

**Adolescent girls' menstrual hygiene management: evidence from rural northern Ghana**

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ABSTRACT

Menstrual Hygiene Management (MHM) among adolescents has emerged as a global public health concern in low and middle-income countries. Although research on MHM among adolescents is vast, the specific cultural and economic barriers faced by junior high school girls in menstrual hygiene management in the deprived settings of northern Ghana are seldom explored, even though it has the lowest water, sanitation, and hygiene coverage in this part of the country, not exceeding 20 percent. We thus explored menstrual hygiene management barriers among adolescent schoolgirls in junior high schools in Jirapa Municipality, Northern Ghana. A case study of adolescent girls' menstrual practises and management in selected schools in the Jirapa Municipality was conducted. We employed a qualitative approach in the collection and analysis of the data. A mix of purposive and convenience sampling procedures was used to select 44 participants, comprising: schoolgirls (n = 32) and mothers (n = 12), who participated in semi-structured interviews. The data was analysed using the thematic analytical framework. Underpinned by Gusfield's cultural and structural analysis of public problems as well as Bronfenbrenner's socioecological theory, we found that limited knowledge of menstruation and its management, cultural beliefs, and high costs of menstrual care products were the main barriers to effective menstrual hygiene management (MHM) among adolescent girls in junior high schools in Ghana. This has often resulted in school absenteeism and dropout, girls engaging in commercial sex to raise funds to buy menstrual hygiene products, menstruation-related stigma, and seclusion and exclusion during menstruation. The results have demonstrated that the intrinsic cultural ideas and practices of the study community, parents' incapacity to offer MHM items, which expose girls to "predators," combined with peer influence and behaviour, are the main factors impacting MHM. Our findings have significance for the development and application of MHM policies, particularly through effective collaboration among relevant stakeholders and communities to increase awareness and knowledge on the potential risks of poor MHM practises.

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**1. Introduction**

Menstrual Hygiene Management (MHM) is an emerging global public health issue underpinned by multiple cultural and socioeconomic concerns (Sugita, 2022; Sumpter & Torondel, 2013). Menarche is a crucial biological milestone

in a woman's life, marking the onset of the reproductive phase (Kumbeni, Ziba, Apenkwa, & Otupiri, 2021; Sumpter & Torondel, 2013). The physiological basis of menstruation, biological changes at puberty, the menstrual cycle, infection risks posed by poor practises, and disposal options for menstrual products available to girls are hardly discussed

(Mohammed & Larsen-Reindorf, 2020), and the experience can be embarrassing to girls as a result. On average, menstruation occurs between 12 and 13 years of age and can last for 3-5 days, occasionally up to 7 days (Kumari & Panchal, 2019; Sumpter & Torondel, 2013).

The difficulties adolescent girls face in managing their menstruation with comfort and dignity have received more attention over the past ten years (Sommer et al., 2020; Sumpter & Torondel, 2013). Although MHM is not directly included in the Sustainable Development Goals (SDGs), global discourses have shown that it is a crucial proxy for meeting maternal health-related goals (e.g., SDG 5, 4.a, and target 6.2) (Sumpter & Torondel, 2013). On the global front, menstrual hygiene management was explicitly included in resolution A/HRC/RES/27/7 in 2014 of the United Nations Human Rights Council and adopted on September 21, 2018 (Sugita, 2022). Paragraph 7 (e) calls upon all national governments to “*address the widespread stigma and shame surrounding menstruation and menstrual hygiene by ensuring access to factual information thereon, addressing the negative social norms around the issue, and ensuring universal access to hygienic products and gender-sensitive facilities, including disposal options for menstrual products*” (Ghimire, 2020; Sugita, 2022; Wilbur, Torondel, Hameed, Mahon, & Kuper, 2019). Globally, there have been well-articulated efforts directed at improving MHM among schoolgirls. For example, the Joint Monitoring Programme of the World Health Organisation and UNICEF advocated for the inclusion of MHM in school curriculum and health facilities as one antidote for achieving and sustaining the SDGs (Sommer, Hirsch, Nathanson, & Parker, 2015). Thus, MHM among female students is a human right and an antecedent to women’s empowerment.

Research has shown that menstrual hygiene practises are affected by cultural norms, parental influence, personal preferences, and socioeconomic status and pressures. Menstrual hygiene beliefs refer to attitudes towards menstruation within a given culture or religion (Kumari & Panchal, 2019), many of which are misconceptions. Menstrual beliefs, knowledge, and practises are interrelated and interwoven with MHM. The situation is worse for adolescent girls due to inadequate knowledge on menstruation preparedness and management, stigma, and fear of embarrassment. However, very few discussions are held on this topic, particularly in low-and middle-income countries (LMICs) (Kumari & Panchal, 2019; Rajagopal & Mathur, 2017).

Previous studies found diverse economic and sociocultural barriers to adolescent girls’ MHM in many low-middle-income countries (LMICs). In Ghana, for example, menstruation is shrouded in secrecy due to social norms, religious beliefs, and related myths (Kumbeni et al., 2021; Sugita, 2022). In addition, the word “menstruation” has become a verbal taboo (Agyekum, 2002; Mohammed, Larsen-Reindorf, & Awal, 2020). A study in rural northern Ghana revealed that cultural restrictions negatively affect adolescent girls’ menstrual hygiene management (Kumbeni et al., 2021; Sumpter & Torondel, 2013). In a similar setting,

adolescents often resort to improvised sanitary materials due to the high cost of sanitary pads (Sumpter & Torondel, 2013). Other evidence suggests that very few female students were using safe and hygienic menstrual management practices and were often using only toilet rolls or used-cloth while menstruating and therefore lacked the ability to acquire basic hygiene practices (Sumpter & Torondel, 2013; Wilbur et al., 2019).

The consequences of these barriers have been reported to include absenteeism, school dropout, and poor health outcomes among adolescent girls. In 2016, a study said that 95% of girls in Ghana sometimes miss school due to menstruation (Mohammed & Larsen-Reindorf, 2020). Another study found that 48%-59% of girls in urban areas and 90% of girls in peri-urban and rural areas felt ashamed during the menstrual period (Ansong & Alhassan, 2016, p. 10). Gumanga and Kwame-Aryee’s study in the capital city of Ghana, Accra, found that well over 27% (121 of 447) of students surveyed regularly had menstrual flow for more than five days, also affecting female girls’ school attendance (Gumanga & Kwame-Aryee, 2012). The search for appropriate sanitary products has caused many girls to be absent from school, leading to parental control becoming problematic during menarche. Girls from moderate and low-income families may flout parental instructions to obtain financial needs for sanitary pads, leading to exposure to risks of STIs and sexual abuse by men who promise sanitary products in return (Kumbeni et al., 2021).

There are many other undiscussed health implications for the health of girls, their role in the economy, social relations, and environmental health if MHM is inadequate. Most crucially, research has shown that poor menstrual hygiene management (MHM) has accounted for many health problems among girls and women (Sumpter & Torondel, 2013; Wilbur et al., 2019). For example, reproductive tract infections (RTIs) associated with MHM include endogenous infections, bacterial vaginosis (BV), and vulvovaginal candidiasis (VVC) (Sumpter & Torondel, 2013; Wilbur et al., 2019). These infections are primarily non-sexually transmitted and are introduced to the reproductive tract through the materials used for absorbing menstrual blood or by poor personal hygiene during the menstrual period. Meanwhile, research has found bacterial vaginosis to be associated with an increased risk of HIV infection (Rajagopal & Mathur, 2017; Sumpter & Torondel, 2013).

This study explores menstrual hygiene management barriers among adolescent female students in Junior High Schools in the Upper West Region of Ghana.

## 2. Theoretical considerations

Many social and health science studies have investigated schoolgirls’ menstrual hygiene management (MHM) (Mohammed & Larsen-Reindorf, 2020; Rajagopal & Mathur, 2017; Sumpter & Torondel, 2013; Wilbur et al., 2019). Stakeholders’ interest in, and action on MHM originated from the global concern for narrowing the gender gap in education.

Thus, the purpose was to primarily keep girls in school to improve their educational outcomes (Dorfman, Wallack, & Woodruff, 2005; Gusfield, 1984). Several theoretical frameworks have emerged from these studies, including 1) agenda-setting theory which opines that interventions aiming to address the menstrual hygiene management needs and any other population-based policy decision must be premised on extensive and credible research evidence (McCombs & Shaw, 1972); 2) discourse analysis as a theory supports clear identification and delineation of policy decisions before intervention legitimisation and implementation (Jørgensen & Phillips, 2002); 3) Beauchamp's concept of public health and social justice (Beauchamp, 1976); 4) Bronfenbrenner's socioecological theory (Bronfenbrenner, 1979) and 5) Gusfield's (1984) cultural and structural dimensions of public problems.

On the basis of the research aim, Gusfield's (1984) cultural and structural dimensions of public problems, and Bronfenbrenner's (1979) socioecological theory provide the most appropriate frameworks for the study. Gusfield's theory considers both the cultural and structural dimensions of public problems, in this case, the 'problem' of adequate MHM. The cultural aspect of the theory explains how MHM is conceived of and influenced by society at an individual level, and the political/structural dimension sees MHM as a problem of social justice that can be solved by the state (i.e., the government) (Gusfield, 1984; Sommer, Hirsch, et al., 2015; Sommer et al., 2020). Bronfenbrenner's socioecological theory acknowledges the existence and influence of different environmental factors on an individual's growth and well-being, including family structures, institutions surrounding the individual, and community cultural beliefs and practices (Bronfenbrenner, 1979, 2005) [see Figure 1]. Many of these factors are location-specific and change over time (Bronfenbrenner, 1979; 2005).

At the individual level, addressing concerns such as the level of knowledge and awareness of MHM among girls are prerequisites for achieving MHM aims. Unmet menstrual hygiene needs affect girls' sense of 'power within' (e.g., stigma and social norms, access to relevant infrastructure, ) and their 'power to' (e.g., affordability), constraining their mobility, education, and career pursuits (Sommer, Hirsch, et al., 2015; Sumpter & Torondel, 2013). Several studies view MHM as an individual responsibility, which resonates with neo-colonialist domination and corporate capitalism, which 'marketise' MHM to increase sales and profits to the detriment of culturally and economically appropriate MHM in poverty-affected locations (Sommer, Hirsch, et al., 2015; Sumpter & Torondel, 2013). In these ways, sanitary materials have been classified as 'luxury' goods, thereby compounding the difficulties girls and families on low incomes experience in acquiring them. Thus, evidence has shown that MHM transcends individual-level factors, instead requiring the input of the government into appropriate policy development and implementation. At this point in time, unsupportive attitudes of governments and communities and cultural constraints, coupled with the practical challenges of the environments that girls grow up in, including unmet water,

sanitation, and hygiene (WASH) and health needs, negatively impact girls' self-confidence and self-esteem and the achievement of the broader development goal of women's empowerment (Kumbeni et al., 2021; Sommer et al., 2020; Sumpter & Torondel, 2013).

### 3. Methods

#### 3.1 Study setting

The study was conducted in selected communities in Jirapa Municipality in the Upper West Region of Ghana. Jirapa Municipality has a total land area of 1,196 square kilometres. In 2021, the municipality had an estimated population of 91,279, with 52.9% males and 47.1% females (Citypopulation.de, 2022). Jirapa, like many other districts in the Upper West Region, has a relatively young population, with more than 50% within the ages of 0-19 years (Domapielle, Akurugu, & Mdee, 2020). The municipality is predominantly rural, with about 79.3% residing in remote and rural communities. In terms of religious affiliation, most of the population are Christians (65.9%), followed by traditionalists (18.8%) and Muslims (10.4%). The municipality has a low adult literacy rate, with 75% of the population having no formal education (Citypopulation.de, 2022; Domapielle et al., 2020). Only 7.8% of the population went through primary school, while 17.10% made it further to secondary school (Citypopulation.de, 2022).

#### 3.2 Study design

A case study design was employed to explore menstrual hygiene management barriers among adolescent schoolgirls in junior high schools in Jirapa Municipality and the implications for MHM policy design and implementation. The case study design provided the chance to explore MHM in depth within the study area. In line with this design, we employed a qualitative approach in collecting and analysing the data.

These results, reported here, form part of a more extensive study into adolescent sexual and reproductive health within the Jirapa municipality. Seven communities were purposefully selected to understand the peculiarities relative to this subject: *Baazu, Tizza, Sigri, Ullo, Konzokalaa, Nimbare, and Nyeni*.

#### 3.3 Research participants

Pre-determined inclusion criteria of participants' willingness and availability, being able to consent to participation personally, reside within the study community, and fall within the ages of 15-19 (for schoolgirls), were used. After obtaining appropriate permissions from school and community authorities, the second author (MNM) and the other female field assistants approached the participants directly, explained the rationale of the study, established their eligibility, and obtained their voluntary consent before the interviews. We engaged female field assistants because menstrual hygiene management is a sensitive topic that requires trust between interviewer and interviewee

(Rajagopal & Mathur, 2017). Girls and women may feel more comfortable discussing menstrual hygiene practices and challenges with other women who have experienced similar issues. Women field assistants are likely to have more understanding and knowledge about menstrual hygiene management practices and be able to identify and ask better probing questions during data collection. This helped ensure relevant data was collected.

### 3.4 Sampling strategy

A combination of purposive and convenience sampling was used to select 44 diverse participants, comprising schoolgirls (ages 15-19) (n = 32) and mothers (ages 21-54) (n = 12), for the study. The categories of participants were informed by the literature (Ansong & Alhassan, 2016; Gumanga & Kwame-Aryee, 2012; Kumbeni et al., 2021; Mohammed & Larsen-Reindorf, 2020; Mohammed et al., 2020; Sumpter & Torondel, 2013), field experiences, and preliminary discussions. These showed that Junior High School girls were most likely to be in the critical stage of menstrual hygiene management, as well as more likely to be disobedient to elderly advice, have their sexual debut, or be more likely to leave school for the purpose of marriage. Mothers or guardians were interviewed to better understand girls' attitudes towards parental guidance and the challenges of caring for girls experiencing their first few menstrual cycles. All participants had experienced their first menses.

### 3.5 Research instruments

Semi-structured interview guides were used to collect the data for the study. Knowledge of the literature, theoretical discourses on MHM (Beauchamp, 1976; Dorfman et al., 2005; Gusfield, 1984; Lawan, Nafisa, & Musa, 2010; McCombs & Shaw, 1972; Mohammed & Larsen-Reindorf, 2020; Sommer, Hirsch, et al., 2015), the education literature on girls' school attendance and absenteeism (Ansong & Alhassan, 2016; Ghimire, 2020; Gumanga & Kwame-Aryee, 2012; Sugita, 2022; Sumpter & Torondel, 2013), as well as the authors' extensive work and research experience in the field of women's health, were used in the design of the instruments.

The content of the questions focused on knowledge about menstruation before their first period, menstruation experience and its management, perceived needs, preferred absorbents for MHM, the risks associated with MHM, and the general attitude of early adolescent girls towards their mothers after their first menses. Interviews also explored family concerns about girls' menstrual hygiene management and the implications for girls' education.

### 3.6 Data collection and processing

Empirical research was conducted between September 2021 and May 2022. Female interviewers used face-to-face interviews to collect all the data. MM and three other field

assistants collected all the data by collaborating with JS and MKD. All interviewers were given a two-day orientation on community entry, question interpretation, note-taking, audio recording, and ethics in research. The questions were framed and administered in English and 'Dagaare', which is the language widely spoken in the study communities. Interviews lasted from 45 minutes to 1 hour -15 and were audio-recorded. A female field assistant also took field notes during the interviews.

### 3.7 Quality control

The researchers and field assistants had a minimum of an undergraduate degree in social sciences and public health. JS, MNM, and MKD are proficient in both English and 'Dagaare' - the local language of the participants. The team received extensive training on ethics in research, data integrity, and participants' confidentiality, and JS and MKD had substantial experience in qualitative research. MNM and the field assistants actively engaged JS and MKD throughout the field data collection for technical support and ensured the study progressed as designed. The team ensured data relevance and integrity during data collection, processing, and analysis. These were accomplished through multiple approaches. First, the playback approach of audio tapes was used to confirm participants' perspectives before data collectors left the research community. We also ensured that audio recordings and transcripts were securely stored on a password-protected computer to ensure data privacy. The analysis involved prolonged engagement with the transcripts and audio recordings. We also engaged two qualitative research experts to assess the reliability of the study's findings.

### 3.8 Data analysis

All audio tape recordings were transcribed verbatim. Transcripts were examined line-by-line and coded using thematic analysis (Vaismoradi, Turunen, & Bondas, 2013). The deductive-inductive approach was used to develop the thematic analysis framework (Vaismoradi et al., 2013).

We followed Colaizzi's seven-step process for conducting qualitative data analysis (Colaizzi, 1978; Morrow, Rodriguez, & King, 2015). First, we became familiar with the data through repeated listening to audio tapes and reading and re-reading the transcripts. Second, significant statements in the data that were in sync with the study objective were identified. Third, we formulated meanings relevant to MHM and reflexively bracketed presuppositions to stay glued to the issues emerging from the data (Morrow et al., 2015). We consequently clustered the identified meanings into themes common to all accounts in the data. Categories and themes were identified and iteratively compared within the framework to elicit further emerging codes. Thematic saturation was considered once the data analysis showed no new information and redundancy of categories (Vaismoradi et al., 2013).

The data incorporating the themes identified in earlier steps

reveals a detailed description of MHM. We then obtained verification of the fundamental structure and presented it to a sub-sample of the study participants for their confirmation of accuracy (Edward, 2011; Morrow et al., 2015). All authors met regularly to review the coding under the various themes.

## 4. Results

The findings are described under three broad themes: a) cultural implications and consequences; b) vulnerability, stigma, and parental responsibility; and c) mothers' attitudes towards providing menstrual products. Overall, the first theme describes girls' knowledge about menstruation, how the menstrual cycle affects their attendance at school, and cultural beliefs associated with menses. The second highlights how girls behave towards their parents as they search for improved sanitary materials and how those behaviours expose them to predatory boys and men, ultimately preventing them from continuing their education. The final theme presents participants' experiences of stigma and strategies to overcome these issues in relation to MHM.

### 4.1 Cultural implications and consequences

In the study community, conversations on what girls could and could not do during menses were not spoken about. For example, they did not know they could not prepare meals, participate in religious activities (e.g., enter mosque or traditional shrines or temples).

*Lack of knowledge:* Girls were asked whether they had experienced their first menstruation and whether they knew about menstruation before menarche. It was revealed that girls lacked knowledge about menarche, and parents did not also educate them about menarche and how to manage subsequent menstrual cycles.

*When I started menstruating, I was not prepared for it. No one had talked to me about menstrual blood at home or in school. When I told my mother I had blood stains on my underwear, I was advised to use cloth [participant 1, 15 years].*

*Cultural prohibitions during menses:* culturally, some girls were prevented from cooking food or even touching foodstuffs, as well as from participating in religious activities. These cultural norms affected some girls' attendance at school.

*...when I saw my menses, my mom told me not to enter the temple or touch raw food items. Besides these, I usually miss a day or two of school during my period.... The pain from the menses can be unbearable, and I am unable to attend school during the first two days of mensuration [participant 1, 15 years].*

Access to relevant information about one's menstrual cycle was not readily available, and cultural norms barred open

discussions about it. Even parents who supported their children's acquisition of sanitary materials were not educated about it, and girls had no chance to obtain explanations for their menstrual experiences. Responses suggested this was at least partly due to the general 'cultural frown' upon such conversations.

*Some girls still find it difficult to talk about menstrual issues, so aside from taking money to buy the pads, they do not talk to their parents, or guardians or even schoolteachers about menstrual hygiene [participant 4, 17 years].*

When participants mentioned their inability to discuss MHM with teachers, we sought to obtain girls' experiences about MHM in both private and public schools. The interviews indicated that girls who were in private schools received some education on menarche and MHM when compared to girls in public schools:

*Students from the private schools were more confident in discussing menstrual issues than those from the public schools. According to the respondents from the private schools, they have sessions to take girls through menstrual hygiene, which is very frequent [participant 4, 15 years].*

#### 4.1.1 Vulnerability, stigma, and parental responsibility

The study districts are patriarchal societies, meaning the responsibility of caring for and providing for girls' menstrual hygiene management is the mothers. Given the responsibility of providing for children's needs in rural communities, many mothers could not provide proper sanitary pads for their female children. Therefore, some girls used cloth, some of which was unhygienic. Others used toilet rolls as menstrual materials, while those who would not use either of these had no option but to fend for themselves in terms of managing their menstrual flows:

*Using sanitary pads is now the norm... the burden is heavy on only your mother, and of course, she cannot even help herself; how much money can she always give you or other siblings? Whatever you can do yourself is important. Some mothers encourage that. You cannot even get clean cloth (strips of old cloth) for the menses, nor can you always buy toilet roll. Even if you use this (toilet paper), you must always be extra conscious ... a small sign of leakage or smell when in school could make a huge difference. Nobody wants that curse... If you cannot buy, it is sometimes difficult to go to school. With the pad, you're sure of no leakage, smell, or sign at all... If you agree to a boy's proposal, he must find the money to readily take care of those basic things that your mother cannot do for you [participant 5, 16 years].*

There were challenges in acquiring MHM materials. For example, the needs of male children are prioritised over the

needs of female children, particularly when money is scarce. However, some parents were very supportive in providing menstrual supplies:

*'my mom buys them for me every month'. Another girl stated that 'I get the supplies from dad every month'.*

For many girls interviewed, the fear is that improvised materials are generally less conducive to absorbing menstrual blood.

#### 4.1.2 Mothers' attitudes towards providing menstrual kits

However, mothers pointed out that the issue of having to buy disposable sanitary pads for daughters has become a primary source of the generational rift between girls and mothers, especially when parents cannot afford these materials. Some mothers attribute girls' disobedience to parents and poor academic performance to menarche, particularly their daughters' preference for sanitary pads. Some mothers believe that the traditional reusable menstrual cloth was significant because it served as a monitoring and control mechanism. This ability to control is perceived as being lost with the use of modern sanitary materials. Now, in instances where parents cannot afford disposable sanitary pads, girls seek male partners who can afford the materials:

*I think these girls are just too much ... Whatever they hear from outside, they try to do... like ... but ... how could my daughter, already aware of the situation at home, listen to friends insisting on spending money on ... eeh ... pad? ...Old cloth strips are there... it always served well, and then the mother could have control over here daughters because you know when your daughter was seeing blood and you can quickly check for pregnancy). Now they are on their own ... no control ... This new thing (a disposable pad) comes with a cost...so they instead go with boys just for things like this ... and the trouble they bring ..... the troubles....? (Participant 11, 50 years).*

*I have two boys and three girls. As a parent, I could say boys are comparatively easier to manage. As for the girls, sometimes you don't even know where to hold them at puberty... eeh... it is a battle ... they flare up and become wild. This menstruation issue is a big one. If the mother cannot afford the pad, know that you have entirely lost control. Because of galamsey (small-scale gold mining), both in-school and out-of-school boys hold money. How can a parent fight such a battle...? (Participant 20, 47 years).*

The consequences of this can be teenage pregnancy, school drop-out, and 'forced' marriage. According to a Participant,

*When it comes to the needs of the girl, they turn to depend outside on little boys and men to provide for*

*them, and when that happens they turn to give themselves out to the men, and eventually, they get pregnant, and they drop out of school. Then, because of the shame it brings to the family, they encourage her to go and marry that person, and in most instances, it's out of the pregnancy that they marry those men (participant 13, 45 years).*

Culturally, fathers hardly provide for girls and almost exclusively leave the burden on mothers. Some teenage participants alluded to poor 'fatherhood' as a significant barrier to MHM, noting a level of neglect by the fathers for female children:

*Even when I need only 10 cedis to go and buy a pad, my mother will say she does not have money. Even 10 cedis .... You cannot go to your father. Then how do I go to school? How do I get food money? How do I get things (needs) ... anything? Every day, they just say that eeh... I don't have money...[Participant 3, 16 years].*

## 5. Discussion

This study aimed to understand adolescent girl'' and mothers' perspectives on the barriers to Junior High School girls' MHM. We found that quite a complex diversity of factors affect MHM in Junior High Schools in Ghana, ranging from poor knowledge about menstruation and its management, high costs of menstrual hygiene products, and cultural constraints. The consequences of the barriers included school absenteeism and dropout, girls' engagement in sexual activities to cater to menstrual hygiene management needs, poor health outcomes arising from the use of inappropriate sanitary materials, stigma, seclusion, and exclusion when girls are menstruating.

The schoolgirls in this study, noted that they preferred disposable sanitary pads to locally improvised sanitary materials, as the former helped address poor health outcomes, stigma, and exclusion. However, it was clear during the interviews that only a few mothers could afford menstrual hygiene products for their daughters. Mothers were also concerned about their perceived loss of control when their daughters used sanitary pads. According to mothers and girls, these differing expectations have become a significant motivating factor for girls at puberty to seek male benevolence. That is, entering a relationship with a male who could consistently provide 'her needs'.

We discuss these findings by drawing on Gusfield's cultural and structural dimensions of public problems. Menstrual hygiene management has been discussed at community, regional, and national levels in Ghana. However, we found that both girls and mothers lacked adequate knowledge about their menses and how to manage them. The poor knowledge about menses may, at least in part, be due to mothers' inadequate knowledge. This is unsurprising given that other studies in low-and middle-income countries have shown that most mothers lack an adequate and accurate understanding of this important biological process (Mohammed & Larsen-

Reindorf, 2020).

The authors further note that MHM is not discussed in schools, and as such, adolescent girls remain unexposed to relevant information and accurate knowledge about menstruation (Abor, 2022; Shumie & Mengie, 2022). The situation could partly be attributed to myths and misconceptions about menstruation. For instance, participants have shown that menstruation was not spoken about at home or school, and some reported being barred from entering temples or churches or participating in food preparation during menstruation. These findings persist in the literature in Ghana and similar LMICs (Kumbeni et al., 2021; Lawan et al., 2010; Mohammed & Larsen-Reindorf, 2020; Thakre et al., 2011). A study in Kumbugu, Ghana, involving 250 schoolchildren found inadequate knowledge about menstruation among schoolboys, girls, and parents. A study in rural Nigeria reported that 33% of adolescent girls lacked knowledge about menstruation and MHM (Lawan et al., 2010). In a rural community called Saoner in Nagpur District, India, a study revealed that well over 70% of girls had no knowledge about the source of menstrual blood (Thakre et al., 2011).

This phenomenon can be attributed to many factors including lack or inadequacy of knowledge, myths or beliefs and misconceptions about menstruation (Mohammed & Larsen-Reindorf, 2020). Indeed, in the Akan tribe in Ghana, it is taboo to speak publicly about menstruation (Agyekum, 2002), and menstruating women are prohibited from drinking cow milk and prevented from seeding groundnuts in Uganda (Tjon A Ten, 2007). Heavier menstrual flow was attributed to women bathing during menses in Ethiopia (Sommer et al., 2015). These societal level barriers reflect the cultural aspect of Gusfield's theory, whereby societal norms, taboos, myths, and beliefs of a given society are known to influence the practice of menstrual hygiene and management (Gusfield, 1984; Sommer, Hirsch, et al., 2015; Sommer et al., 2020).

Given the strong evidence in this and similar studies about the lack of knowledge, myths, and misconceptions around MHM, we recommend advocating for awareness creation about MHM in schools and communities. The Ministries of Education and Health could collaboratively champion a strategy to include menstrual hygiene education in schools' curricula and introduce such information at adolescent corners and school health clubs. Parental education during Parent-Teacher Association meetings would also be helpful in reducing backlash from parents who may fear losing control over their daughters and a loss in community cultural heritage.

The results also reveal that providing sanitary materials was primarily the responsibility of mothers. This posed a challenge for both mothers and daughters. Adolescent girls in this study indicated their preference for regular disposable sanitary materials over the locally adapted materials prescribed by their mothers. Yet, mothers reported having difficulty providing disposable hygienic sanitary pads to their daughters for financial, familial, and cultural reasons. Most women in the study communities are engaged in seasonal

livelihood activities, which earn them less money and thus affect their ability to provide sanitary materials for their daughters. As a result, adolescent girls feel it is necessary to gain money through sex and sexual exploitation to meet their MHM needs, which exposes them to sexual abuse by adolescent males and older men (Baba, Yendork, & Atindabila, 2020; Sarfo, Yendork, & Naidoo, 2021). The situation has become prominent because of illegal mining activities in most parts of Ghana, which give adolescent boys and older males access to money that can be used to attract unsuspecting adolescent girls seeking to acquire improved sanitary materials (Baba et al., 2020; Sarfo et al., 2021). The results also corroborate the assumption in more general literature that adolescent girls post-menarche adopt behaviours that are frequently seen as mischievous and 'bossy' towards parents and elders (Baba et al., 2020; Sarfo et al., 2021; Sommer, Ackatia-Armah, et al., 2015).

The literature has also shown that unfavourable government tax policies have partly contributed to the high price of menstrual hygiene products (Baba et al., 2020; Sarfo et al., 2021). This is the case in Ghana, where there is a 20% import tax on sanitary products, making them luxurious goods. This compares to other countries where sanitary products are not taxed (e.g., in Australia).

On the basis of Gusfield's cultural and structural analysis of public problems, it is argued that given the adverse outcomes associated with poor MHM among girls, providing good sanitary materials and helping address general menstrual hygiene issues should be considered a government or public sector problem (Gusfield, 1984; Morrow et al., 2015). It is appropriate that stakeholders in girls' health and empowerment advocate for policy initiatives affecting the provision of and access to sanitary products. Based on these findings and the evidence in the extant literature, the perspective of socioecological theory has demonstrated that MHM management should be considered not just at the individual level but also at the family and community levels, at large (Bronfenbrenner, 1979, 2005). For example, negative beliefs associated with a girl's participation in worship and household chores such as cooking during menstruation are discriminatory and unhelpful in addressing MHM concerns (Sommer, Ackatia-Armah, et al., 2015).

Overall, the inability (and often unwillingness) of families and communities to shoulder the MHM burden on girls, coupled with governments' neglect in considering MHM as a social justice and public health concern, detracts from the United Nations Human Rights Council's call for urgent attention to health-related SDGs in Ghana and other LMICs (Sommer et al., 2020). Allowing private sector dominance in the production, importation, and marketing of sanitary materials negatively impacts the health and education of women now and in future generations and may significantly contribute to women's disempowerment. Furthermore, the manufacture and sale of sanitary materials by private companies widens the access gap between the urban-wealthier girl child and the rural-poor girl child. As a result, the poor are generally disenfranchised, decreasing girls ability to afford MHM materials (Beauchamp, 1976;

Dorfman et al., 2005). Notably, the unmet needs of MHM transcend the provision of 'pads' to girls in LMICs.

We call for the public sector's provision of appropriate and affordable sanitary products that meet the needs of their users. The government could use its monopsony power and advantage to import sanitary materials, which could reduce retail prices (Beauchamp, 1976; Dorfman et al., 2005). Furthermore, we advocate the scrapping of the import tax on sanitary products to reduce the burden of acquiring sanitary products on women. This would help the private sector and philanthropic organisations make MHM products, including disposable and reusable sanitary pads, accessible and affordable for all girls and women in Ghana.

Although having access to sanitary products that are clean (whether they are cloth or pads) is crucial, the narrow focus of this approach to parental duty relieves the public domain of the political responsibilities required to address the issue. That is, by focusing on the availability of sanitary products, the government is excused from its duties to provide information about puberty, as well as safe, hygienic, and easily accessible water, sanitation, and disposal facilities in public places as well as to lessen the tax burden on MHM products in Ghana (Kumari & Panchal, 2019; Morrow et al., 2015).

### 5.1 Strengths and limitations

Despite its novel findings on MHM, this article must be read against the backdrop of the following limitations. First, a purposive sampling procedure was followed in selecting study communities and research participants. Therefore, other communities in the same municipality and elsewhere in rural Ghana may have better knowledge about MHM due to interventions by government and non-governmental agencies. However, the literature has shown community myths, a lack of knowledge, unmet sanitary material needs, and related girls' absenteeism from school abound in most low- and middle-income settings. Second, only adolescent girls and selected mothers or carers were interviewed. It is possible that the findings could be juxtaposed with the perspectives of boys and fathers. However, we believe that given the secrecy and cultural myths about menstruation, coupled with the inadequate knowledge of mothers and the fact that female researchers collected all data, men were not likely to have better knowledge than their female counterparts.

## 6. Conclusions

The results have demonstrated that the intrinsic cultural ideas and practices of the study community, parents' incapacity to offer MHM items, which expose girls to "predators," combined with peer influence and behaviour, are the main factors impacting MHM. Our findings have significance for the development and application of MHM policies, particularly through effective collaboration among relevant stakeholders and communities to increase awareness and

knowledge on the potential risks of poor MHM practices. In order to execute MHM activities in Junior High Schools, the Ministries of Education, Health, and Water Resources must work together to develop and implement an MHM policy as part of the National Sanitation and Hygiene Strategy. We advocate for enhanced stakeholder involvement in efforts to dispel taboos and misunderstandings around menstruation in general as well as measures to improve girls' and mothers' awareness of managing menstrual hygiene. This could be accomplished by including MHM in the junior high school curriculum and raising awareness through the national media. The findings support a call for the government to abandon its tax policy and use its monopsonist power and advantage to import or produce sanitary materials locally in order to reduce inequality among the poor in rural communities, even though the government's tax policy has caused the prices of sanitary materials to rise. Improving water and waste disposal infrastructure is also essential.

### Statements and Declarations

**Ethics Approval:** Charles Sturt University Human Research Ethics Committee [Protocol # H16013 and H16178] and the Navrongo Health Research Centre [Protocol #NHRCIRB345] reviewed and granted approval for the conduct of the study. Each participant gave verbal consent before participating in the study. We assured participants that pseudonyms were to be used to represent their views.

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