)}{e^2}}$$

Where: n = required sample size, Z = standard normal deviation at 95% confidence level (1.96), p = estimated proportion of the population (0.5), e = margin of error (0.05).

A 95% confidence level was selected because it strikes the perfect balance between accuracy and precision. Choosing a 90% interval makes the range look narrower but

doubles the risk of being wrong while a 99% interval creates a range so wide that the results lose their practical meaning.

The total sample size of 384 participants was distributed proportionally across the four selected districts based on the female population size of each district. Mzimba District contributed 164 participants, Chikwawa contributed 100 participants, Phalombe contributed 79 participants and Rumphi contributed 41 participants. This proportional allocation ensured that districts with larger female populations contributed more participants to the study than districts with smaller populations, thereby improving the representativeness of the sample (National Statistical Office, 2023). Detailed calculations used in determining the sample distribution are provided in the appendix.

After allocating the sample across the four districts, participants were further stratified according to age groups (10-14 years and 15-19 years) and educational level to ensure adequate representation of both early and late adolescents. This method minimized selection bias and enhanced the representativeness, validity and reliability of the study findings.

For the qualitative component, 8-10 participants per district participated in FGD's. These discussions were conducted to obtain in-depth information on cultural beliefs, perceptions and experiences related to menstruation and MHM among adolescent girls. In addition, five KIIs were conducted with teachers across the four districts to provide deeper insights into cultural practices, school environments and challenges affecting MHM among adolescent girls.

3.5. Data Collection Methods

Structured questionnaires were used to collect quantitative data on menstrual hygiene practices, access to WASH facilities and school absenteeism among adolescent girls in the selected schools. The questionnaires mainly consisted of closed-ended questions and were administered electronically using the Kobo Collect application on mobile devices. The questionnaire captured information on sources of menstrual materials, frequency of changing menstrual products, availability of water and sanitation facilities at school,

challenges faced during menstruation and the extent to which menstruation affected use o WASH facilities. Before the actual data collection, the tool was pre-tested to ensure clarity, relevance, and reliability of the questions.

Four FGDs were conducted with adolescent girls to gain an in-depth understanding of cultural beliefs, taboos and personal experiences related to MHM. Each FGD consisted of 8-10 participants and was guided by a semi-structured discussion guide. The discussions explored issues such as cultural restrictions during menstruation, attitudes towards menstruation within families and communities, challenges faced in managing menstruation at school, coping strategies used by girls and perceptions regarding school WASH facilities. Participants were encouraged to freely express their views and experiences in a group setting. The discussions were conducted in a language familiar to the participants and supplemented with notetaking to capture important responses and non-verbal expressions.

KIIs were conducted with five female teachers from the selected schools to obtain broader perspectives on culture and menstruation. The teachers were selected based on their involvement in learner welfare and their experience in supporting adolescent girls in school settings. The selected teachers had between 3 and 5 years of teaching experience. The interviews explored issues related to cultural beliefs surrounding menstruation, challenges faced by adolescent girls during menstruation, the availability of WASH facilities in schools and the effect of menstruation on girls' participation and attendance at school.

Observation checklists were used to assess WASH facilities in the selected schools. Direct observation involved physically inspecting facilities such as toilets, water points and handwashing stations during school visits. The observations focused on the availability, accessibility, cleanliness, privacy and general condition of the facilities. Privacy was assessed based on the presence of doors, functional locks, adequate roofing and whether girls could comfortably change menstrual materials without interruption. Photographs of selected facilities were taken using mobile phones to support the observations while field notes were recorded to capture important details during the assessment.

3.6. Data Analysis

Quantitative data collected from structured questionnaires were analyzed using Microsoft Excel. The data were first screened for completeness, cleaned and coded to ensure accuracy and consistency. Descriptive statistical techniques, including frequencies and percentages, were computed to summarize patterns in menstrual hygiene practices, access to WASH facilities and challenges experienced by respondents. The results were presented using tables and charts to enhance clarity and allow comparison across the four cultural groups.

Qualitative data obtained from open-ended questionnaire responses, FGDs and KIIs were analyzed using thematic analysis. The data were first transcribed verbatim and translated into English where necessary. The transcripts were then read repeatedly to ensure familiarity and deeper understanding of the participants' responses. Manual open coding was employed using an inductive coding approach, whereby codes were generated directly from the data rather than from predetermined categories. During the open coding process, meaningful words, phrases and statements were identified line-by-line and assigned standardized codes such as NO_PADS, WITCHCRAFT_BELIEF, NO_PRIVACY and HYGIENE_BATH. Similar codes were then compared and grouped into categories before being organized into broader themes. The major themes that emerged included cultural beliefs supporting MHM, hygiene practices promoted by culture, resource-related challenges and WASH facility constraints.

The thematic analysis followed several key steps, namely data familiarization, generation of initial codes, searching for themes, reviewing themes, defining and naming themes and finally interpreting and reporting the findings. This systematic process enabled the identification of recurring patterns and relationships within the data.

Several measures were undertaken to ensure accuracy and trustworthiness of the qualitative findings. Credibility was enhanced through triangulation of data sources by comparing information obtained from questionnaires, FGDs and KIIs. Dependability was achieved by maintaining consistent coding procedures and keeping detailed field notes and coding records throughout the analysis process. Confirmability was strengthened by ensuring that interpretations were based on participants' actual responses rather than researcher

assumptions. Transferability was supported through detailed descriptions of the study setting, participants and cultural contexts, while prolonged engagement with the data through repeated reading of transcripts enhanced the depth and accuracy of interpretation.

Finally, findings from both quantitative and qualitative analyses were compared and integrated to identify areas of convergence and divergence. This integration strengthened the validity of the results and provided a deeper understanding of how cultural and infrastructural factors influence MHM across the four cultural groups.

3.7. Ethical Considerations

Ethical approval for the study was obtained from the Malawi University of Science and Technology Research Ethical Committee. Informed consent was obtained from the Head Teachers of the selected schools, while assent was sought from the adolescent participants before data collection. Confidentiality was maintained by anonymizing participants' responses, and participation in the study was entirely voluntary.

3.8. Limitations of the Study

Cultural sensitivity and taboos surrounding menstruation limited openness during discussions. Menstruation is often considered a private or sensitive topic within many communities, which affected the willingness of some participants to fully express their experiences and opinions. To address this challenge, trust-building approaches were employed throughout the data collection process. These included assuring participants of confidentiality, using respectful and non-judgmental language, allowing participants to speak at their own pace, and creating a private and comfortable environment during interviews and discussions. These measures helped participants feel more confident and encouraged freer sharing of experiences; however, some level of discomfort or withholding of information still occurred.

FGDs introduced social desirability bias. Some participants provided responses they believed were socially acceptable or expected by peers and the researcher rather than sharing their true experiences and feelings regarding MHM. This influenced the accuracy

of some responses, particularly on sensitive issues such as hygiene practices, absenteeism and cultural beliefs related to menstruation.

Another limitation was the absence of male key informants in the study. The findings therefore mainly reflect the perspectives of adolescent girls and female participants, with limited insight into male perceptions, attitudes and roles regarding MHM. Since men and boys influence cultural norms, school support systems and decision-making within households and communities, their exclusion limited a broader understanding of the social and cultural factors affecting menstrual hygiene management.

Lastly, the study did not triangulate findings with interviews from parents, guardians or community leaders. As a result, the research relied mainly on the views of adolescent girls and teachers. Including parents and community leaders could have provided deeper understanding of cultural beliefs, community practices and support systems related to MHM, thereby strengthening the validity and comprehensiveness of the findings.

4. RESULTS AND DISCUSSION

4.1 Results

4.1.1 Demographic Characteristics of Participants

A total of 384 adolescent girls participated in the study from four districts representing different cultural groups in Malawi. The participants were distributed across Chikwawa, Phalombe, Rumphi and Mzimba districts. Participants were further categorized according to age group (10-14 years and 15-19 years) and educational level (primary and secondary school). The study explored how culture influences menstrual hygiene management (MHM) among adolescent girls in schools across four cultural groups in Malawi, namely the Ngoni, Tumbuka, Mang'anja and Lomwe

Table 1: Study participants demographics

DISTRICT	TOTAL PARTICIPANTS	10-14	15-19	SECONDARY	PRIMARY
Chikwawa	100	31	69	74	26
Phalombe	79	29	50	35	34
Rumphi	41	29	12	15	26
Mzimba	164	63	101	124	40

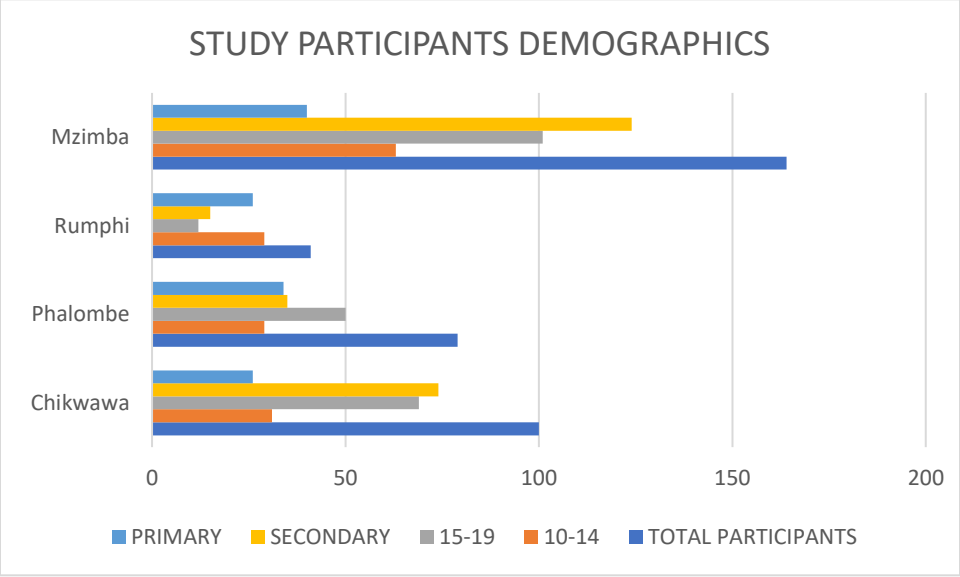


Figure 1: Study participants demographics

4.1.2 Cultural Practices Supporting MHM

Across all four cultural groups, participants reported that cultural norms encourage good hygiene practices during menstruation. Girls stated that they are encouraged to bathe regularly, wash reusable menstrual materials properly and dispose of used menstrual products carefully. One of the most common beliefs shared across all four groups was that improperly disposed menstrual materials can be used for witchcraft. Because of this belief, girls reported being careful when handling and disposing of menstrual waste.

Table 2: Cultural practices supporting menstrual hygiene

PRACTICE	NGONI %	TUMBUKA %	MANG'ANJA %	LOMWE %
Bathing regularly	51	65	50	65
Rewashing pads	36	60	85	48
Careful disposal	69	93	73	71

4.1.3 Cultural Beliefs and Restrictions Affecting MHM

Despite the positive cultural influences, participants also reported several beliefs and restrictions that affected menstrual experiences and practices. Among the Mang'anja participants in Chikwawa, girls reported that they are discouraged from harvesting crops during menstruation because it is believed that the crops may dry up. Some Mang'anja participants also believed that the use of disposable sanitary pads can cause cancer.

Among the Tumbuka and Ngoni participants, girls reported that they are discouraged from bathing in the same bathroom used by their fathers during menstruation. Participants explained that this practice is associated with cultural values of respect and privacy.

The study also found that many girls avoided drying reusable pads or cloths outside because of fear that other people might see them or use them for witchcraft. As a result, some girls preferred drying reusable menstrual materials indoors or in hidden places.

Other cultural restrictions reported during menstruation included beliefs that girls should not add salt to food, play with boys or freely participate in certain social activities during menstruation.

4.1.4 Menstrual Materials Used by Participant

The study revealed that many girls experienced challenges in accessing menstrual materials, particularly sanitary pads. As a result, many participants relied on reusable cloths and reusable pads during menstruation.

Table 3: Types of menstrual materials used by girls

TYPE OF MATERIALS USED	NUMBER OF GIRLS	PERCENTAGE
disposable pads	42	19%
reusable pads	79	35%
Cloth	102	46%

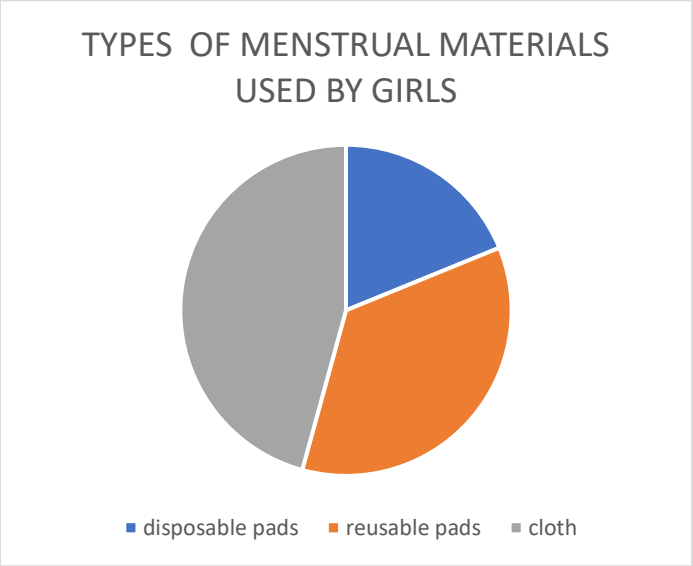


Figure 2: Types of menstrual materials used by girls

The findings showed that reusable materials and cloth were more commonly used than disposable sanitary pads among participants.

4.1.5 WASH Challenges Affecting MHM

The study identified inadequate WASH facilities as a major challenge affecting menstrual hygiene management in schools. Many participants reported lack of soap, limited privacy and poor sanitation infrastructure. Although toilets were available in most schools, observations showed that many toilets lacked doors, compromising privacy for girls during menstruation.

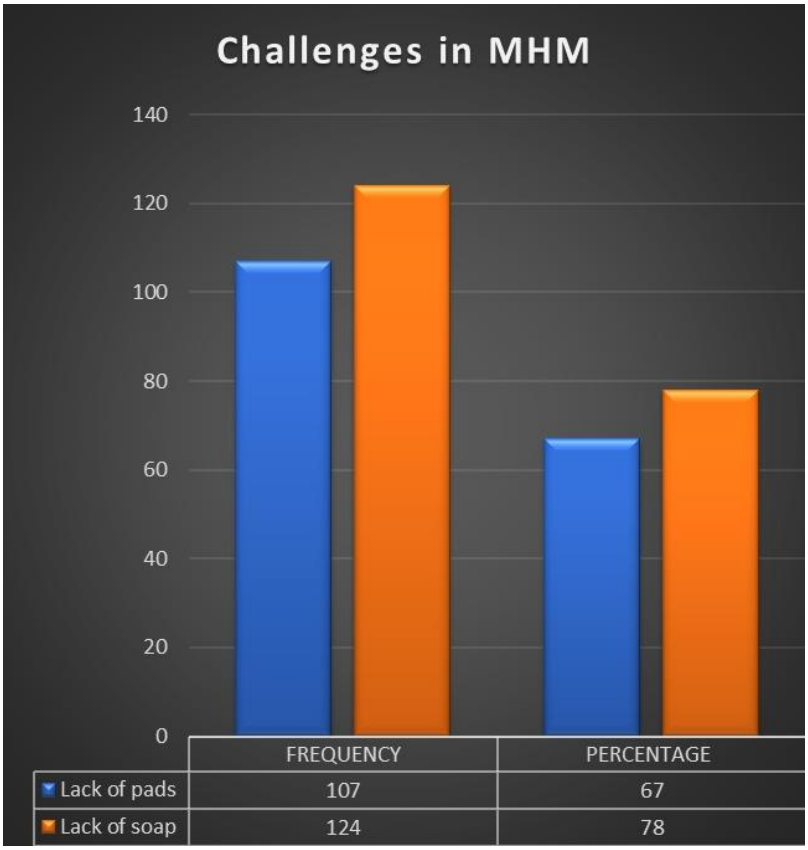


Figure 3: Challenges affecting MHM among adolescent girls in schools

Some schools had changing rooms, but several were either locked or lacked doors, making them difficult to use.



Figure 4:Girls' sanitation facility without a door at Pende primary school Chikwawa.



Figure 5: Girls' sanitation facility without a door at Baula Primary School, Mzimba.

4.1.6 Participation of Male Key Informants

The study found limited participation of male key informants during data collection. Most participants who agreed to participate were female, while some male teachers declined participation because menstruation was considered a sensitive topic associated with women.

4.1.7 Participants' Views on Culturally Sensitive WASH Programs

When participants were asked whether WASH programs should consider cultural beliefs when designing menstrual hygiene interventions, most agreed that cultural beliefs are important and should be respected. However, participants emphasized the need for improved access to menstrual products, soap, private toilets and functional changing rooms in schools.

5.2 Discussion

The study demonstrates that culture plays both supportive and restrictive roles in MHM among adolescent girls. Positive cultural practices such as encouraging regular bathing, careful disposal of menstrual materials and washing reusable materials appear to promote

cleanliness and hygienic behavior during menstruation. These findings suggest that culture does not only act as a barrier to MHM but can also support healthy menstrual practices within communities. Similar findings were reported by (Roxburgh, et al., 2020) (Bobel , et al., 2020), who observed that cultural beliefs strongly influence menstrual practices and behaviors in many communities. The findings therefore indicate that strengthening positive cultural practices may improve MHM while maintaining cultural acceptability.

However, the study also suggests that some cultural beliefs continue to reinforce stigma, secrecy and discomfort surrounding menstruation. Restrictions on social activities, fear of witchcraft and misconceptions about disposable sanitary pads appear to contribute to negative perceptions of menstruation. Such beliefs may discourage girls from openly discussing menstrual needs or properly drying reusable menstrual materials, thereby affecting safe hygiene practices. Similar observations were made by (Kaur, 2018), who reported that menstrual secrecy negatively affects menstrual hygiene practices among adolescent girls. The persistence of these beliefs suggests that menstruation continues to be socially perceived as a sensitive and private issue within many communities.

Cultural restrictions that are not directly related to menstrual hygiene practices, such as preventing menstruating girls from harvesting crops or bathing in the same bathroom as their fathers, further demonstrate how menstruation is associated with ideas of impurity and social separation in some communities. Although these practices may not directly influence hygiene management, they may contribute to feelings of shame, isolation and reduced confidence among adolescent girls during menstruation. Such restrictions may also reinforce silence around menstruation and limit opportunities for girls to seek support or accurate menstrual health information.

The findings further indicate that cultural misconceptions related to witchcraft and fear of misuse of menstrual materials may indirectly interfere with recommended hygiene practices. Fear of exposing menstrual materials may discourage girls from drying reusable cloths in open sunlight despite the hygienic importance of proper drying. This demonstrates how cultural beliefs can influence menstrual hygiene behavior and potentially increase the risk of poor hygiene practices. The findings therefore highlight the importance of culturally

sensitive menstrual health education that addresses harmful misconceptions while respecting community values.

Economic and infrastructural challenges also remain major barriers to effective MHM. Reliance on reusable materials and cloth appears to reflect both financial limitations and unequal access to menstrual products among adolescent girls. In addition, inadequate WASH facilities, lack of privacy, absence of soap and poorly maintained toilets may limit girls' ability to manage menstruation safely, comfortably and with dignity while at school. Similar findings were reported by (Chidya, et al., 2024) (Matonga, 2018), who found that poverty and inadequate sanitation facilities negatively affect MHM and school experiences among girls in Malawi. These findings suggest that improving menstrual hygiene knowledge alone may not be sufficient without addressing structural challenges related to poverty and inadequate sanitation infrastructure.

Another important issue highlighted by the study was the limited involvement of male teachers in menstrual health discussions. This reflects the continued perception that menstruation is solely a women's issue and may contribute to inadequate institutional support for girls within schools. Increasing the involvement of men and boys in menstrual health education may help reduce stigma, normalize discussions about menstruation and create more supportive school environments for adolescent girls.

Overall, the study shows that MHM among adolescent girls is shaped by the interaction between cultural beliefs, economic challenges and school sanitation conditions. While some cultural practices promote hygiene and cleanliness, others reinforce stigma, secrecy and restrictions that negatively affect girls' menstrual experiences. Therefore, interventions aimed at improving MHM should strengthen positive cultural practices while addressing harmful misconceptions, improving access to menstrual products and providing safe, private and functional WASH facilities in schools. These findings also have implications for the achievement of SDG 3: Good Health and Well-Being, SDG 4: Quality Education, SDG 5: Gender Equality and SDG 6: Clean Water and Sanitation, particularly in improving girls' health, dignity, education and access to adequate sanitation services.

5. CONCLUSION AND RECOMMENDATIONS

5.1 Conclusion

This study explored how cultural beliefs and practices influence MHM among in-school adolescent girls from a WASH perspective in selected culturally diverse districts of Malawi. The findings showed that culture has a strong influence on how girls experience and manage menstruation. While some cultural practices encourage cleanliness and good hygiene during menstruation, others promote fear, secrecy and restrictions that make it difficult for girls to manage menstruation comfortably and with dignity.

The study found that many girls are raised within cultural environments where menstruation is treated as a private and sensitive issue. Positive practices such as encouraging girls to bathe regularly, wash reusable menstrual materials and dispose of used materials properly helped promote good hygiene practices. However, beliefs linked to witchcraft, impurity and shame often created fear and silence around menstruation. In some communities, menstruating girls were discouraged from certain activities such as harvesting crops, interacting freely with boys or sharing bathing spaces with male family members. These restrictions affected not only girls' hygiene practices, but also their confidence, emotional well-being and participation in everyday activities.

The findings also showed that cultural beliefs influenced how girls used available WASH facilities. Many girls feared that menstrual materials could be seen by others or used for

witchcraft, which discouraged them from drying reusable pads openly in sunlight even when they understood the hygienic importance of doing so. At the same time, poor sanitation facilities, lack of privacy, inadequate water supply and absence of soap made it difficult for girls to manage menstruation safely and comfortably at school. This means that improving infrastructure alone may not fully address menstrual hygiene challenges if cultural stigma and fear are not also addressed.

Another important finding was that many WASH and menstrual health interventions still focus mainly on providing facilities and menstrual products while giving less attention to cultural and social factors. The study showed that harmful beliefs, secrecy and negative attitudes surrounding menstruation continue to affect girls even where some WASH services are available. This suggests that menstrual health interventions need to go beyond infrastructure and include community engagement, menstrual health education and culturally sensitive approaches that respond to the realities girls face in their communities.

Although many challenges were similar across the study areas, some cultural beliefs and practices differed from one community to another. Secrecy, fear of stigma and inadequate sanitation facilities were common problems across all districts, but certain restrictions and beliefs varied depending on local traditions and cultural norms. This highlights the importance of designing menstrual health interventions that fit the specific cultural context of each community instead of using the same approach everywhere.

This study adds to existing knowledge by showing that MHM is not only influenced by access to sanitary products and WASH facilities, but also by deeply rooted cultural beliefs and social expectations. The findings provide important evidence from the Malawian context on how culture, gender and sanitation interact to shape girls' menstrual experiences. By focusing on both cultural and WASH-related factors, the study provides a broader understanding of the challenges adolescent girls face during menstruation.

The findings have important implications for policy and practice. There is need for menstrual health and WASH programs to include cultural issues when designing interventions. Schools and communities should promote open and culturally sensitive

education on menstruation to reduce stigma and harmful misconceptions. Community leaders, teachers, parents and boys should also be involved in menstrual health discussions so that menstruation can be understood as a normal biological process rather than something shameful or secretive. In addition, schools should continue improving access to safe, private and functional WASH facilities to support girls during menstruation.

The study also points to the need for further research on the role of parents, boys and community leaders in influencing menstrual experiences among adolescent girls. More studies are also needed to assess how culturally responsive menstrual health and WASH interventions can improve MHM outcomes in different communities in Malawi. Overall, addressing menstrual hygiene challenges requires approaches that recognize the connection between culture, sanitation, gender and education in supporting the health, dignity and school participation of adolescent girls.

5.2 Recommendations

Provide free or subsidized menstrual hygiene materials

The government and relevant stakeholders should remove taxes on menstrual pads or provide subsidies to make menstrual products affordable and accessible to schoolgirls. This will help reduce the use of unsafe alternatives such as old cloths, improve menstrual hygiene and reduce school absenteeism during menstruation.

Construct and maintain functional changing rooms in schools

Schools and WASH programs should ensure that changing rooms are available, accessible and fully functional. Changing rooms should have doors, privacy and remain unlocked during school hours so that girls can manage menstruation safely and with dignity.

Improve access to soap and hygiene materials in schools

Schools should establish student-friendly systems for managing and distributing soap at sanitation facilities. Assigning hygiene prefects or school health committees to oversee soap availability can encourage regular handwashing and improve menstrual hygiene practices among girls.

Protect and maintain school sanitation facilities

Schools should strengthen the protection of toilets and sanitation facilities to reduce vandalism and damage. Measures such as fencing toilet areas, controlling access to school premises and involving surrounding communities in safeguarding infrastructure can help maintain clean and functional facilities.

Integrate cultural considerations into WASH and menstrual health programs

WASH interventions should consider local cultural beliefs and practices related to menstruation. Programs should strengthen positive cultural practices that promote cleanliness while addressing harmful beliefs and stigma that negatively affect girls' menstrual experiences.

Promote menstrual health education and community involvement

Schools and communities should encourage open discussions about menstruation involving girls, boys, parents, teachers and community leaders. This can help reduce stigma, challenge misconceptions and create a more supportive environment for adolescent girls.

Support further research on culture and menstrual health

More studies should be conducted in different districts and cultural settings in Malawi to better understand how culture influences menstrual hygiene management. Further research can also assess the effectiveness of culturally responsive WASH interventions in improving menstrual health outcomes

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APPENDICES



Figure 6: Focus group discussions with adolescent girls during data collection in one of the selected schools

Sample size was calculated using Cochran's formula as follows:

$$n = \frac{(1.96)^2 \cdot 0.5(1-0.5)}{(0.05)^2}$$

$$\approx 384$$

The allocation for the sample size was calculated using the proportional allocation formula:

$n_i = \frac{N_i}{N} \times n$

Where: n_i= sample size for each district, N_i= female population of the district, N= total female population of all selected districts, n= total sample size (384).

The total female population for the four selected districts was calculated as follows:

$$527{,}171 + 321{,}765 + 130{,}205 + 252{,}100 = 1{,}231{,}241$$

Mzimba District

Female population = 527,171

$$n_i = \frac{527{,}171}{1{,}231{,}241} \times 384$$
$$= 164.4 \approx 164$$

Chikwawa District

Female population = 321,765

$$n_i = \frac{321{,}765}{1{,}231{,}241} \times 384$$
$$= 100.4 \approx 100$$

Rumphi District

Female population = 130,205

$$n_i = \frac{130{,}205}{1{,}231{,}241} \times 384$$

$$= 40.6 \approx 41$$

Phalombe District

Female population = 252,100

$$n_i = \frac{252{,}100}{1{,}231{,}241} \times 384$$

$$= 78.6 \approx 79$$

Form Preview

FOCUS GROUP DISCUSSION

In your community, what cultural beliefs or rules do people follow during menstruation?

What are you not allowed to do when menstruating?

What reasons do people give for these restrictions?

How do cultural beliefs affect how you use school toilets during menstruation?

When teachers teach MHM, do they talk about cultural beliefs or taboos?

Do you think teachers understand the cultural challenges you face?

What support do you wish the school gave you regarding cultural issues and menstruation?

Form Preview

KEY INFORMANTS

From your observation, what cultural beliefs in this community influence girls' menstrual hygiene management?

_____

How do these cultural beliefs affect girls' use of WASH facilities at school during menstruation?

_____

Have you noticed any cultural practices that discourage girls from using water points, toilets or hand-washing ıtions while menstruating?

_____

What impact do cultural restrictions have on girls' school attendance and participation during menstruation?

_____

Are there cultural practices in this community that promote good menstrual hygiene or support proper use of WASH :ilities?

_____

Form Preview

Influence of Culture on Menstrual Hygiene Management Among In-School Adolescent Girls in Malawi: WASH Perspective

SECTION A. DEMOGRAPHIC INFORMATION

Age of participant
(Their age

- ◯ 10-14 years
- ◯ 15-19 years

District of participant

- ◯ Chikwawa (mang'anja)
- ◯ Phalombe (Lomwe)
- ◯ Rumphi (Tumbuka)
- ◯ Mzimba (Ngoni)

Participants school Level

- ◯ Primary
- ◯ Secondary

Participants Religion

- ◯ Christian
- ◯ Muslim
- ◯ Other

her religion? , Specify

SECTION B. MENSTRUATION AND HYGIENE PRACTICE KNOWLEDGE

How do you understand by the term "menstruation"?

When did you start?

- ◯ Below 10
- ◯ 10-15
- ◯ 16-19