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**KNOWLEDGE, ATTITUDE AND PRACTICES OF  
MENSTRUAL HEALTH MANAGEMENT IN RURAL  
COMMUNITIES IN THE SOUTH WEST REGION,  
CAMEROON**

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VISION IN ACTION CAMEROON

30<sup>th</sup> May, 2024

**VISION IN ACTION CAMEROON**

## **Abstract**

### **Introduction**

This study explores the knowledge, attitudes, and practices surrounding menstrual health management (MHM) within a specific community. The research highlights significant gaps in understanding of the menstrual cycle, varying levels of comfort in discussing menstruation, and community treatment of menstruating women. Additionally, it examines the sources of information about MHM and the challenges faced by individuals due to menstrual issues. The study aims to identify areas where public health interventions and educational programs can improve menstrual health outcomes.

### **Methodology**

This study employed a cross-sectional descriptive design, focusing on eleven communities within the Buea, Limbe, and Tiko health districts. A total of 2,018 participants, ranging in age from 11 to 80 years, were surveyed using a standardized questionnaire available in both English and French. The questionnaire covered topics related aspects of menstrual health, including the understanding of the menstrual cycle, attitudes towards menstruation, sources of MHM information, challenges related to menstruation related reproductive health issues. Participants were selected using consecutive sampling and a multi-stage sampling technique. Data collection occurred between March and May 2024, and the data were analysed using SPSS version 25, with results presented in frequencies and percentages. Participants' responses were analyzed to identify knowledge gaps, attitudes, and practices that influence menstrual health management within the community.

### **Results**

The findings reveal that 32.8% of participants were unsure of the menstrual cycle's duration, indicating a significant knowledge gap. Additionally, 44.9% of participants felt very comfortable discussing menstruation, while 22.1% were uncomfortable. In terms of community treatment, 39.1% reported indifference and ignorance toward menstruating women, while 37.7% noted respectful and supportive treatment. Regarding sources of information, 46.6% of participants received MHM information from family and peers, and 26.6% reported limited access to reliable information. Additionally, 22.5% of participants reported knowing someone or personally missing school or work due to menstrual issues.

### **Conclusion**

The study highlights critical areas for intervention, including the need for comprehensive education on the menstrual cycle and MHM practices. Improving community awareness and attitudes towards menstruation is essential for fostering a supportive environment for menstruating individuals. Enhancing access to reliable information and healthcare resources is crucial to addressing the challenges associated with menstruation. Public health initiatives should focus on culturally sensitive approaches to reduce stigma and promote positive attitudes towards menstrual health.

**Keywords:** Menstrual Health Management, Knowledge, Attitude, Practice, Menstruation, Sexual and Reproductive Health.

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## Introduction

According to the World Health Organization (WHO), sexual and reproductive health issues are a rising problem around the globe. Among them, menstrual hygiene is a critical issue encountered by women and girls of reproductive age that negatively affects their health and empowerment [1]. Across the globe, 1.8 billion girls menstruate each month, yet a major portion of this population lacks adequate knowledge as well as basic facilities to handle their menstruation in an appropriate and healthy way [2]. Moreover, menstruation is still deemed a taboo subject in several parts of the world [3,4]. The literature states that young people in low- and middle-income countries (LMICs) confront challenges related to menstruation and menstrual hygiene practices due to religious, cultural, and social constraints and due to incorrect information [5]. Moreover, girls residing in rural areas encounter more problems, since they lack the proper resources, skills, and knowledge to manage their menstruation in school as well as at home [6]. In Cameroon, menstruating girls have insufficient information about practices regarding menstruation and menstrual hygiene and, consequently, this impacts the wellbeing of such girls [7].

The WHO has defined adolescents as those aged 10 to 19 years, whereas young people range from 10 to 24 years of age. Adolescence and adulthood are crucial as such individuals experience major changes in their physical, hormonal, emotional, behavioural, and mental health. Young people are more likely to adopt unhealthy behaviours and encounter many problems related to their sexual and reproductive health [8]. Because of this transition, young girls face difficulties in managing their menstruation and are exposed to societal taboos [9]. However, menstruation or menses is a normal process in females when they reach reproductive age [10]. There is evidence that, both in developed and underdeveloped countries, girls experience the early onset of menstruation due to changes in lifestyle, environmental factors, and geographical location [11]. The literature highlights that a lack of appropriate information at the first menstrual cycle creates many problems for girls in managing their menstrual hygiene [3,12].

The WHO and UNICEF's joint monitoring program (JMP) has defined menstrual hygiene management as the usage of hygienic material for menstrual management, to absorb the blood of menstruating girls or women every month [13]. This can be changed as per need in an environment that provides privacy, respect, and comfort, and permits the washing of the hands and body, when required, with soap and clean water, as well as the ability to discard the used materials properly. Improper menstrual hygiene management (MHM) can lead to low self-esteem, negative body image, and unsafe sexual practices [14]. Considering its impact on women's lives, May 28th is celebrated as "Global Menstrual Hygiene Day", which was introduced by WASH United to create awareness and to recognize the rights of girls to manage their menstruation hygienically [15].

Girls in developing countries encounter problems in managing menstruation properly because they lack the basic facilities of WASH (water, sanitation, and hygiene), proper information, a suitable environment, and support, which ultimately, affects their basic human rights to education, health, and privacy [16,17]. This is due to a lack of knowledge, improper awareness, and poor attitudes and practices towards menstruation and menstrual hygiene [5,9]. Additionally, several studies have revealed that the lack of availability of WASH facilities at schools, anxiety about blood dripping onto clothes, a lack of access to sanitary pads, and the poor attitudes of male students and teachers towards menstruation are linked

with poor menstrual hygiene [18]. Moreover, girls residing in rural areas, and studying in lower classes, have demonstrated poor knowledge of menstruation [17,18] These factors ultimately affect the health of girls, thus becoming an issue of public health [17]. Moreover, another article has identified that insufficient knowledge and awareness about menstruation builds harmful practices and, thus, it can cause pelvic infections, cervical cancer, school dropouts, poor academic outcomes, and low standards of living [19].

In Cameroon, menstruation is a very big problem for the young adolescent mothers, especially in rural areas. Many healthcare workers recognize the challenge that mothers and girls go through, but they do not raise it in the community or do something about it; they just allow things to be. There are traditional methods like giving them herbs to bathe with separately, stuff that they drink, or stuff that they wash plants and their clothing with. They also use traditional sanitary pads which are believed to ease the flow, pain, and fevers they experience during menstruation. However, the health and social impacts of such practices are often disregarded. As a member of the community, it is important to look at practices regarding menstrual health and give some ideas which, if shared with the rest of the people, change will happen. [20]

Menstrual health is crucial for the overall wellbeing, dignity, and self-confidence of women and girls. For the millions of women and girls, especially the younger ones, still unaware and facing difficulties day in, day out in managing their menstruation, every sanitary products manufacturer should focus on innovation and keeping the cost low. The level of information and peer support that they receive, as well as the privacy and hygienic conditions available at the schools, are also fundamental to mitigate the embarrassment, shame, and frustration that continue to plague female students and discourage them from dignifying participation in schools. Therefore, while there are so many technical and material components in the vision of a more menstrual health-conscious society, the most important components still lie in changing the societal attitudes and habits, and this is where behavioural theorization and practice assessment are needed to contribute significantly to women and girls having healthy menstruation management conditions. [21,22,23]

## **1. Background and Rationale**

The promotion of adolescents' health in terms of behaviour, and the reduction of social and cultural barriers that may hinder this process, is a major contributor towards the health of the adult population and future generations. Adolescents and young persons are faced with several challenges during menstruation, including pain and discomfort, shame, stigma, sexual abuse, and skipping school [24]. Access to psychosocial support, accurate information, health education, and appropriate sanitary care is limited because parents, society, and the education sector do not make liberal contributions towards MHM in order to elucidate possible stigma and taboos, in order to have a feeling of community, social, and personal values and norms. In addition, families and health personnel neglect adolescent and young persons' MHM experiences; this has an impact on their self-confidence, social esteem, and interaction, which may be a predictor of early age or precocious sexual initiation, which will lead to an increased risk of exchanging intercourse for money, having intercourse without a condom, and with multiple sexual partners. [25,26]

Adolescents and young persons, who are students, are faced with several challenges during menstruation, including shame, stigma, and embarrassment. They have limited access to

menstrual health management (MHM) information and materials, poor MHM, and are at an increased risk of having intercourse without a condom and with multiple sexual partners. In Cameroon, there is a lack of documented evidence related to the knowledge, attitude, practices, and behaviour of adolescents and young persons towards menstrual health management. [27,28,29]

It is imperative to study adolescents' awareness and perceptions of menstruation and management across various geographical locations in order to determine interventions that are required to improve their understanding, ensure better use of sanitary materials and mobilize other needed resources. Despite the importance of this subject matter to the general health of menstruating girls, there is a paucity of research findings in this subject matter in Cameroon generally and in the South West Region in particular. This study was conducted on knowledge, attitude, and practices towards menstrual health management among adolescents and young persons in the South West Region of Cameroon.

A study undertaken in the South West Region of Cameroon has reported very low knowledge amongst young persons on menstruation and menstrual health management and revealed that this was associated with the occurrence of menstrual challenges. Considering the importance of good menstrual health to the general well being of the girl-child, studies on the situation of menstruating girls' knowledge, attitude and practices are essential as it helps to outline essential information that can aid the protection of the rights of menstruating girls. This will then result in the protection of the dignity of the girl-child and significantly prevent any adverse implications associated with poor menstrual health.

This issue of stigma and shame can lead to menstrual health management (MHM) challenges, including poor menstrual hygiene and limited knowledge, driving the use of unhygienic practices. Menstrual hygiene is an important aspect of hygiene for women and adolescent girls of reproductive age and positively affects female attendance and performance in school [30]. However, there is a distinct lack of research around adolescents and MHM in sub-Saharan Africa to measure knowledge, attitudes, and practices. This impacts access to accurate and relevant information, facilities, and support. This study wanted to address this gap by evaluating the knowledge, attitudes, and practices of adolescents and young persons towards MHM in the South West Region of Cameroon.

Of Africa's 1.2 billion people, 200 million are young people aged 15–24 years. Four in 10 people in sub-Saharan Africa are under the age of 15 years, and this group, especially females, are often vulnerable and face specific conditions [31]. Adolescents and young persons face several challenges such as puberty, menstruation, and sexual activity and can face risks related to sexual and reproductive health (SRH). Menstrual hygiene may be particularly problematic due to the taboo nature of menstruation as a topic and the significant gaps in education around menses [32]. The shame and embarrassment surrounding menstruation for both male and female respondents amplify the stigma and shame related to menstruation for adolescents and young persons in low and middle-income countries (LMIC) – where the phenomenon known as "period poverty" or "bleak days" exists [33].

## **2. Objectives**

1. To assess the level of knowledge about menstrual health among adolescents and young persons in the South West region of Cameroon.

2. To evaluate the attitudes of adolescents and young people towards menstruation and menstrual health management.
3. To examine the practices related to menstrual health management among adolescents and young persons.
4. To develop recommendations for improving menstrual health management among adolescents.

### **3. Methodology**

#### **3.1 Study Design**

This study employed a quantitative research design using the cross-sectional descriptive approach. It was conducted at eleven selected rural communities in the health districts of Buea, Limbe and Tiko in the South West Region of Cameroon. The reason for selecting these communities was the convenient location, opportunities, and the availability of adolescents and young persons from different locations, cultures, and socioeconomic backgrounds.

#### **3.2 Study Population**

The participants who were selected for the collection of data were any individual living in these communities (the age limit was 11 to 35+ years), who were willing to participate in the study and were residents of these communities. Moreover, they could easily understand and speak in English, French or Pidgin English. However, participants who were not prepared to participate in the study and those who did not sign, or their guardian did not sign, the consent form were excluded from the study. Participants were assured about their privacy, confidentiality, and anonymity throughout the study

#### **3.3 Sampling strategy and sample size**

Consecutive sampling was applied to collect data from the participants. The sample size was determined using the Open Epi software version 3.01, with a significance level of 95% and a 5% margin of error. The total population of 2018 participants were included in the study.

A multi-stage sampling technique will be employed:

1. Stage 1: Purposive selection of districts within the South West region.
2. Stage 2: Convenient selection of communities within these districts that fit specific criteria of the project.
3. Stage 3: Random sampling of adolescent boys and girls and young persons within the selected communities.

#### **3.4 Data Collection**

For the collection of data, a standardized questionnaire was used. The questionnaire to evaluate the knowledge, attitudes, and practices was developed from previous studies that were conducted. The tool considered the demographic details of the participants and their knowledge, attitudes, and practices regarding menstrual health management. Moreover, multiple responses, single responses and open question responses were included in the

questionnaire. The study questionnaires were translated into the national languages, English and French, by language experts. Additionally, to eliminate any discrepancies, and to maintain the exact meaning and quality of the questionnaires, back-translation was performed by an independent expert who was not aware of the previous translation in both languages. The questionnaire was later designed in an online platform; kobotoolbox to facilitate data collection. A pilot study was carried out with 10% of the chosen sample, to rule out any inappropriateness and discrepancies in filling the questionnaire. The questionnaires were administered by the data collectors.

Official permission was obtained from the Regional delegation of Public Health for the South West region, from the respective health districts selected (Buea, Limbe and Tiko) and the community heads (Chiefs and traditional councils). Eligible participants were asked to give their consent. The participants were thoroughly briefed about the purpose of the study, the risks and benefits, their voluntary participation, and their right to withdraw from the study whenever they wished. Likewise, parents/guardians were approached through the eligible participants and consent was also obtained from them. The data collection was completed in three months, from March 2024 to May 2024.

### 3.5 Data Analysis

Quantitative data was collected using the kobotoolbox app. After the collection of data, the researchers checked the completed questionnaires for their completeness and accuracy. The data was cleaned and coded using Microsoft Excel 2016, imported and analyzed using Statistical Package for the Social Sciences (SPSS) version 25. The mean and standard deviation were calculated for continuous variables and frequencies and percentages for categorical variables. The frequencies and percentages have been presented using tables and charts. Knowledge, attitude and practice scores were computed and later categorised in “adequate” or “inadequate”.

## 4. Results

### 4.1. Demographic Details of the Study Participants

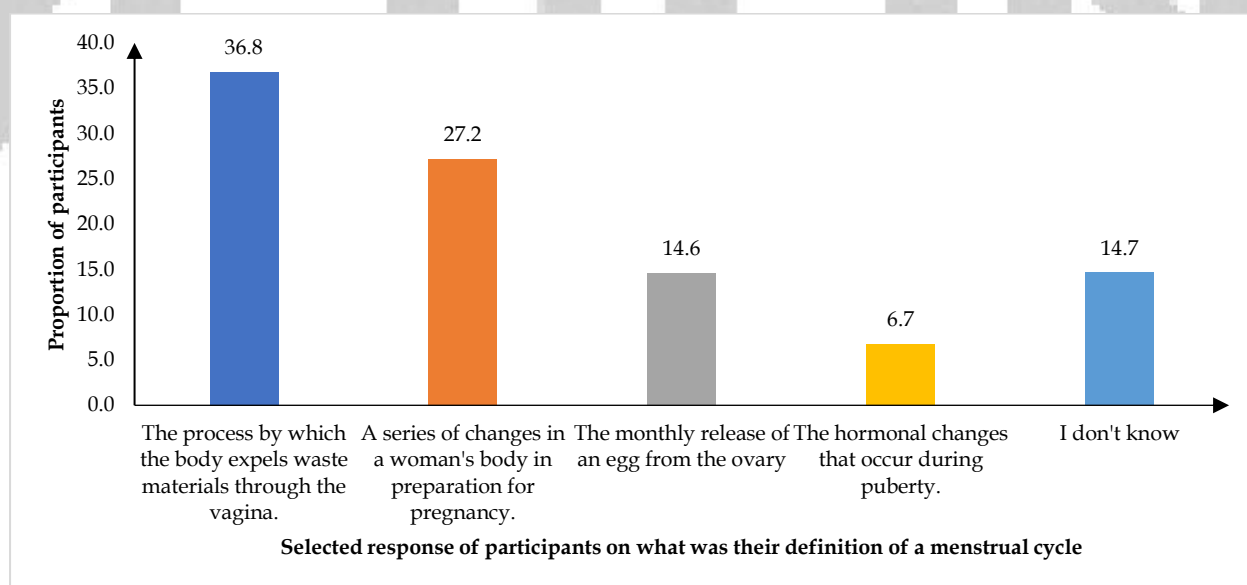
In total, 2018 individuals participated in the study, and the mean age ( $\pm$ standard deviation) of the study participants was 28.71 ( $\pm$ 9.55) years, ranging from 11 to 80 years. The analysis of gender showed that the majority of study participants 63.3% (n = 1277) were female, followed by males, 36.65% (n = 740). Furthermore, study participants were grouped following their ages in various categories. And more than half 51.8% (n = 1045) of them felt within the young persons age group, 19 - 30 years. The demographic details are provided in **Table 1**.

**Table 1: Demographic characteristics of study participants**

Variable	Category	Frequency (n)	Percent (%)
Gender	Female	1277	63.30
	Male	740	36.65
	Other	1	0.05
	<b>Total</b>	<b>2018</b>	<b>100.0</b>
Age group	11-18 years	287	14.2
	19-30 years	1045	51.8
	+30 years	686	34.0
	<b>Total</b>	<b>2018</b>	<b>100.0</b>

**4.2. Knowledge of study participants regarding menstrual health management**

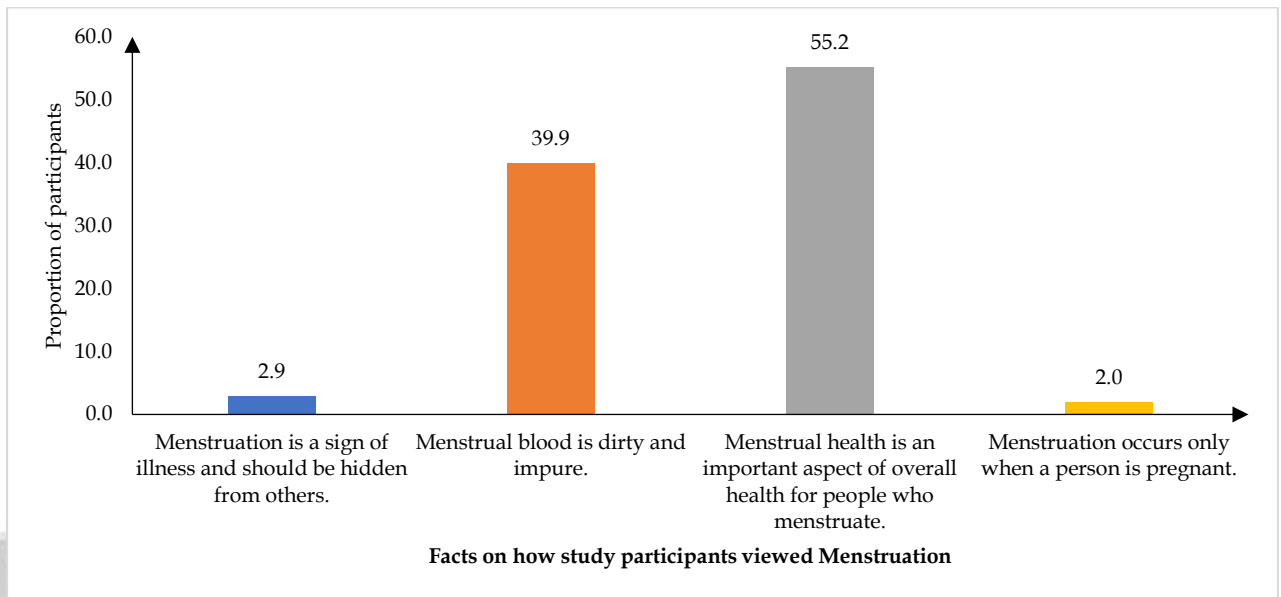
Study participants were asked to define "what is a menstrual cycle?" Based on their responses, 36.8% (743) described it as the process by which the body eliminates waste through the vagina. Meanwhile, 27.2% (525) defined it as a series of changes in a woman's body preparing for pregnancy, 14.6% (295) described it as the monthly release of an egg from the ovary, 6.7% (136) referred to it as a hormonal change occurring during puberty, and 14.7% (296) admitted they didn't know what the menstrual cycle was (**Figure 1**).



**Figure 1: Selected response of participants on what was their definition of a menstrual cycle**

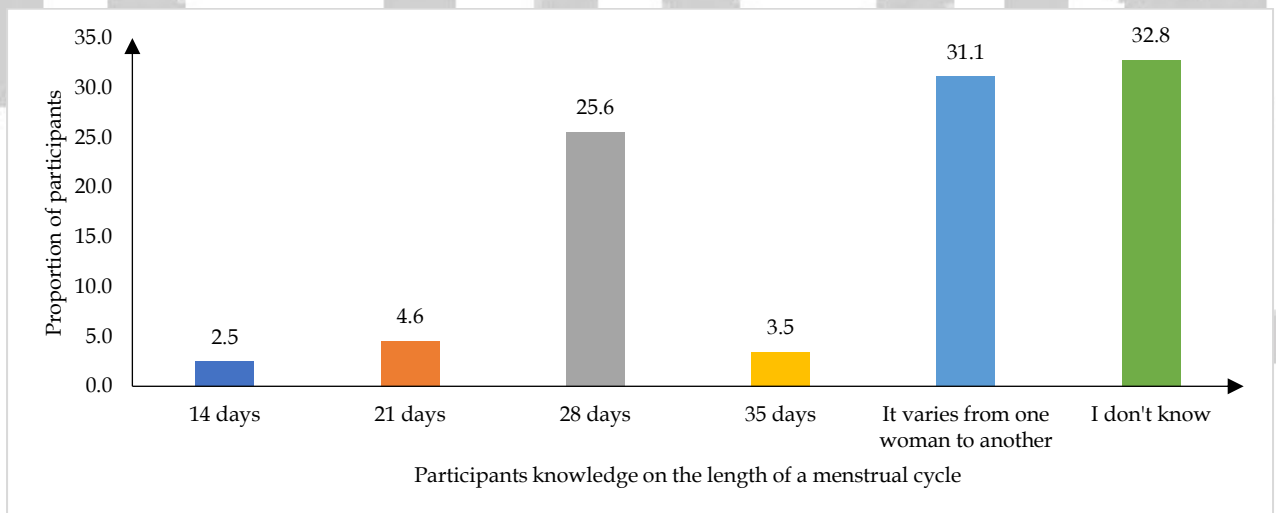
The results indicate that when participants were asked about their understanding of menstruation, 2.9% (58) thought menstruation is a sign of illness and should be concealed from others. On the other hand, 39.9% (805) considered menstrual blood to be dirty, whereas

a majority of 55.2% (1,114) acknowledged that menstruation is a crucial aspect of health for those who menstruate. Additionally, 2.0% (41) incorrectly believed that "menstruation only occurs during pregnancy (Figure 2).



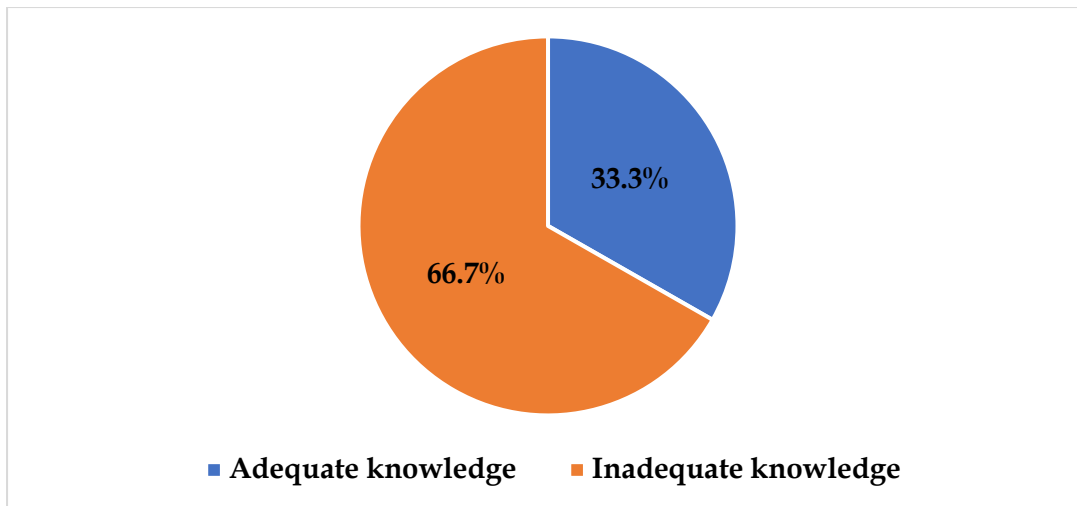
**Figure 2: Facts on how study participants know on Menstruation**

The study results reveal that 2.5% (50) of participants believe the menstrual cycle lasts 14 days, while 4.6% (92) think it lasts 21 days. Additionally, 25.6% (516) believe it lasts 28 days, 3.5% (70) say it lasts 35 days, and 31.1% (628) say the length varies from woman to woman. Meanwhile, 32.8% (662) of participants admitted they do not know the duration of a menstrual cycle (Figure 3).



**Figure 3: Participants knowledge on the length of the menstrual cycle**

As seen on the figure 4 below, majority of participants 66.7% (1347) have inadequate knowledge about MHM in the community.

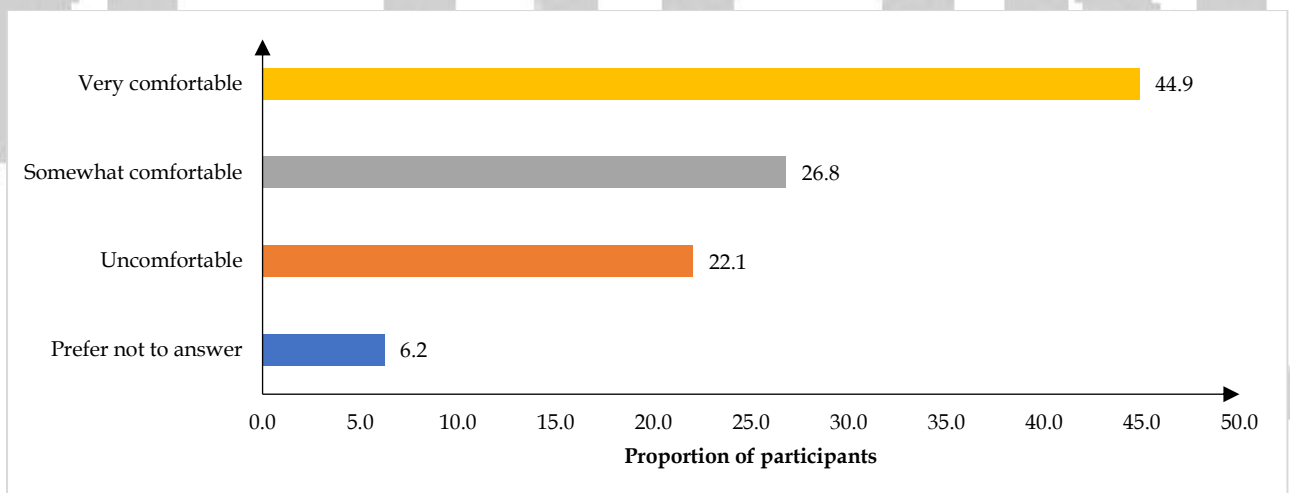


**Figure 4: Knowledge Levels About Menstrual Health Management in the Community**

### 4.3. Attitudes of study participants regarding menstrual health management

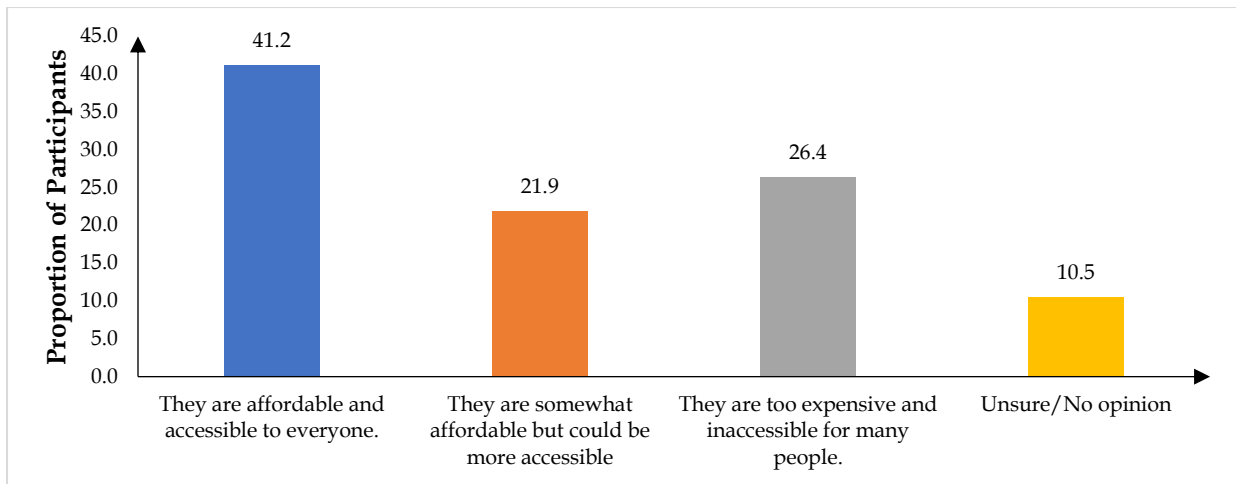
The second goal of the study was to assess the target population's attitudes towards menstrual hygiene management (MHM).

The analysis revealed that approximately 44.9% (906) of participants felt very comfortable discussing menstruation with friends, family members, or peers, 26.8% (541) felt somewhat comfortable, 22.1% (445) felt uncomfortable discussing menstruation, and 6.2% (126) preferred not to answer the question (Figure 5).



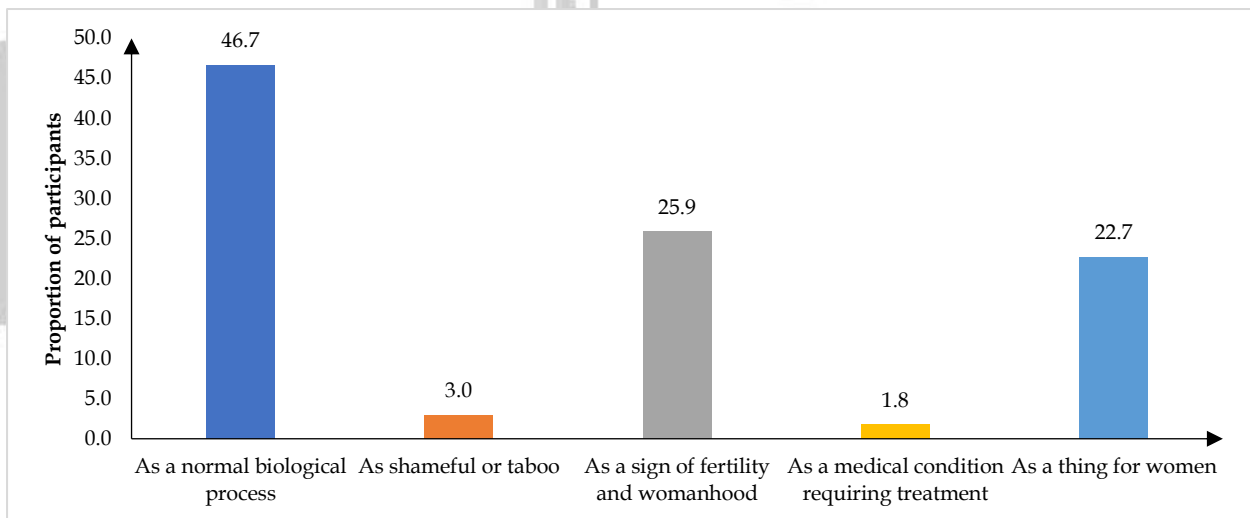
**Figure 5: Comfortability attitude of participants to talk about menstruation**

Based on the data collected regarding the affordability of menstrual hygiene products, 41.2% (831) of the study population stated that these products are affordable and accessible to everyone. Meanwhile, 21.9% (442) said they are somewhat affordable but could be more accessible, 26.4% (533) found them expensive and inaccessible to many people, and 10.5% (212) had no opinion on the affordability of menstrual hygiene products (Figure 6).



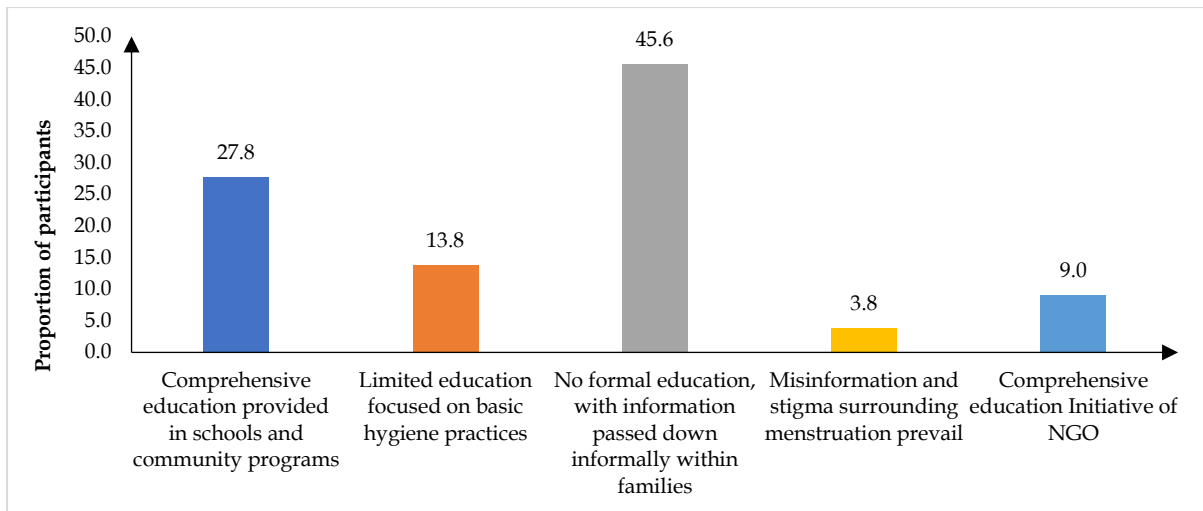
**Figure 6: Participants opinions on the affordability and accessibility of menstruation product in the community**

To determine the community's attitude towards menstruation, 46.7% (942) of participants said it is accepted as a normal biological process. Meanwhile, 3.0% (60) mentioned it is still considered shameful and a taboo, 25.9% (522) said it is seen as a sign of fertility and womanhood, 1.8% (36) viewed it as a medical condition requiring treatment, and 22.7% (458) considered it strictly a woman's issue (Figure 7).



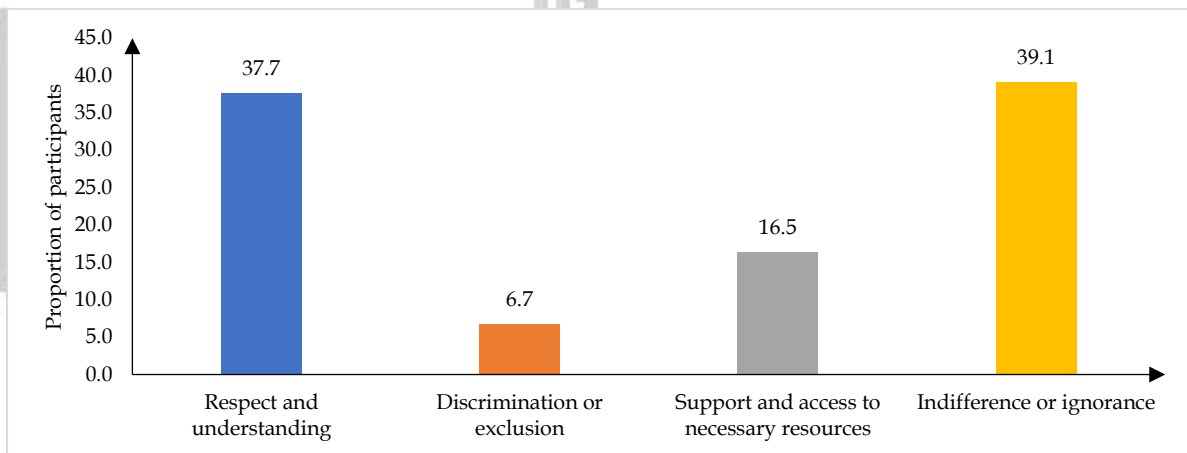
**Figure 7: Community attitude towards menstruation**

The analysis also revealed that at the community level, a majority of participants, 45.6% (920), reported that there is no formal education on menstruation, with information being passed down informally within families. For formal information, 27.8% (560) said they received comprehensive education on menstruation through schools and community programs, 13.8% (279) mentioned they had limited education focusing on basic hygiene practices, 3.8% (77) noted that misinformation and stigma about menstruation still exist in their communities, and 9.0% (182) stated they received supportive comprehensive education from NGO initiatives (Figure 8).



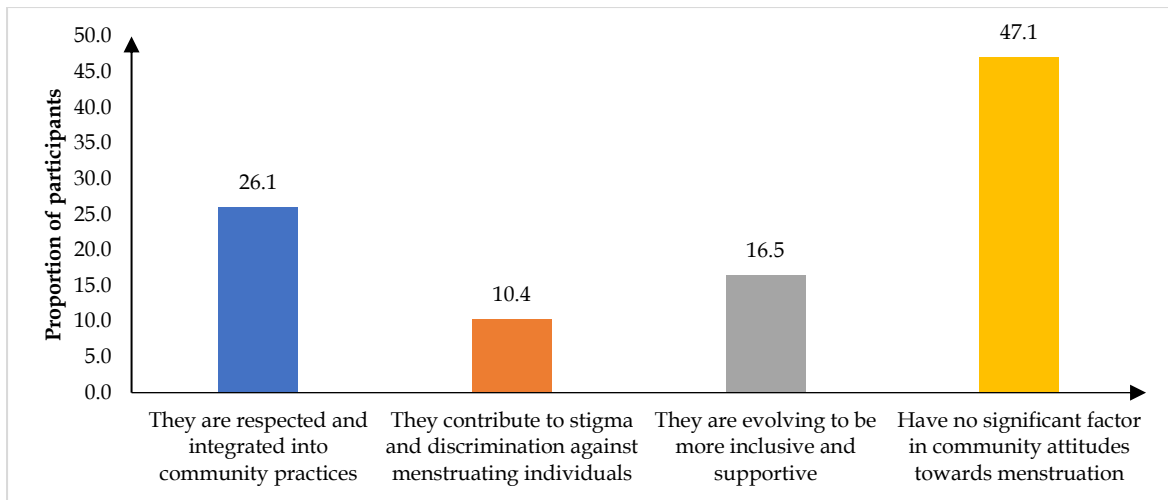
**Figure 8: Types of education on menstruation available in the community**

From the participants' information on how women are treated during menstruation in the community, over one-third, 39.1% (790), reported that the community still shows considerable indifference and ignorance towards menstruating girls or women. Despite this, 37.7% (760) of participants mentioned that some communities treat women with respect and understanding during menstruation, and 16.5% (332) reported that support and access to necessary resources are provided (Figure 9).



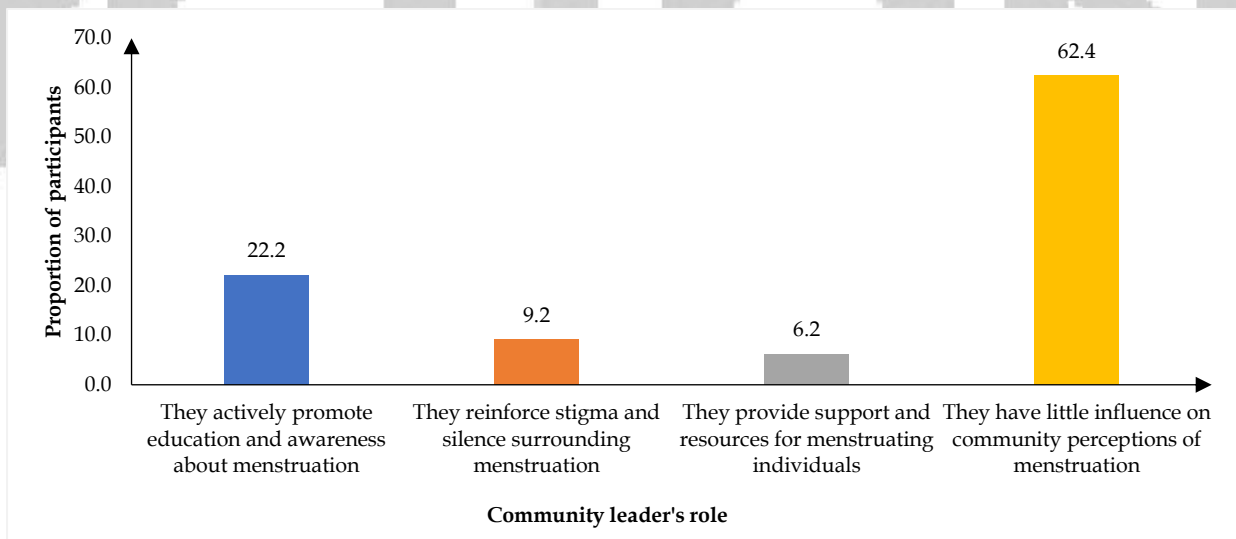
**Figure 9: Attitude community have towards girls/women who are menstruating**

According to the data provided by study participants on the impact of cultural or religious beliefs on menstruation in the community, 26.3% (496) reported that women are respected and included in community practices during menstruation. Conversely, 10.9% (206) said these beliefs result in stigmatization and discrimination of menstruating women. Additionally, 13.7% (259) observed that cultural and religious attitudes are becoming more inclusive and supportive, while 49.0% (925) reported that these beliefs do not significantly influence community attitudes toward menstruation (Figure 10).



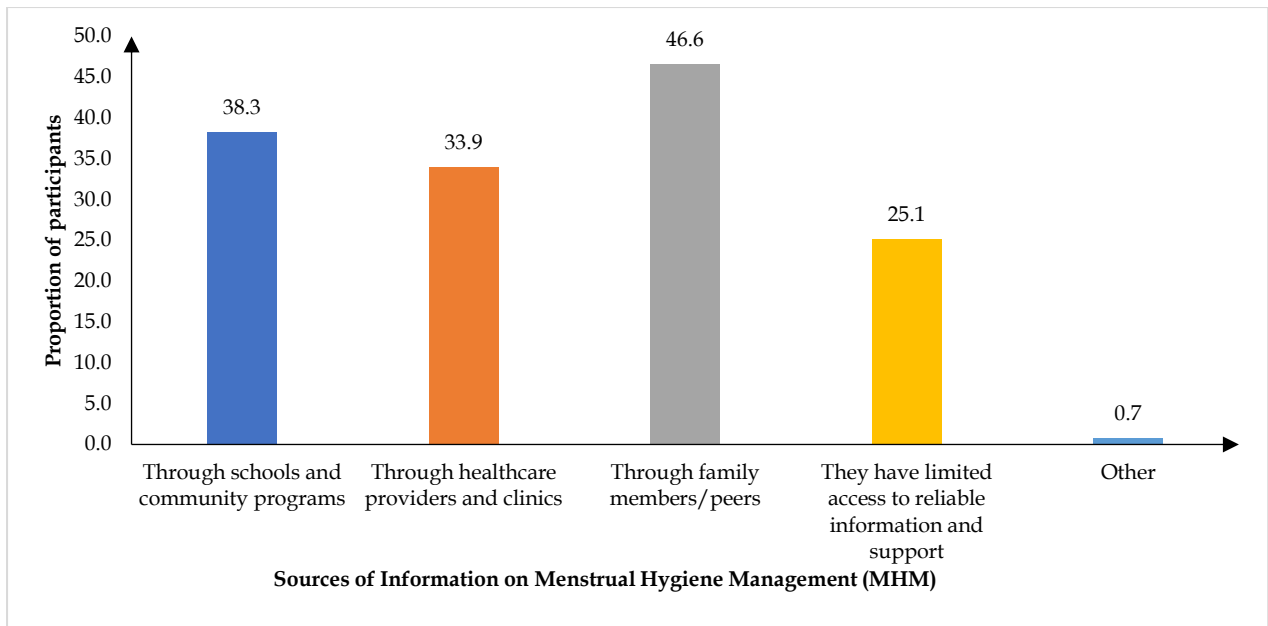
**Figure 10: Community Attitudes Towards Menstruation Based on Cultural and Religious Beliefs: Participant Responses"**

Concerning the role of community leaders in advancing menstrual health practices, a significant majority, 61.3% (1156), reported that leaders have minimal or no impact on community perceptions of menstruation. Meanwhile, 22.5% (42) of participants noted that leaders actively promote education and awareness about menstruation. Additionally, 9.8% (184) said that leaders perpetuate stigma and discourage discussion about menstruation, and 6.5% (122) reported that leaders offer support and resources for menstruating individuals (Figure 11).



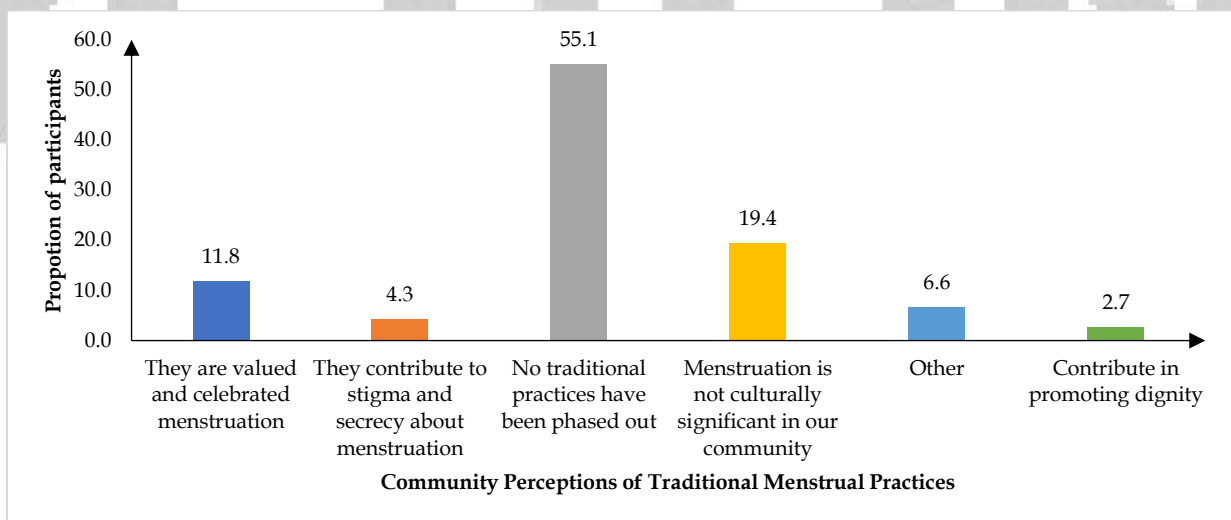
**Figure 11: Perceptions of Community Leaders' Influence on Menstrual Health Practices: Participant Responses**

According to the collected data, 38.3% (705) of participants reported getting information about menstrual health management (MHM) from schools and community programs, 33.9% (677) received information from healthcare providers and clinics, 46.6% (841) obtained information from family members and peers, and 26.6% (501) reported having limited access to reliable information and support (Figure 12).



**Figure 12: Sources of Information on Menstrual Hygiene Management: Participant Responses**

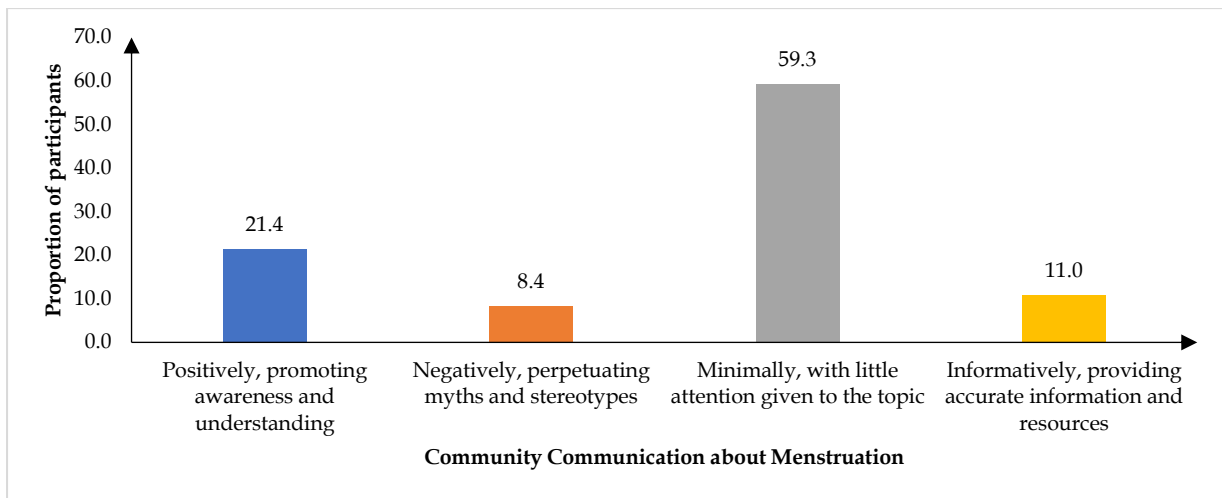
When questioned about traditional menstruation practices in their community, 11.8% (239) of the study participants reported that these practices value and celebrate menstruation. Conversely, 4.3% (86) said these practices contribute to stigma and secrecy. The majority, 55.1% (1112), noted that traditional practices have been phased out, and 19.4% (392) mentioned that menstruation has no cultural significance in their community. Additionally, 2.7% (55) indicated that the practices "promote dignity (Figure 13).



**Figure 13: Community Perceptions of Traditional Menstrual Practices: Participant Responses**

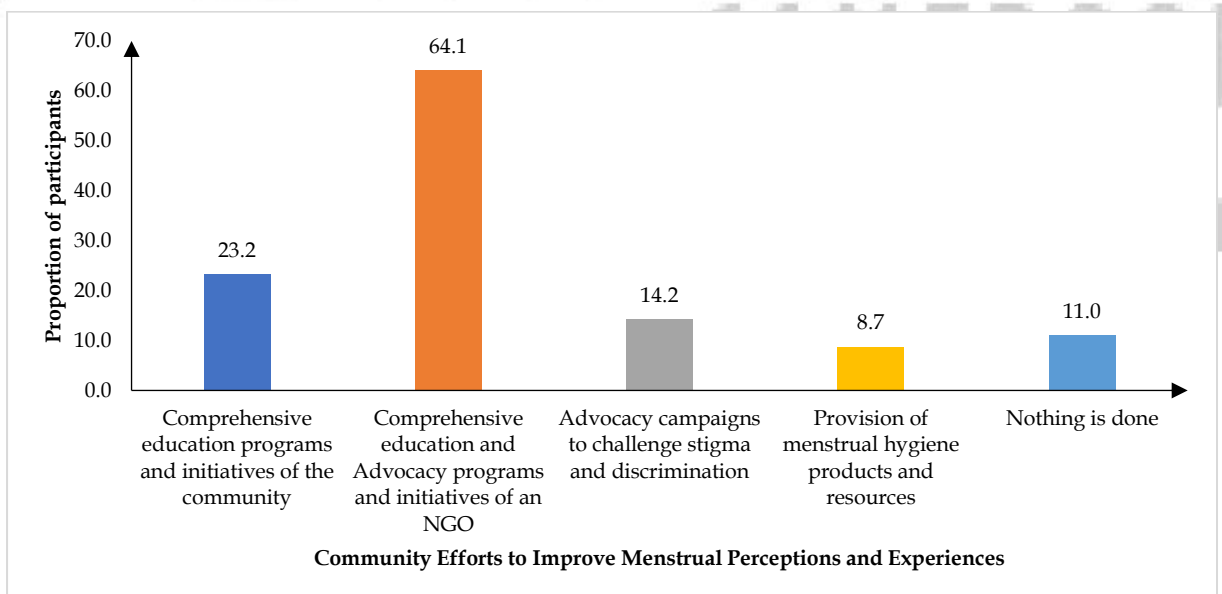
According to the study data, 21.4% (431) of participants reported that their community communicates positively about menstruation, fostering awareness and understanding. In contrast, 8.4% (169) said their community communicates negatively, reinforcing myths and stereotypes. The majority, 59.3% (1197), indicated that their community addresses the issue minimally, giving it little attention. Additionally, 11.0% (221) noted that their community

provides informative communication, offering accurate information and resources for menstrual health management (Figure 14).



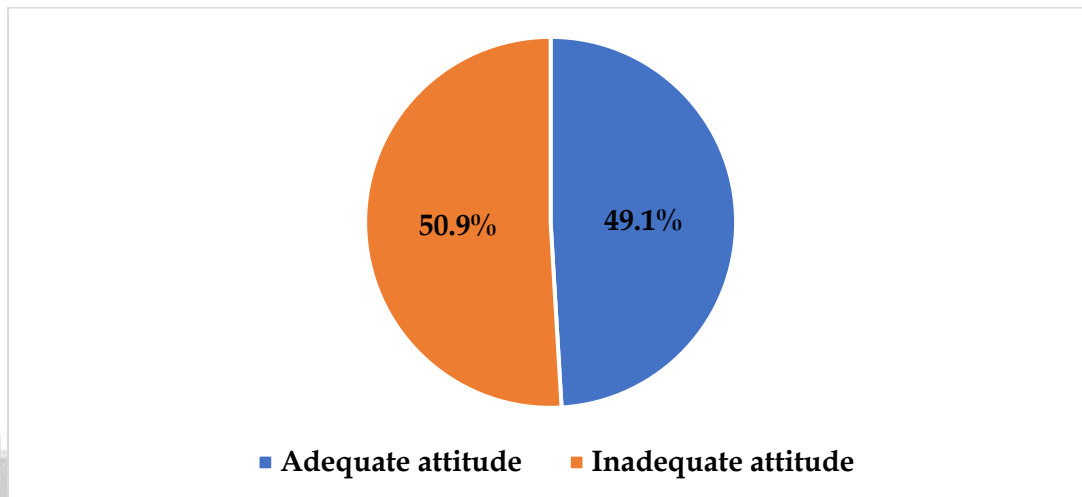
**Figure 14: Community Communication Patterns Regarding Menstruation: Participant Responses**

This study also sought to identify community efforts to improve perceptions and experiences related to menstruation. According to the findings, 23.2% (469) of participants reported that the community organizes comprehensive education programs on their own initiative. Meanwhile, 64.1% (1,293) said that NGOs and advocacy groups are responsible for organizing comprehensive education programs on menstrual health management. Additionally, 14.2% (287) mentioned that advocacy programs are in place to combat stigma and discrimination against menstruating individuals. Furthermore, 8.7% (175) noted that the community provides menstrual hygiene products and resources, while 11.0% (222) stated that no efforts are made by the community regarding menstruation (Figure 15).



**Figure 15: Community Efforts to Improve Perceptions and Experiences Related to Menstruation: Participant Responses**

As seen on the **figure 16** below, majority of participants 50.9% (1028) have inadequate knowledge about MHM in the community.

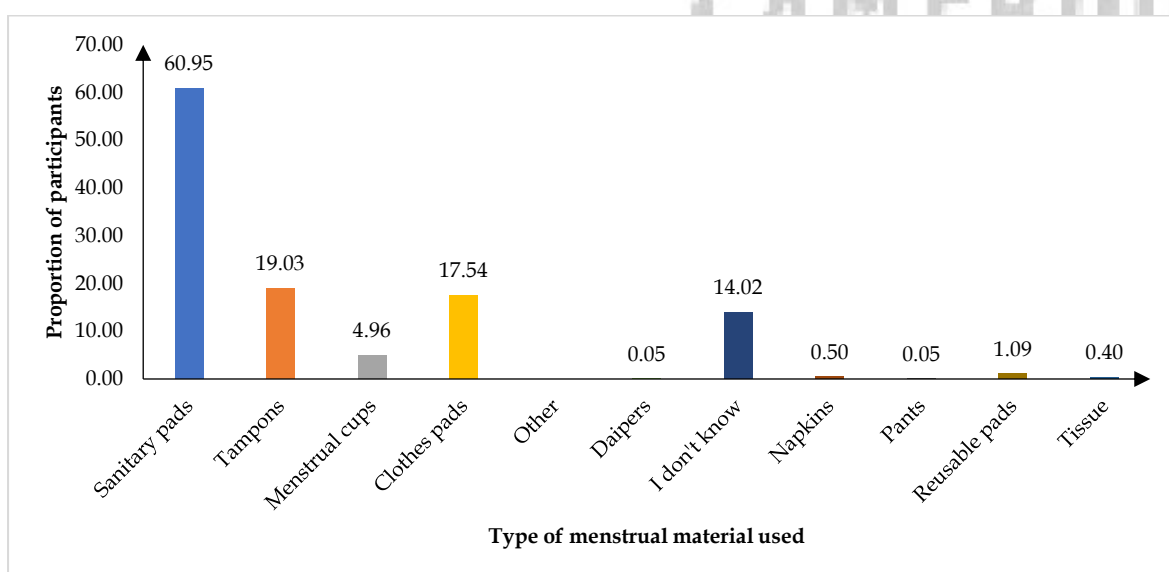


**Figure 16: Attitude Levels About Menstrual Health Management in the Community**

#### 4.4. Practices of study participants regarding menstrual health management

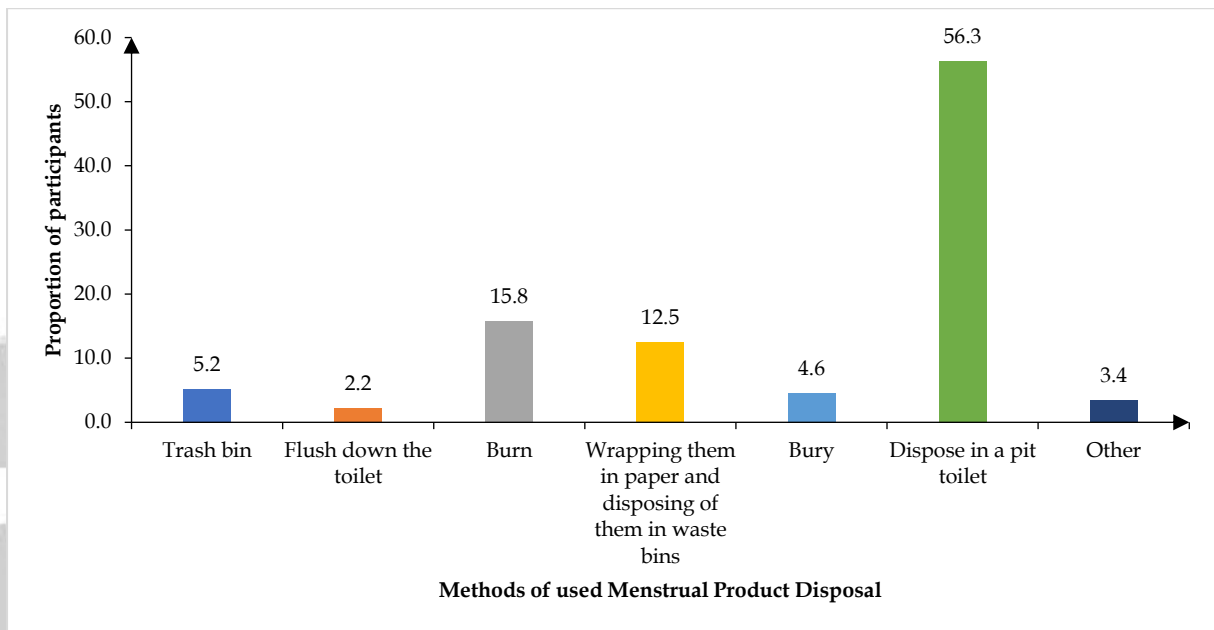
The third aim of the study was to identify the various forms of practices related to menstruation in the communities.

In this study, 60.95% (1230) of participants identified sanitary pads as the primary product used during menstruation. Additionally, 19.03% (384) mentioned tampons, 4.96% (100) referred to menstrual cups, and 17.54% (354) stated that cloth pads are the main product used by menstruating individuals in the community (**Figure 17**).



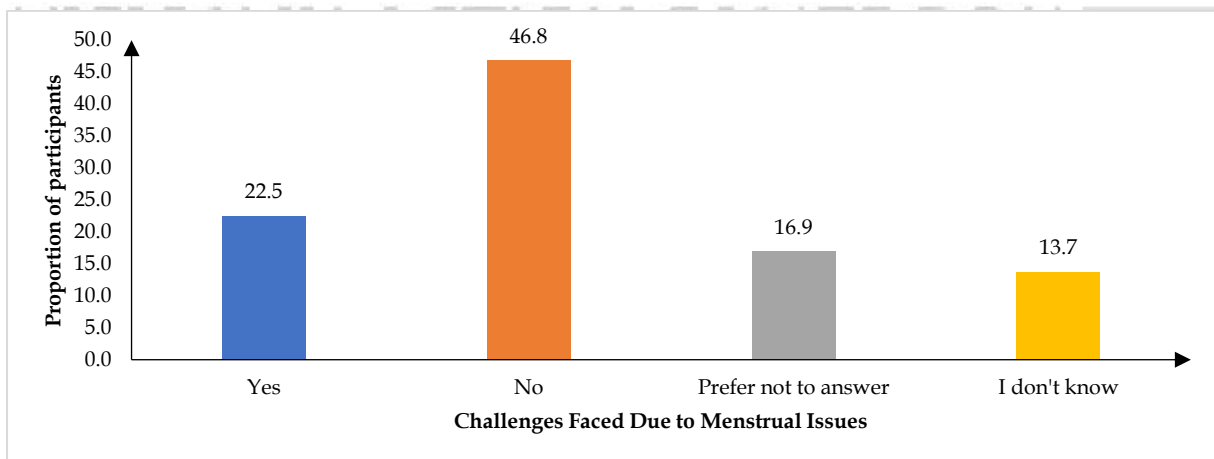
**Figure 17: Awareness of Menstrual Products: Participant Responses**

According to the study data, community residents use various methods to dispose of used menstrual products. Of the participants, 5.2% (105) reported throwing used pads in the trash, 2.2% (44) flushed them down the toilet, and 15.8% (318) burned waste products such as used pads and menstrual cups. Additionally, 12.5% (252) said they wrap them in paper before discarding them in the trash, 4.3% (82) bury the used products in pits around their homes, and 56.3% (1,137) dispose of them in pit toilets. Other responses included 2.8% (72) who wash and dry cloth pads for reuse, while 0.6% (12) were unsure of how menstruating individuals dispose of their materials (**Figure 18**).



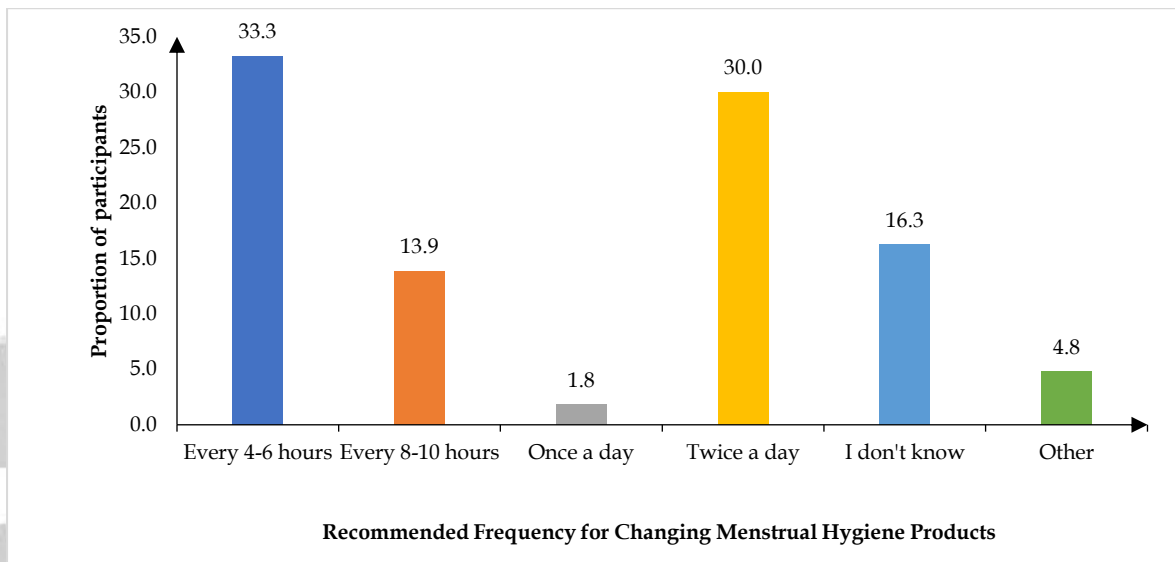
**Figure 18: Methods of Menstrual Product Disposal in the Community: Participant Responses**

When asked about challenges related to menstruation, 22.5% (454) of participants reported knowing someone or personally missing school or work due to menstrual issues. In contrast, 46.8% (945) said they did not know anyone who had faced this problem and had not experienced it themselves. Additionally, 16.9% (342) chose not to answer the question, and 13.7% (277) were uncertain if they or someone they knew had encountered such challenges (**Figure 19**).



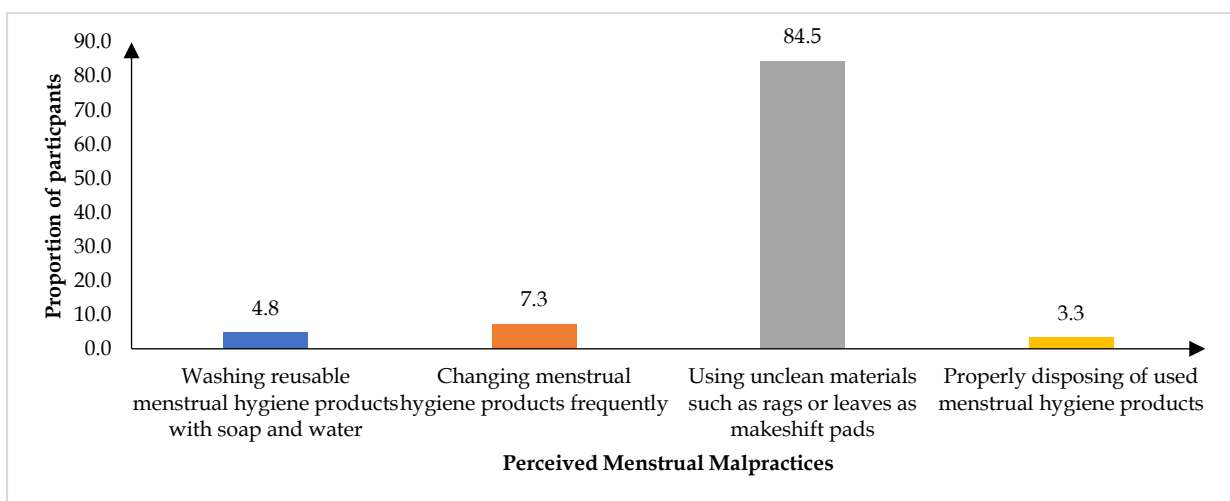
**Figure 19: Challenges Faced Due to Menstrual Issues: Participant Responses**

Participants in the study gave a range of responses about how often a menstruating woman should change her menstrual hygiene product each day. According to their answers, 33.3% (671) said she should change it every 4-6 hours, 13.9% (280) suggested every 8-10 hours, and 30.0% (605) indicated once or twice a day. Additionally, 3.1% (68) believed it should be changed every 1-3 hours, 1.3% (25) recommended changing it 3-4 times a day, and 1.4% (26) said the frequency should depend on the heaviness of the flow. Finally, 16.3% (328) of participants stated they did not know how often a woman should change her menstrual product (Figure 20).



**Figure 20: Recommended Frequency for Changing Menstrual Hygiene Products: Participant Responses**

When examining menstrual malpractices within the community, study participants expressed various opinions: 4.8% (97) stated that washing reusable menstrual hygiene products with soap and water is not recommended, 7.3% (148) believed that frequently changing menstrual hygiene products is not advisable, and 84.5% (1,706) indicated that using unclean materials such as rags or leaves as pads is not a recommended practice. Additionally, 3.3% (67) of participants mentioned that properly disposing of used menstrual hygiene products is not considered a good practice (Figure 21).



### Figure 21: Perceived Menstrual Malpractices in the Community: Participant Responses

As illustrated in Figure 22 below, the majority of participants, 58.3% (1,177), exhibit inadequate menstrual hygiene management (MHM) practices within the community.

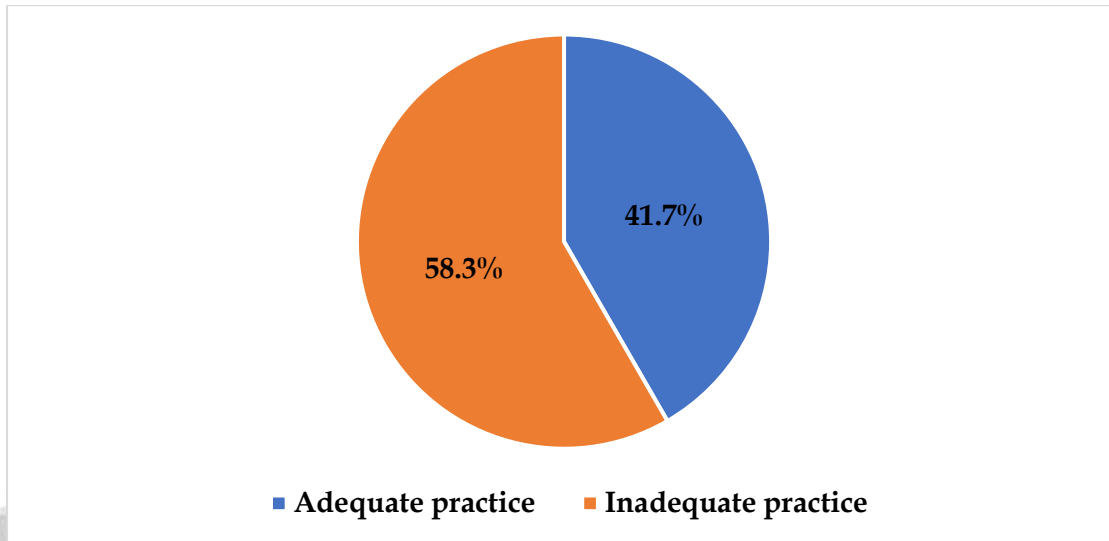


Figure 22: Practice Levels About Menstrual Health Management in the Community

## 5. Discussion

The data gathered on menstrual health management (MHM) provides a detailed snapshot of current practices, perceptions, and challenges within the community. This discussion aims to interpret these findings and explore their implications.

### 5.1. Understanding and knowledge

The diverse range of definitions for menstruation among participants highlights varying levels of understanding. A significant number of individuals correctly identified menstruation as a natural biological process related to fertility, while others held misconceptions or admitted to a lack of knowledge. This suggests that educational efforts are uneven, with some individuals receiving accurate information while others remain uninformed. The fact that 14.7% of participants were unsure about what menstruation is emphasizes a critical gap in knowledge that needs to be addressed through targeted educational programs.

The fact that 32.8% of participants do not know the duration of the menstrual cycle indicates a substantial knowledge gap. This lack of understanding can lead to misinformation and ineffective menstrual health practices. Also, the varying beliefs about the menstrual cycle duration—ranging from 14 to 35 days—highlight the presence of misconceptions. Misunderstandings about the menstrual cycle can lead to poor menstrual health management. For instance, if individuals believe the cycle is shorter or longer than it actually is, they may not adequately prepare for menstruation, leading to stress and potential health risks. The uncertainty and misconceptions about the menstrual cycle can perpetuate stigma and myths within the community. Without accurate knowledge, misinformation can spread, leading to harmful cultural practices and attitudes toward menstruation. There is a need for targeted educational interventions to address specific misconceptions and provide clear, consistent

information about the menstrual cycle. This includes explaining the typical range of cycle lengths (21-35 days) and emphasizing that it can vary among individuals.

## **5.2. Attitudes Towards Menstruation**

The data reveals mixed attitudes towards menstruation within the communities. While a majority (55.2%) view menstruation as an important health aspect, there is still a substantial portion that perceives menstrual blood as dirty (39.9%) or holds other misconceptions. This indicates that despite progress, stigma and misinformation persist. The high percentage (46.7%) of participants reporting community indifference or ignorance underscores the need for more open conversations and awareness campaigns to normalize menstruation and address associated taboos.

The fact that 71.7% of participants felt high and moderate levels of comfort discussing menstruation is a positive indicator of openness and potential reduction in stigma. According to Sommer et al. (2015), open discussions about menstruation can lead to improved menstrual hygiene practices and better overall health outcomes. The 22.1% of participants who felt uncomfortable discussing menstruation reflects persistent social stigma and taboos. Studies have shown that discomfort often stems from cultural beliefs, misinformation, and fear of judgment (34). Discomfort in discussing menstruation can lead to poor menstrual health practices and reluctance to seek medical advice. It is crucial to create safe and supportive environments where individuals feel free to share their experiences and seek help (35). The 6.2% of participants who preferred not to answer the question might represent a group that feels deeply stigmatized or has cultural/religious reservations about discussing menstruation. Non-disclosure can also indicate fear of repercussions or shame associated with menstruation (36). The varying levels of comfort highlight the need for tailored educational interventions. Comprehensive education programs should aim to normalize menstruation, provide accurate information, and encourage open dialogue (37).

## **5.3. Influence of Cultural and Religious Beliefs**

Cultural and religious beliefs play a significant role in shaping attitudes towards menstruation. The data shows that while some communities treat menstruation with respect (26.3%), others face stigmatization and secrecy (10.9%). The fact that 49.0% of participants reported that cultural beliefs do not significantly affect attitudes toward menstruation suggests that there is considerable variation in how these beliefs impact different communities. This variation highlights the importance of culturally sensitive approaches in educational and health interventions.

The report that 39.1% of participants observe considerable indifference and ignorance towards menstruating women highlights a pervasive issue. Literature indicates that such attitudes can lead to inadequate menstrual health management (MHM) practices, increased stigma, and negative health outcomes (38). Indifference and ignorance can exacerbate feelings of shame and isolation among menstruating women, affecting their mental and emotional well-being. Research by Bobel (2018) suggests that societal indifference often translates into neglect in providing essential menstrual health education and resources.

#### **5.4. Role of Community Leaders**

The role of community leaders in promoting menstrual health is crucial yet currently limited. A majority of participants (61.3%) reported that leaders have minimal influence on changing perceptions about menstruation. This lack of engagement from leaders may contribute to the persistence of inadequate practices and stigma. However, some leaders are actively involved in education (22.5%) and providing support (6.5%), indicating that there is potential for leaders to play a more significant role in advancing MHM practices.

#### **5.5. Sources of Information and Disposal Practices**

Family members and peers play a significant role in shaping attitudes and knowledge about menstruation. Peer education and mother-daughter communication are effective in transmitting MHM information, particularly in cultures where formal education on the topic is lacking (39). The quality of information from family and peers can vary widely. While supportive networks can provide valuable guidance, there is also a risk of perpetuating myths and misconceptions (40). The variety of sources from which participants obtain information about menstruation—including family members, schools, and healthcare providers—demonstrates a reliance on informal channels. While this may provide some support, it also suggests variability in the quality and accuracy of information. Thus, schools and community programs are crucial platforms for disseminating MHM information. Research shows that structured educational programs can significantly enhance menstrual health knowledge and practices among young girls (41). Integrating MHM into the school curriculum ensures that all students receive accurate and comprehensive information. UNESCO (2014) emphasizes the importance of incorporating MHM into broader health and hygiene education to normalize the topic and reduce stigma.

The disposal practices reported reflect a wide range of behaviours, from environmentally harmful methods such as burning (15.8%) to more sustainable practices. The predominant use of pit toilets (56.3%) and the diverse methods of disposal highlight the need for standardized, environmentally friendly disposal solutions and better education on proper practices.

#### **5.6. Challenges and Malpractices**

Research consistently shows that menstrual-related absenteeism is a common issue, particularly in low- and middle-income countries. Girls often miss school due to menstrual pain, lack of menstrual products, or inadequate sanitation facilities (38). This absenteeism can lead to lower academic performance and reduced educational attainment (39). The unavailability of gender-sensitive sanitation facilities in schools and communities exacerbate absenteeism and affect girls' participation in education (42). Schools and communities with proper MHM infrastructure and policies see improved attendance and engagement among menstruating individuals (40).

The data indicates that a significant proportion of participants have missed school or work due to menstrual issues, illustrating the real-world impact of inadequate MHM. Misconceptions about proper menstrual product usage and disposal practices further complicate the situation. The fact that 84.5% of participants identified using unclean materials as improper suggests a high level of awareness about certain malpractices, but other reported issues, such as washing reusable products incorrectly (4.8%), indicate that there is still room for improvement.

### 5.7. Prevalence of Inadequate Practices

The finding that 58.3% of participants have inadequate MHM practices is a significant concern. This high percentage suggests widespread issues with menstrual hygiene that could impact health and well-being. Addressing these inadequate practices through comprehensive education, improved access to resources, and community support is essential for improving menstrual health outcomes.

## 6. Conclusion

The data provides a valuable insight into the current state of menstrual hygiene management in the community. It highlights the need for enhanced education, increased engagement from community leaders, and improved disposal solutions. Addressing misconceptions, reducing stigma, and ensuring access to accurate information are critical steps toward improving menstrual health practices and supporting individuals in managing their menstrual health more effectively.

## 7. Limitations

While this KAP study provides further insights into sexual and reproductive health among individuals in the South West region in Cameroon, the present findings should be interpreted with caution due to some limitations. First, there are some discrepant findings compared with other publications, probably due to differences in sample size and location (local vs nationwide surveys) as this is a single-centre study. Thus, our results may not fully represent the population from other regions of the country. Second, as premarital sex remains taboo in Cameroon, there may be a bias towards social desirability in the responses to our study.

## 8. Recommendation

Based on the data, the following recommendations can be made to address the various issues related to menstrual health management (MHM) within the community:

### 8.1. Enhance Menstrual Health Education

**School Curriculum:** Integrate comprehensive menstrual health education into school curricula. This should cover the biological aspects of menstruation, proper hygiene practices, and the importance of menstrual health for overall well-being.

**Community activities:** Organize GTA and VCAT sessions in communities to educate individuals about menstrual health, dispel myths, and promote positive attitudes towards menstruation.

**Healthcare Provider Training:** Train healthcare providers to deliver accurate information and support on menstrual health, ensuring they can address concerns and misconceptions effectively.

## 8.2. Improve Community Attitudes and Reduce Stigma

**Public Campaigns:** Launch public awareness campaigns to normalize discussions about menstruation and challenge existing stigmas. Use various media platforms to reach a broad audience and promote positive attitudes towards menstruation.

**Engage Community Leaders:** Encourage community leaders to actively support and promote menstrual health education. Leaders should be trained to understand the importance of MHM and advocate for respectful and supportive attitudes.

**Peer Education:** Develop peer education programs where individuals can share knowledge and experiences, fostering a more supportive environment for discussing menstruation.

## 8.3. Standardize Menstrual Hygiene Practices

**Disposal Guidelines:** Create and disseminate clear guidelines for the proper disposal of menstrual products. Promote environmentally friendly options and educate the community about safe disposal methods, such as using designated waste disposal facilities or pit toilets.

**Product Awareness:** Provide information on the different types of menstrual products, including their use, benefits, and disposal methods. Ensure that this information reaches both menstruators and their support networks.

**Access to Products:** Improve access to sanitary products by partnering with local organizations and businesses to provide affordable and hygienic options. Implement programs to distribute products to underserved communities.

## 8.4. Address Menstrual Health Challenges

**Support Systems:** Develop support systems for individuals experiencing menstrual health challenges, such as providing access to medical care, counselling, and financial assistance for menstrual products.

**Work and School Policies:** Advocate for policies in schools and workplaces that accommodate menstrual health needs, such as allowing for flexible breaks or providing access to menstrual products in restrooms.

## 8.5. Promote Safe and Hygienic Practices

**Product Hygiene Education:** Educate menstruators on the importance of using clean menstrual products and the proper methods for washing and reusing reusable products, if applicable.

**Monitor and Address Misconceptions:** Regularly assess community understanding and address any misconceptions or malpractices related to menstrual hygiene through targeted educational initiatives.

## 8.6. Enhance Data Collection and Research

**Ongoing Research:** Support and conduct ongoing research to better understand menstrual health practices, challenges, and attitudes within different communities. Use this data to inform and adjust educational programs and interventions.

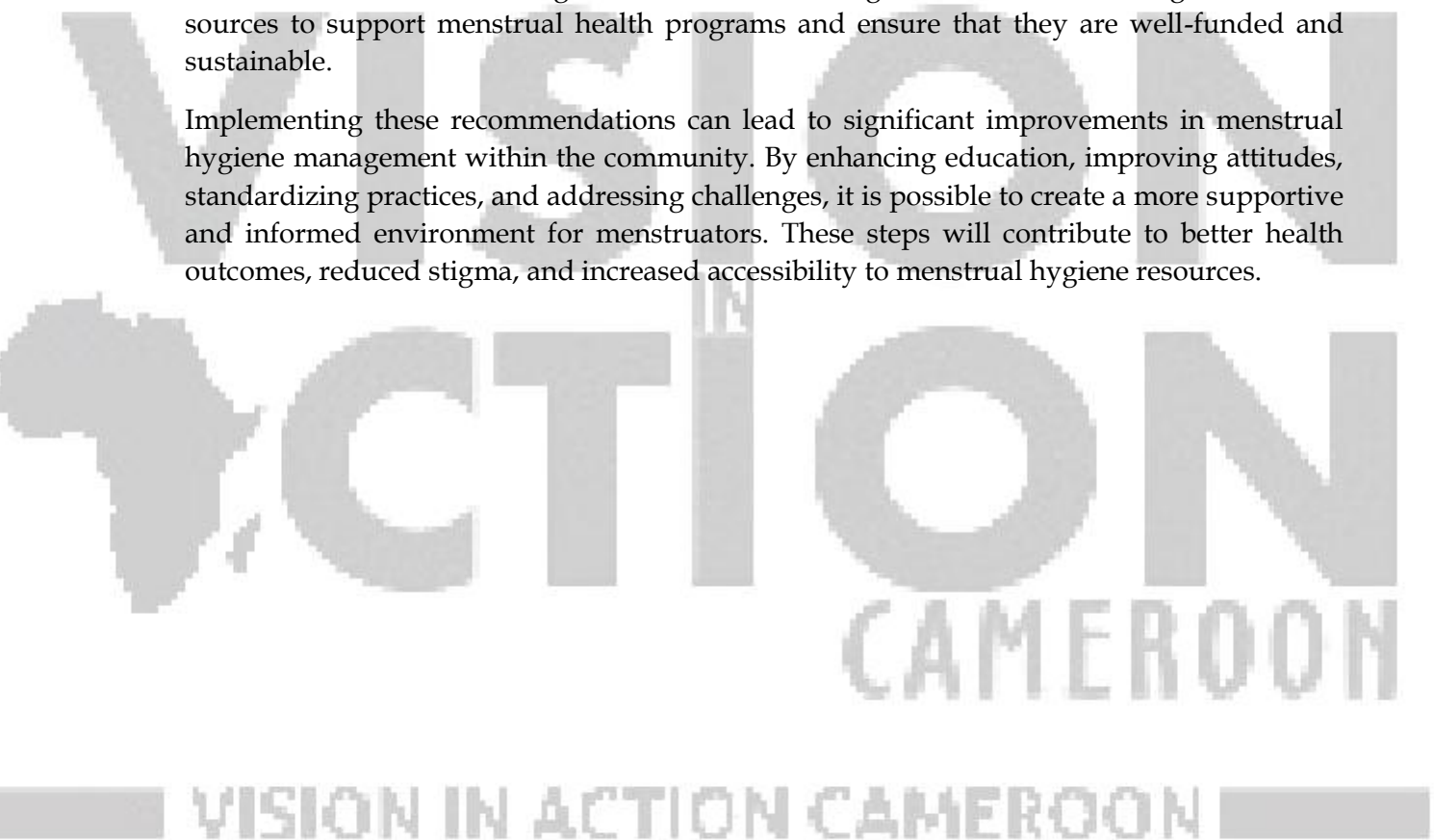
**Feedback Mechanisms:** Establish mechanisms for individuals to provide feedback on menstrual health services and education programs. Use this feedback to continuously improve and adapt strategies to meet community needs.

## 8.7. Foster Community Collaboration

**Partnerships:** Collaborate with community groups to enhance menstrual health initiatives. VIAC can offer expertise, resources, and additional support to strengthen local efforts.

**Resource Allocation:** Leverage resources from both governmental and non-governmental sources to support menstrual health programs and ensure that they are well-funded and sustainable.

Implementing these recommendations can lead to significant improvements in menstrual hygiene management within the community. By enhancing education, improving attitudes, standardizing practices, and addressing challenges, it is possible to create a more supportive and informed environment for menstruators. These steps will contribute to better health outcomes, reduced stigma, and increased accessibility to menstrual hygiene resources.



## 9. References:

1. WHO. Adolescent Health in the South-East Asia Region. 2021. Available online: <https://www.who.int/southeastasia/healthtopics/adolescent-health> (accessed on 15 March 2024).
2. UNICEF. Menstrual Hygiene. Gender Inequality, Cultural Taboos and Poverty Can Cause Menstrual Health Needs to Go Unmet. 2021. Available online: <https://www.unicef.org/wash/menstrual-hygiene> (accessed on 30 January 2024).
3. Setyowati Rizkia, M.; Ungsianik, T. Improving Female Adolescents' Knowledge, Emotional Response, and Attitude toward Menarche following Implementation of Menarcheal Preparation Reproductive Health Education. *Asian Pac. Isl. Nurs. J.* **2019**, *4*, 84–91.
4. Medina-Perucha, L.; Jacques-Aviñó, C.; Valls-Llobet, C.; Turbau-Valls, R.; Pinzón, D.; Hernández, L.; Canseco, P.B.; López-Jiménez, T.; Lizarza, E.S.; Berenguera, A.; et al. Menstrual health and period poverty among young people who menstruate in the Barcelona metropolitan area (Spain): Protocol of a mixed-methods study. *BMJ Open* **2020**, *10*, e035914.
5. Chandra-Mouli, V.; Patel, S.V. Mapping the knowledge and understanding of menarche, menstrual hygiene and menstrual health among adolescent girls in low and middle-income countries. *Reprod. Health* **2017**, *14*, 30.
6. Kaur, R.; Kaur, K.; Kaur, R. Menstrual hygiene, management, and waste disposal: Practices and challenges faced by girls/women of developing countries. *J. Environ. Public Health* **2018**, *2018*, 1730964.
7. Gottlieb, A. Menstrual taboos: Moving beyond the curse. In *The Palgrave Handbook of Critical Menstruation Studies*; Springer Nature Singapore Pte Ltd.: Singapore, 2020; pp. 143–162.
8. Ali, S.A.; Baloch, M.; Riaz, L.; Iqbal, A.; Riaz, R.; Perveen, B.; Siddiqui, M.; Ali, A.A. Perceptions, practices, and challenges regarding menstrual hygiene among women in Karachi, Pakistan: A comparison between general population and healthcare workers. *Cureus* **2020**, *12*, e9894.
9. Meena, P.; Bhojwani, P.; Verma, G.S. A Kap study on menstrual hygiene in adolescent girls. *Hindu* **2018**, *150*, 63–68.
10. UNICEF Pakistan. UNICEF Launches Campaign to Promote Positive Menstrual Hygiene in Pakistan. 2018. Available online: <https://www.unicef.org/pakistan/pressreleases/unicef-launches-campaign-promote-positive-menstrual-hygiene-pakistan> (accessed on 15 March 2024).
11. Mansoor, H.; Salman, M.; Asif, N.; Mustafa, Z.U.; Nawaz, A.S.; Mohsin, J.; Arif, B.; Sheikh, A.; Shehzadi, N.; Masood, A.; et al. Menstrual knowledge and practices of Pakistani girls: A multicenter, cross-sectional study. *Heliyon* **2020**, *6*, e03157.
12. Michael, J.; Iqbal, Q.; Haider, S.; Khalid, A.; Haque, N.; Ishaq, R.; Bashaar, M. Knowledge and practice of adolescent females about menstruation and menstruation hygiene visiting a public healthcare institute of Quetta, Pakistan. *BMC Women's Health* **2020**, *20*, 1–8.

13. UNICEF. Guidance on Menstrual Health and Hygiene. 2019. Available online: <https://www.unicef.org/media/91341/file/UNICEF-Guidance-menstrual-healthhygiene-2019.pdf> (accessed on 19 February 2024).
14. MacRae, E.R.; Clasen, T.; Dasmohapatra, M.; Caruso, B.A. 'It's like a burden on the head': Redefining adequate menstrual hygiene management throughout women's varied life stages in Odisha, India. *PLoS ONE* **2019**, *14*, e0220114.
15. UNICEF. A Knowledge, Attitude, and Practices Study in Bhutan. 2018. Available online: <https://www.unicef.org/bhutan/media/211/file> (accessed on 1 February 2024).
16. Human Rights Watch. "Going to the Toilet When You Want" Sanitation as a Human Right. 2017. Available online: <https://www.hrw.org/report/2017/04/19/goingtoilet-when-you-want/sanitation-human-right> (accessed on 15 December 2022).
17. Kuhlmann, A.S.; Henry, K.; Wall, L.L. Menstrual hygiene management in resource-poor countries. *Obstet. Gynecol. Surv.* **2017**, *72*, 356.
18. Davis, J.; MacIntyre, A.; Odagiri, M.; Suriastini, W.; Cordova, A.; Huggett, C.; Agius, P.A.; Faiqoh; Budiyan, A.E.; Quillet, C.; et al. Menstrual hygiene management and school absenteeism among adolescent students in Indonesia: Evidence from a cross-sectional schoolbased survey. *Trop. Med. Int. Health* **2018**, *23*, 1350–1363.
19. Belayneh, Z.; Mekuriaw, B. Knowledge and menstrual hygiene practice among adolescent school girls in southern Ethiopia: A cross-sectional study. *BMC Public Health* **2019**, *19*, 1595.
20. Tomlinson M. A mixed methods assessment of menstrual hygiene management and school attendance among schoolgirls in Edo State, Nigeria. 2022.
21. Babbar K, Martin J, Ruiz J, Parray AA, Sommer M. Menstrual health is a public health and human rights issue. *The Lancet Public Health*. 2022 Jan 1;7(1): e10-1.
22. Hennegan J, Winkler IT, Bobel C, Keiser D, Hampton J, Larsson G, Chandra-Mouli V, Plesons M, Mahon T. Menstrual health: a definition for policy, practice, and research. *Sexual and reproductive health matters*. 2021 Jan 1;29(1):31-8.
23. Critchley HO, Babayev E, Bulun SE, Clark S, Garcia-Grau I, Gregersen PK, Kilcoyne A, Kim JY, Lavender M, Marsh EE, Matteson KA. Menstruation: science and society. *American journal of obstetrics and gynecology*. 2020 Nov 1;223(5):624-64.
24. Mande MM, Ekeme M, Ukah CE, Shei CM, Dang SZ, Atanga SN. Prevalence, determinants, and consequences of teenage pregnancy on teenage girls in selected health areas of the Limbe Health District in Cameroon.
25. Barrington DJ, Robinson HJ, Wilson E, Hennegan J. Experiences of menstruation in high income countries: a systematic review, qualitative evidence synthesis and comparison to low- and middle-income .... *PloS one*. 2021.
26. Sims OT, Gupta J, Missmer SA, Aninye IO. Stigma and endometriosis: a brief overview and recommendations to improve psychosocial well-being and diagnostic delay. *International journal of environmental research and public health*. 2021 Aug 3;18(15):8210.

27. Dine RD, Uwamahoro V, Oladapo JO, Eshun G, Effiong FB, Kyei-Arthur F, Tambe AB. Assessment of the availability, accessibility, and quality of sexual and reproductive health services for young people in conflict affected zones of Cameroon: a mixed method study. *BMC Health Services Research*. 2023 Oct 26;23(1):1159.
28. Ajong AB, Tankala NN, Yakum MN, Azenoi IS, Kenfack B. Knowledge of peri-menarcheal changes and a comparative analysis of the age at menarche among young adolescent school girls in urban and rural Cameroon. *BMC Public Health*. 2020 Nov 4;20(1):1661.
29. Fonkwo JN, Agbor-Ntoh GA, Besong M, Nouko A, Akih S, Wacha R, Ngong J. Exploring access, barriers, and opportunities in digital health to improve sexual and reproductive health amongst youths in bamenda, cameroon during conflict: a qualitative study.
30. Olson MM, Alhelou N, Kavattur PS, Rountree L, Winkler IT. The persistent power of stigma: A critical review of policy initiatives to break the menstrual silence and advance menstrual literacy. *PLOS Global Public Health*. 2022 Jul 14;2(7):e0000070.
31. Melesse DY, Mutua MK, Choudhury A, Wado YD, Faye CM, Neal S, Boerma T. Adolescent sexual and reproductive health in sub-Saharan Africa: who is left behind?. *BMJ global health*. 2020 Jan 1;5(1):e002231.
32. Edet OB, Basse PE, Esienmoh EE, Ndep AO. An exploratory study of menstruation and menstrual hygiene knowledge among adolescents in urban and rural secondary schools in cross river State, Nigeria. *African Journal of Biomedical Research*. 2020 Sep 30;23(3):321-6.
33. Holmes K, Curry C, Sherry, Ferfolja T, Parry K, Smith C, Hyman M, Armour M. Adolescent menstrual health literacy in low, middle and high-income countries: a narrative review. *International journal of environmental research and public health*. 2021 Mar;18(5):2260.
34. Bharadwaj S, Patkar A. Menstrual hygiene and management in developing countries : taking stock. Mumbai, India: Junction Social, Social Development Consultants; 2004. p. 20 p. : boxes.
35. Crichton J, Okal J, Kabiru CW, Zulu EM. Emotional and Psychosocial Aspects of Menstrual Poverty in Resource-Poor Settings: A Qualitative Study of the Experiences of Adolescent Girls in an Informal Settlement in Nairobi. *Health Care for Women International*. 2013 Oct 1;34(10):891-916.
36. Winkler, Inga and Roaf, Virginia, Bringing the Dirty Bloody Linen Out of the Closet- Menstrual Hygiene as a Priority for Achieving Gender Equality (August 8, 2014). Forthcoming (2015) *Cardozo Journal of Law and Gender*, Available at SSRN: <https://ssrn.com/abstract=2575250>
37. House S, Mahon T, Cavill S. Menstrual Hygiene Matters: a resource for improving menstrual hygiene around the world. *Reproductive Health Matters*. 2013;21(41):257-9.
38. Sommer M, Caruso BA, Sahin M, Calderon T, Cavill S, Mahon T, et al. (2016) A Time for Global Action: Addressing Girls' Menstrual Hygiene Management Needs in Schools. *PLoS Med* 13(2): e1001962. <https://doi.org/10.1371/journal.pmed.1001962>
39. Montgomery P, Ryus CR, Dolan CS, Dopson S, Scott LM. Sanitary Pad Interventions for Girls' Education in Ghana: A Pilot Study. *PLOS ONE*. 2012 Oct 31;7(10):e48274.

40. Chandra-Mouli V, Patel SV. Mapping the knowledge and understanding of menarche, menstrual hygiene and menstrual health among adolescent girls in low- and middle-income countries. *Reproductive Health*. 2017 Mar 1;14(1):30.

41. Sommer M, Hirsch JS, Nathanson C, Parker RG. Comfortably, Safely, and Without Shame: Defining Menstrual Hygiene Management as a Public Health Issue. *Am J Public Health*. 2015 Jul;105(7):1302-11.

42. Jasper C, Le TT, Bartram J. Water and sanitation in schools: a systematic review of the health and educational outcomes. *Int J Environ Res Public Health*. 2012 Aug;9(8):2772-87.



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