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Knowledge and Practices of Menstrual Hygiene Management: A Descriptive Cross-Sectional Study among Adolescent Girls in North Gonja District in the Savannah Region of Ghana

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Abstract

Purpose: The study aims to assess the knowledge and practices of menstrual hygiene management among adolescent girls in the North Gonja District of the Savannah Region of Ghana.

Methodology: The study used a descriptive cross-sectional study with a quantitative approach. The study population was adolescent girls who have reached menarche. A total of 217 respondents were recruited using consecutive sampling. A validated questionnaire was used to gather data and analyzed using the SPSS version 25 software. The significance level was estimated as a p-value less the .05.

Findings: The study showed that the majority of the respondents (59.0%) were within 15 to 19 years, 90.8% were in school, 77.9% were Muslims and nearly half (49.8%) of the girls were living with both parents. Almost all of the respondents (97.7%) have heard about menstruation through their mothers (30.4%) followed by the teachers/school (18.9%) with media (4.1%) being the least source of information. Most respondents (78.8%) had good knowledge about menstruation and MHM. The majority of the girls (64.5%) used sanitary pads, 30.9% used clothes and 4.6% used other absorbent materials during menstrual flow. Nearly all girls (98.2%) clean their genitals during menses with the majority (65.4%) using soap and water to clean their genitals whereas (32.7%) used only water. Overall, 71.0% of the respondents had adequate MHM practices. The study revealed a significant statistical association between MHM practices and age ($X^2 = 34.1$, $p < .001$), earning a living ($X^2 = 11.9$, $p = .021$), and knowledge about menstruation ($X^2 = 11.8$, $p = .002$).

Unique Contribution to Theory and Practice: In all, appreciable knowledge and sufficient MHM practices were observed among respondents. Age, ability to earn a living, and knowledge about menstruation and MHM were associated with the practice of good MHM practices. We recommend that parents should be sensitized and encouraged to provide for the sanitary needs of their girl child as well as introduce the topic of menstruation to the girls in readiness for menarche.

Keywords: *Menstruation, Management, Hygiene, Knowledge, Adolescent*

INTRODUCTION

Menstruation is a universal and typical phenomenon during the reproductive age of females. It symbolizes the beginning of a woman's ability to reproduce, which is something that the majority of women desire, and it marks a critical turning point in her life [1, 2]. Adolescence is a crucial time for girls to prepare and modify themselves to handle their menstrual bleeding in a safe and sanitary way [3]. Also, this is the perfect moment for females to join various surroundings, such as high schools, and try to make plans for their future adult lives [3]. According to the Joint Monitoring Program (JMP) of WHO & UNICEF, Menstrual Hygiene Management (MHM) as "Women and adolescent girls using a hygienic menstrual management material to collect blood that can be changed in privacy as often as necessary for the duration of the menstrual period, using soap and water for washing the body as required, and having access to facilities to dispose of used menstrual management materials" [4].

It is shown that improper menstrual hygiene practices can contribute to cervical cancer, genitor-urinary tract infections, poor academic performance, decreased self-esteem, and a poor quality of life [5, 6]. Nonetheless, Good MHM boosts self-esteem and contributes to school girls' physical, emotional, and academic well-being [7].

Several factors are said to influence MHM practices among adolescent girls. For instance, a study conducted in the Savannah Region shows that schools are not adequately prepared to support students who menstruate [8]. Thus, school girls during menses tend to absent themselves from school. The consequences of school absenteeism on the part of girls are dire for the girl child's education and further introduce inequalities between males and females. Additionally, due to a lack of proper knowledge, the majority of teenage girls (girls between the ages of 10 and 19) approach their puberty period (maturity) without adequately preparing themselves [9]. This is due to the societal taboo around "menses" and the difficulty for teenage girls in accessing accurate information, most women find it awkward to talk about it [2]. Several factors, including teenagers' comprehension of menstruation, the availability of appropriate facilities, and the atmosphere (social or cultural) to perform menstruation hygienically and with pride, preclude MHM practice [10–12].

It is indicated that more than half of adolescents in low-income countries have poor MHM practices with most of them residing in rural areas [13]. For instance, almost all girls in Ethiopia were reported to practice poor MHM [14]. In many instances, some of these girls cannot afford sanitary pads to manage their menstrual flow[15]. All these tend to influence MHM practices.

Although, in the Savannah Region, the MHM practices rate as reported by a study is over 80% [16], another study in the same area has it that, most girls in this area have their MHM practices influenced by religion, and culture [2]. They further argue that in Northern Ghana, menstruating girls are restricted from cooking and secluded from certain religious activities such as performing regular prayers and recitation of the Holy Qur'an [2]. The North Gonja District is predominately rural. The settlers are indigenous, culture, and devoted to the practice of their respective religion. Just like the observations made by Asumah et al., [2] in West Gonja Municipality, these girls too are often treated differently during menses. Some taboos are still enforced that, they tend to relegate the girl-child and often issues of menstruation are considered disliked in most homes. Despite the difficulties of the girl child in this area, not enough research is available to proffer

solutions or interventions to this teething phenomenon. It is against this background that this study aims to assess the knowledge and practices of menstrual hygiene management among adolescent girls in the North Gonja District of the Savannah Region of Ghana.

METHODOLOGY

Study Setting

This study was conducted in the North Gonja District of the Savannah Region of Ghana. The North Gonja District is one of the seven MMDAs that make up the Savannah District. This District was established in 2012, with its capital city at Daboya on June 28, 2012. It has a total land area of around 4,845.5 sq km, which is 6.9 percent of the total land area of the Savannah Region. It is located between latitudes 80 321 and 100 21 North and between longitudes 10 51 and 20 581 West. West Gonja and Wa East Districts, Tolon District, Mamprugu Moagduri and Kumbungu Districts, and Central Gonja District are its neighbors to the west, east, north, and south, respectively. According to the 2021 Population and Housing Census, 61,432 people are living in the district, with 30,759 men and 30,673 women.

Study Design

The study used a descriptive cross-sectional study with a quantitative approach. This method was adopted because the cross-sectional design enables researchers to enter into the study area and quickly acquire data on various age groups. They also provide excellent opportunities to identify and record age-related variations in certain behaviors.

Study Population

The study population includes all adolescent girls who have reached menarche and are residing in the district.

Inclusion and Exclusion Criteria

The inclusion criteria include all adolescent girls in the North Gonja District, who have seen their first menses, have no illness or mental problems, and have voluntarily consented to participate in this study. On the other hand, all adolescent girls who reside outside North Gonja District or adolescent girls who have just moved to the area less than 6 months ago will be excluded. All those who are severely ill and those who refuse to consent to participate in this study will be excluded.

Sample Size Determination

The study sample size was determined using the Snedecor & Cochran formula [17].

$n = Z^2 p (1 – p)/m^2$; where n represents the sample size, Z denotes the z-value, p is the proportion of the population, and m denotes the margin of error.

The z-score is 1.96, m=0.05 and the proportion of people who practice good menstrual hygiene management is 84.9% according to a study conducted in the West Gonja Municipality [16].

Therefore $n= (1.96)^2*0.849 *0.151/ (0.05)^2$

n=196.9.

To make up for non-compliance and response rate, 10% was added to the original sample size to obtain 217 respondents. The final sample size was estimated as 217.

Sampling Techniques

The study used consecutive sampling methods to recruit the study participants. Consecutive sampling is a non-probability sampling strategy in which the researcher selects the samples based on convenience. This method may be used to ask individuals or a target audience for information or views without already knowing anything about them. According to the study approach known as consecutive sampling, individuals, objects, or events are picked from a broader population without regard to whether or not they are statistically representative. Researchers that want to swiftly and readily gather data or who want to decrease bias employ these techniques [18].

Data Collection Tools and Procedures

Participants' primary data were gathered using structured questionnaires. Both closed-ended and open-ended questions were included. Although open-ended questions let participants express their varied perspectives or thoughts on a specific problem, closed-ended questions only provide them with alternatives from which to pick. The questionnaire adopted a previously published study [16]. There were three sections in the questionnaires. Section A includes the socio-demographics characteristics, section B includes questions on knowledge of MHM and section C includes questions on MHM practices. The questionnaire was given to respondents who meet the inclusion criteria and consented to participate in this study voluntarily. The time require to complete this questionnaire was between 15 to 25 minutes. Three (3) female research assistants were trained to administer the questionnaire. They translated the questions to Gonja, Tampulma, or Mamprusi to enable the participants to respond. However, for those who express confidence that they could read and write, the questionnaire was given to them to fill out and return upon completion. To ensure privacy, a secluded area in each community was identified and only those who accept to participate were sent there one after the other to interview them. This was necessary to allow respondents to bring out the best response without any form of intimidation.

Pretesting and Piloting

The questionnaire was piloted in Langanteri, a suburb of Busunu in the West Gonja Municipality. This community is also closer to North Gonja and exhibits similar characteristics to the study participants. In all, 20 questionnaires were piloted. The outcome of the pretest and piloting offers us the opportunity to restructure some questions to obtain the best response.

Data Analysis and Presentation

Data were edited manually to correct any duplications and wrong entries. The edited data was then coded and statistically analyzed using Scientific Package for Social Sciences (SPSS) version 25.0 for analysis. Data were presented using descriptive and inferential statistics and results were displayed using graphs and tables. Chi-square analysis was used to determine the statistical association between a dependent variable and an independent variable. The calculation of the overall knowledge and practices of MHM was done by existing literature [16]. All statistics were performed at a 95% confidence level with a P value < .05 was considered significant

Ethical Clearance

Ethical clearance was obtained from the University for Development Studies Institutional Review committee. Permission to conduct the study in the district was obtained from the Chief Executive of the North Gonja District and the assembly members of the selected area for this study.

Participants who agree to take part in the study were given a consent form to sign and underscored that their participation was voluntary and that they have the right to withdraw from participating at any point in the course of the study and for respondents who were less than 18 years, consent was obtained from parents or guardian and assent form signed.

RESULTS

Socio-Demographic Characteristics

The study showed that the majority of the respondents (59.0%) were within 15 to 19 years, 90.8% are in school, 77.9% are Muslims and 82.0% do not earn a living. A higher proportion of the respondents (39.6%) were Gonjas, followed by Tampulma (26.3%) and Mamprusi (19.8%). Nearly half (49.8%) of the girls were living with both parents. Table 1 shows the socio-demographic characteristics of the respondents.

Table 1: Socio-Demographic Characteristics of Respondents (n = 217)

Variables	Categories	Frequency	Percentage (%)
Age	10-14 years	89	41.0
	15-19 years	128	59.0
Ever been to school			
	Yes	197	90.8
	No	20	9.2
Ethnicity			
	Gonja	86	39.6
	Tampulma	57	26.3
	Mamprusi	43	19.8
	Others	31	14.3
Religion			
	Islam	169	77.9
	Christianity	41	18.9
	Traditionalist	6	2.8
Person living with			
	Both parents	108	49.8
	Relatives	47	21.7
	Only mother	31	14.3
	Only father	11	5.1
	Friends	20	9.2
Do you do work to earn a living			
	Yes	38	17.5
	No	178	82.0

Knowledge of Respondents about Menstruation

Almost all of the respondents (97.7%) have heard about menstruation through their mothers (30.8%) followed by the teachers/school (18.9%) with media (4.1%) being the least source of information. The majority of the girls (60.4%) knew the cause of menstruation to be hormones, 46.5% knew the normal duration for menses is between 2 to 7 days, 87.1% indicated there is a foul

smell during menses, 80.2% believed menstrual blood was unhygienic and 88.9% knew that the pain during menses is normal. Only 18.9% of the respondents knew that the uterus was the source of menstrual blood. Overall, the majority of the girls (78.8%) had good knowledge whereas 21.2% had poor knowledge about menstruation. Table 2 as shown below represents the knowledge of respondents about menstruation.

Table 2: Knowledge of Respondents about Menstruation

Variables	Categories	Frequency	Percentage (%)
Awareness about menstruation			
	Yes	212	97.7
	No	5	2.3
The first source of information on menstruation (n=212)			
	Mothers	66	30.4
	Father	14	6.5
	Friends	38	17.5
	Teacher/school	41	18.9
	Media	9	4.1
	Health workers	25	11.5
	Elder in the family	19	8.8
Cause of menstruation			
	Disease	78	35.9
	Natural (hormones)	131	60.4
	Don't know	8	3.7
What is the source of menstrual blood			
	Vagina	125	59.0
	Uterus	40	18.9
	Abdomen	41	19.3
	Don't know	11	5.2
What is the normal duration for menstrual flow			
	Less than 3 days	51	23.5
	2-7 days	101	46.5
	More than 7 days	54	24.9
	Don't know	11	5.1
Is there a foul smell during menstruation			
	Yes	189	87.1
	No	28	12.9
Menstrual blood is unhygienic.			
	Yes	174	80.2
	No	43	19.8
Pain during menses is normal			
	Yes	193	88.9
	No	24	11.1
Composite Knowledge score			
	Good knowledge	171	78.8
	Poor knowledge	46	21.2

Menstrual Hygiene Management Practices among Adolescent Girls

The study showed that the majority of the girls (64.5%) used sanitary pads, 30.9% used clothes and 4.6% other absorbent materials during menstrual flow. Nearly all girls (98.2%) clean their

genitals during menses with the majority (65.4%) using soap and water to clean their genitals whereas 32.7% used only water. More than half (51.6%) of the girls clean their genitals two (2) or more times in a day, 84.8% of the girls' baths two (2) or more times during menstruation, 57.1% changed their absorbent materials 1 to 2 times during menses. Only 14.7% of the girls used painkillers during menses. Most girls (33.2%) disposed of their used absorbent materials in the toilets followed by 26.3% who disposed of their used absorbent materials in the dustbins. The study revealed that 71.0% of the respondents had adequate MHM practices and 29.0% were considered as having inadequate MHM practices. Table 3 shows the menstrual hygiene management practices among adolescent girls.

Table 3: Menstrual Hygiene Management Practices among Adolescent Girls

Variables	Categories	Frequency	Percentage (%)
Which absorbent materials do you use during menses			
	Sanitary pad	140	64.5
	Clothes	67	30.9
	Others	10	4.6
Clean genital during menses			
	Yes	213	98.2
	No	4	1.8
Materials used for cleaning genitals during menses			
	Only water	71	32.7
	Soap and water	142	65.4
	Not used any	4	1.8
How often do you clean your genital during menses			
	Less than 2 times	105	48.4
	2 or more times	112	51.6
Frequency of bathing during menses			
	Less than 2 times	33	15.2
	2 or more times	184	84.8
Frequency of changing pad during menses per day			
	Could not change	3	1.4
	1-2 times	124	57.1
	3 times or more	90	41.5
Where do you dispose of used absorbent materials			
	Toilet	72	33.2
	Open space	41	18.9
	Dustbin	57	26.3
	Others	47	21.7
Do you take pain killers during menses			
	Yes	32	14.7
	No	185	85.3
Overall hygiene practices during menstruation			
	Adequate	154	71.0
	Inadequate	63	29.0

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Association between Socio-Demographic Characteristics, Knowledge about Menstruation, and MHM Practices

The study revealed a significant statistical association between MHM practices and age ($X^2 = 34.1$, $p < .001$), earning a living ($X^2 = 11.9$, $p = .021$), and knowledge about menstruation ($X^2 = 11.8$, $p = .002$). Table 4 shows the chi-square analysis to determine variables that were associated with MHM practices.

Table 4: Association between Socio-Demographic Characteristics, Knowledge about Menstruation, and MHM Practices

			MHM Practices		
Variables	**Categories**	**Frequency (N=217)**	**Adequate (n=154)**	**Inadequate (n=63)**	**Statistical test**
Age	10-14 years	89	51(57.3%)	38(42.7%)	$X^2 = 34.1$
	15-19 years	128	103(80.5%)	25(19.5%)	$p < .001$
Ever been to school					
	Yes	197	139(70.6%)	58(29.4%)	$X^2 = 3.1$
	No	20	15(75.0%)	5(25.0%)	$p = .092$
Ethnicity					
	Gonja	86	61(70.9%)	25(29.1%)	$X^2 = 1.7$
	Tampulma	57	39(68.4%)	18(31.6%)	$p = .312$
	Mamprusi	43	30(69.8%)	13(30.2%)	
	Others	31	24(77.4%)	7(22.6%)	
Religion					$X^2 = 9.7$
	Islam	169	129(76.35)	40(23.7%)	$p = .058$
	Christianity	41	22(53.7%)	19(46.3%)	
	Traditionalist	6	3(50.0%)	3(50.0%)	
Person living with					$X^2 = 3.1$
	Both parents	108	84(77.8%)	24(22.2%)	$p = .07$
	Relatives	47	29(61.7%)	18(38.3%)	
	Only mother	31	23(74.2%)	8(25.8%)	
	Only father	11	4 (36.4%)	7(63.6%)	
	Friends	20	14(70.0%)	6(30.0%)	
Do you do work to earn a living					$X^2 = 11.9$
	Yes	38	34 (89.5%)	4 (10.5%)	$p < .021$
	No	178	120(67.4%)	58(32.6%)	
Overall knowledge of menstruation					
	Good knowledge	171	132(76.6%)	39(23.4%)	$X^2 = 11.8$
	Poor knowledge	46	30(65.2%)	16(34.8%)	$p = .002$

DISCUSSION

The purpose of this study is to examine the knowledge and practice of menstrual hygiene management among adolescent girls in the North Gonja District of the Savannah Region. The study indicated that almost all respondents were aware of menstruation. These findings are corroborated by a study by Asumah and colleagues [2] and another study in Central Ethiopia [19] showed that almost all respondents were aware of menstruation. These similarities could be associated with the concerted in Africa to demystify the myths surrounding menstruation.

On the source of information, the study showed that mothers were the predominant source. This finding is similar to various studies by [2, 20] that indicated that mothers were the first source of information on menstruation. This is because ladies upon seeing their first menses rush to their mothers to seek support. Their mothers intend to give them some information on menstruation. Also, it is argued that information sort from friends and younger siblings are often shrouded with myths and misconception and so most adolescent resort to their mothers [2]. The study identified varied sources of information; thus, varied source of information is required to reach a wider audience on menstrual hygiene management.

Nearly 80.0% had good knowledge of menstruation. This finding is similar to other studies reported elsewhere. For instance, a study in Nepal [21], Western Ethiopia [22], India [23], and Ghana [24] all indicated that more than half of the respondents have good knowledge of menstruation and menstrual hygiene. Ghana has made efforts to improve the Adolescent and Reproductive Health Services (ARHS) among these age cohorts (10-19 years) [25]. The increased levels of awareness on menstruation and menstrual hygiene demonstrate that continued attempts in Ghana to spread information about menstruation through the school health program as having a significant impact.

The study revealed that about 65.0% of the respondents use sanitary pads during menses with only 30.5% using cloth. The number of using sanitary pads as reported in the study is lower than about 94.0% sanitary pad usage in Nepal [21] and nearly all respondents use commercial sanitary pads in the case of Egypt [26]. This finding is however higher than the 56.4% reported in Ghana [16]. The high usage of the sanitary product is because most respondents see this as comfortable to use and absorb more menstrual blood. On the contrary, the cost of the sanitary pad is huge and this seems to influence greatly the ability to use this sanitary pad. This therefore could account for the discrepancies. About the above, about 31.0% of the respondents were reported to use cloth. This is contrary to a study in India where a study revealed most respondents used cloth [23]. It is our considered view that the ability to afford the cost of sanitary products could influence the use of cloth. In the North Gonja District, most adolescents can engage in weaving smocks to earn a living, this may place them in a better position to buy sanitary products as compared to their counterparts who are not engaged in any activity.

The study showed that over 65.0% clean their genitalia with soap and water. Cleaning the genitalia with soap and water is unnecessary and further alters the normal flora of the vagina. Consequently, this practice predisposes the menstruation girl to some infection and also to douching. This practice ought to be discouraged as much as possible. Using warm water to rinse the vulva is recommended and ought to be practiced.

Overall, over 70.0% of the respondents practiced good MHM. This finding is corroborated by similar studies conducted in Ghana. For instance, Asumah et al., [2] indicated that nearly 85.0% of the adolescents in the Savannah Region practice good menstrual hygiene; this is slightly higher than the current study. Also, Mohammed et al., [27] also indicate that little over half of the respondents practice good MHM practices. Thus, the concerted efforts and public education in Ghana on the need to practice good MHM seem to be yielding positive responses.

Age is associated with MHM practices. As one ages, their experience of menstrual hygiene management increases. As such, there is a need to introduce issues concerning adolescent sexual and reproductive health to make these ladies informed about their physiology by the age of menarche.

Earning a living is associated with good MHM. Menstrual products are expensive, as the ability to earn a living is essential. For instance, studies in Ghana [2, 16] have corroborated this finding. As indicated earlier in the current study, the proportion of those using sanitary pads is more than those reported to be using sanitary pads in West Gonja. This justification is that those in the current study area can engage in industrial activity to earn a living even at a tender age.

Overall knowledge of menstruation was found to be associated with MHM practices. Most definitely, the ability to practice good menstrual hygiene is hinged on one's ability to demonstrate an understanding of menstruation management. This means there is a need to continue advocating for more education on this subject.

As with all studies, this study is not an island, there are some limitations to this study. First, the study used a cross-sectional study which limits generalization as such persons intending to generalize the outcome of this study should do so with extreme reservations. Secondly, although the study used consecutive sampling the sample population was derived from a wide population taken from different locations. Despite these challenges, this study is the first in the district and would be essential in planning the girl-child programs.

CONCLUSION

In all, the study indicated that most respondents demonstrated appreciable knowledge of menstruation and menstrual hygiene management as well as good menstrual hygiene management practices. The study showed that increasing age, ability to earn a living, and knowledge about menstruation and menstrual hygiene management were significantly associated with the practice of good menstrual hygiene management practices. As such, we recommend that the girl child should be empowered with some vocation to support themselves during menses. Also, parents should be sensitized to provide for the sanitary needs of their girl child as well as introduce the topic of menstruation to the girls in readiness for menarche.

Declaration

Consent for Publication

Not applicable

Data Availability

The data used to support this study are available from the corresponding author upon request.

Conflicts of Interest

The authors declared that they had no competing interests.

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The authors did not receive specific funding for this work.

Authors' Contributions

All authors contributed equally to this paper.

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