

Research Article

Menstrual Hygiene Management Practices and Associated Factors among Secondary School Girls in East Hararghe Zone, Eastern Ethiopia

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Background. Many adolescent girls in developing countries lack appropriate information, means or materials, and access to the right sanitary facilities to manage menstruation. Hence, they adopted unsafe hygienic practices during menstruation that in turn has a negative impact on their dignity, health, and education. Thus, this study aimed to assess the practices of menstrual hygiene management and associated factors among secondary school girls in East Hararghe Zone. **Methods.** A school-based cross-sectional study was conducted from April to May 2017 among secondary school girls in East Hararghe Zone, Eastern Ethiopia. A total of 672 girls were selected randomly and interviewed using a structured interviewer-administered questionnaire. Logistic regression analysis was employed to identify predictors of good menstrual hygiene management practices. **Result.** Overall, 58.3% of the girls had good menstrual hygiene management practices. Around two-thirds (66.1%) of them used commercial sanitary pads as absorbents, 56.4% changed sanitary materials more than three times a day, and 68.3% cleaned their external genitalia daily during their menstruation. During multivariate analysis, living in urban areas (AOR = 2.59, 95% CI: 1.77, 3.80), having moderate (AOR = 2.78, 95% CI: 1.64, 5.28) and good knowledge about menstruation (AOR = 3.87, 95% CI: 2.21, 6.77), and mothers' secondary and above education (AOR = 1.83, 95% CI: 1.01, 3.30) showed a positively significant association with good menstrual hygiene management practices. **Conclusion.** In this study, the practice of good menstrual hygiene management of secondary schoolgirls was low. Factors independently influencing menstrual hygiene management practices were girls' place of residence, knowledge status of menstruation and its hygiene management, and mothers' educational status. This highlights a need for targeted interventions to raise awareness of school girls especially for rural residents and the public in general to improve the knowledge and practices of menstrual hygiene management.

1. Introduction

Menstruation is a recurrent, normal physiological phenomenon in women's reproductive life [1]. However, many school girls in developing countries confront different menstrual hygiene management (MHM) challenges. Adequate MHM is defined as "women and adolescent girls using a clean menstrual management material to absorb or collect blood that can be changed in privacy as often as necessary for the duration of the menstruation period, using soap and water for washing the body as required, and having access to

facilities to dispose of used menstrual management materials" [2].

In developing countries, nevertheless, many girls cannot access or afford appropriate sanitary materials and often use inferior products such as new or old cloth, cotton wool, toilet paper, underwear alone, sponge, or nothing [3–7]. Additionally, MHM is constrained by inadequate water, sanitation, and hygiene facilities in many school settings in developing countries [3, 8]. Survey performed in five sub-Saharan African countries including Ethiopia also showed that majority of adolescent girls reported a lack of safe,

private, and clean toilets with washing facilities at schools which is important for MHM practices [4].

It was investigated that unhygienic practices during menstruation increase the risk of reproductive and genitor-urinary tract infection. Accordingly, several studies reported infections related to unsafe MHM practices among women and adolescent girls [9–11]. Menstruation and MHM-related problems adversely affect girls' school attendance and school performance. The study performed in sub-Saharan African countries revealed that on average, 49% of the school girls missed four school days monthly due to menstruation [4]. Similarly, other studies in Bangladesh and Indonesia revealed that 41% of school girls missed an average of 2.8 school days and 11.1% of school girls missed at least one school day during their last menstruation period, respectively [6, 12]. Furthermore, studies identified that many school girls claimed difficulty of concentration and limited participation during class times due to discomfort and humiliation during menstruation [13–15]. Besides, MHM practices among school girls can affect multiple areas across the sustainable development goal (SDG) agenda including health, education, and gender equality and women empowerment.

Like many developing countries, in Ethiopia, MHM remains one of the main problems faced by school girls while they are in school. Despite enormous challenges related to menstrual hygiene, adequate attention was not given by the water, sanitation, and hygiene (WASH), sexual and reproductive health, and education sectors. Ethiopia is a country of vast sociocultural diversity and taboos that have an impact on MHM practices. Thus, it is important to identify the practices of MHM to intervene accordingly. However, there is scarce information about MHM practices in Ethiopia, particularly in the study area. Therefore, this study was designed to assess MHM practices and associated factors among secondary school girls in East Hararghe Zone, Eastern Ethiopia.

2. Methodology

2.1. Study Design, Setting, and Population. A school-based cross-sectional study design was conducted in East Hararghe Zone, Eastern Ethiopia, from April to May 2017. East Hararghe Zone has three urban and nineteen rural districts. According to the East Hararghe Zone Education Department, of all school age children in the zone, 53% enrolled in primary schools and 10% in secondary schools. In the year 2017, there are 58 secondary schools in the zone serving a total of 30,619 (20,677 male and 9,942 female) students. The target population was all secondary school girls, and the study population was all girls sampled from the selected secondary schools in East Hararghe Zone. Evening class girls and those who are seriously ill at the time of data collection were excluded.

2.2. Sample Size Determination and Sampling Procedures. The required sample size was calculated using a single population proportion formula by considering the following

assumptions: 70.2% proportion of girls who had good MHM practices among secondary school girls [16], 95% confidence interval, and 5% margin of error. By considering a design effect of 2 and 5% nonresponse rate, the total sample size was 676. A multistage sampling technique was used to select study participants. First, four secondary schools were randomly selected from the total secondary schools in the zone. The total number of female students in each selected school was taken from the student registration books of the respective school. Then, the sample size was proportionally allocated to each selected school based on the number of female students. Finally, the study subjects were selected from each school using a simple random sampling technique considering the list of female students as a sample frame.

2.3. Data Collection Instruments and Procedures. Data were collected using a structured interviewer-administered questionnaire. The questionnaire was developed from relevant literature and adapted to the cultural norms of the study area. The questionnaire comprises of the socio-demographic profile of the study participants, knowledge about menstruation and its hygienic management, and hygiene practices during menstruation. The knowledge status of the girls was measured according to Balqis et al. [17] where the level of knowledge categorized as good when the total score is 76–100%, moderate when it is 56–75%, and poor when it is <56%. The MHM practices score was calculated out of 10 practice specific questions. Each correct answer was given one mark, and any incorrect or do not know answer was given zero marks. The total score of practice ranges from 0 to 10. The mean score of MHM practices (5.64 ± 1.19) was used to decide the cutoff point. Accordingly, respondents who scored 6 and above were categorized as having good MHM practices, while those who scored less than 6 were categorized as having poor MHM practices [18]. The questionnaire was first prepared in English and translated to Afan Oromo (the local language) and back to English to check its consistency. Ten diploma nurses as data collectors and three BSc level public health professionals as supervisors participated in the data collection process.

2.4. Data Quality Assurance. The training was given for data collectors and supervisors on the purpose of the study, study tools, and data collection techniques for two days. The questionnaire was pretested on 5% of the sample size among secondary school girls in the district out of the main study area, and necessary amendments were made accordingly. During data collection, supportive supervision was made by supervisors, and the collected data were checked for completeness and consistency by the supervisors and the principal investigator daily.

2.5. Data Processing and Analysis. The data were entered into Epi-Data version 3.1 and exported to the Statistical Package for Social Science (SPSS) version 20 for analysis. Descriptive analysis was computed to describe the sociodemographic

characteristics of the participants and measure the level of knowledge and hygienic practices during menstruation. Furthermore, bivariate and multivariable analyses were performed to identify the determinant factors of MHM practices among schoolgirls. Crude odds ratio (COR) and adjusted odds ratio (AOR) with 95% confidence intervals were used to measure the associations, and the level of significance was set at a p value less than 0.05 in multivariable analysis.

2.6. Ethical Consideration. Ethical clearance was obtained from the Institutional Health Research Ethics Review Committee (IHRERC) of the College of Health and Medical Sciences of Haramaya University. Permission to conduct the study was also obtained from the Zonal Education Department and principals of the selected schools. A written and signed consent was obtained from homeroom teachers, and a written and signed consent or assent was obtained from the girls regarding their agreement to participate in the study after the objective of the study was explained to them. The students were interviewed one by one separately using an anonymous questionnaire to ensure the confidentiality of the information.

3. Result

3.1. Sociodemographic Characteristics of the Study Participants. From the total of 676 secondary school girls asked to participate in the study, 672 completed the interview making a response rate of 99.4%. More than half (399 (59.4%)) of the girls were in the age group of more than 16 years with the mean (\pm SD) age of 16.5 (\pm 1.12) years. Majority (467 (69.5%)) of the girls were living with their parents, followed by 110 (16.4%) living with peers. Majority (423 (63%)) of the girls were rural by resident, 490 (72.9%) were Muslim by religion, and 632 (94.0%) were single by marital status. Higher number (190 (28.3)) of the girls were from Kombolcha Secondary School and more than half (373 (55.5%)) were from grade nine. Around half (343 (51.0%)) of the girl's mothers and (308 (45.8%)) of their fathers had no formal education, while only 120 (17.9%) of their mothers and 150 (22.3%) of their fathers attained a secondary and above level of education (Table 1).

3.2. Knowledge of Menstruation and its Hygiene Management. Overall, 460 (68.5%) girls had good knowledge. Majority (517 (76.9%)) of them knew that menstruation was a physiological process, and 40 (6.0%) thought that it was a pathologic process. Regarding causation, 491 (73.1%) knew that the cause of menstruation was hormonal, 33 (4.9%) thought that it was caused by a disease, and 24 (3.6%) thought that it was caused by curses. Nearly three-fourth (493 (73.4%)) of girls knew the origin of the menstrual blood was from the uterus, while 75 (11.2%) thought that it was from vagina. Most (626 (93.2%)) of the girls knew that taking care of personal hygiene during menstruation is important. Regarding the ideal menstrual absorbent, most (586 (87.2%))

of them stated that sanitary pad was good absorbent (Table 2).

In this study, the main source of information regarding menstruation and menstrual hygiene of the respondents was their mothers 240 (35.7%), followed by friends 176 (26.2%), teacher 147 (21.9%), and sister 139 (20.7%). Media and health professionals were also mentioned by 73 (10.9%) and 53 (7.9%) of the respondents, respectively.

3.3. Menstrual Hygiene Management Practices. Overall, 392 (58.3%) (95% CI: 54.5%–62.1%) girls had good MHM practices. Most (614 (91.4%)) of them used absorbent materials during their last menstruation period. However, only around two-thirds (444 (66.1%)) of the girls were using commercial disposable sanitary pads, while the remaining were using reusable cloths (170 (25.3%)) and underwear only (58 (8.6%)). Out of 170 (25.3%) girls who were using reusable cloths, 93 (54.7%) washed the cloths with soap and water, and only one-third (43 (25.3%)) dried the washed cloths in the sunlight. More than half (379 (56.4%)) of the girls changed the sanitary materials more than three times a day, and 459 (68.3%) cleaned their external genitalia with water and soap during menstruation. Nearly half (321 (47.8%)) of the girls took a bath daily with soap during menstruation, and 492 (73.2%) used dustbin for disposing of sanitary materials (Table 3).

3.4. Factors Associated with MHM Practices. In multivariate analyses, residency, mother's educational status, and girls' knowledge status towards menstruation and its hygienic practices were found to be independent predictors of MHM practices. Girls from urban areas were 2.59 times more likely to have good MHM practices compared to their counterparts (AOR = 2.59, 95% CI: 1.77–3.80). Girls whose mother's educational status was secondary school and above were about 2 times more likely to have good MHM practices compared to those whose mothers had no formal education (AOR = 1.83, 95% CI: 1.01–3.30). The likelihood of practicing good MHM was 2.78 times higher among those students who had moderate knowledge (AOR = 2.78, 95% CI: 1.64–5.28) and 3.87 times more likely among those who had good knowledge (AOR = 3.87, 95% CI: 2.21–6.77) compared to those who had poor knowledge (Table 4).

4. Discussion

This study aimed to assess the practices of MHM and associated factors among secondary school girls in East Hararge Zone. It was observed that 58.3% of the girls had good MHM practices in this study. This is similar to the study done in Adama town, Ethiopia, [19], but higher than the study conducted in Nekemte town, Western Ethiopia [18], where 57% and 39.9% of the girls practiced good MHM, respectively. The discrepancy could be due to the difference in cultural beliefs about MHM practices in the study areas and the study period.

In this study, only 66.1% of the girls used commercial disposable sanitary pads, which is much lower than the

TABLE 1: Sociodemographic characteristics of study participants in East Hararghe Zone, Ethiopia, 2017 ($n = 672$).

Variables	Categories	Frequency	Percentage
Age	≤16 years	273	40.6
	>16 years	399	59.4
Students live with	Parents	467	69.5
	Peers	110	16.4
	Relatives	59	8.7
Place of residence	Alone	36	5.4
	Urban	249	37
	Rural	423	63
Marital status	Single	632	94.0
	Married	40	6.0
Religion	Muslim	490	72.9
	Orthodox	131	19.5
	Protestant	51	7.6
	Babile	173	25.7
School	Haramaya	154	22.9
	Kombolcha	190	28.3
	Qarsa	155	23.1
	9	373	55.5
School grade	10	299	44.5
	No formal education	343	51.0
	Primary education	209	31.1
Mother's educational status	Secondary and above education	120	17.9
	No formal education	308	45.8
	Primary education	214	31.8
Father's educational status	Secondary and above education	150	22.3

TABLE 2: Knowledge of menstruation and its hygiene practices among secondary school girls in East Hararghe Zone, Ethiopia, 2017 ($n = 672$).

Variables	Frequency	Percentage
Menstruation is		
Physiological process	517	76.9
Pathological process	40	6.0
Do not know	115	17.1
Cause of menstruation		
Hormones	491	73.1
Disease	33	4.9
Curse	24	3.6
Do not know	124	18.4
Source of menstrual blood		
Uterus	493	73.4
Vagina	75	11.2
Bladder	26	3.9
Do not know	78	11.5
Important to take care of personal hygiene during menstruation		
Yes	626	93.2
No	7	1.0
Do not know	39	5.8
Good absorbent during menstruation		
Sanitary pads	586	87.2
Old cloths/towels	68	10.1
Do not know	18	2.7
Overall knowledge status		
Poor	78	11.6
Moderate	134	19.9
Good	460	68.5

TABLE 3: Menstrual hygiene management practices of secondary school girls in East Hararghe Zone, Ethiopia, 2017 (n = 672).

Practice-related questions	Frequency	Percentage
Used absorbent materials during menstruation	614	91.4
Uses commercial disposable sanitary pads	444	66.1
Changes pads or cloths more than three times a day during menstruation	379	56.4
Cleans reusable clothes with soap and water	93	54.7
Dry reusable clothes in the sunlight	43	25.3
Disposes pads by wrapping with paper	126	18.8
Takes bath daily with soap during menstruation	321	47.8
Cleans external genitalia during menstruation	646	96.1
Cleans external genitalia with water and soap during menstruation	459	68.3
Disposes used sanitary pads in dustbins	492	73.2
Overall menstrual hygiene practices	Poor	280
	Good	392

TABLE 4: Factors associated with menstrual hygiene management practices of secondary school girls in East Hararghe Zone, Ethiopia, 2017.

Variables	MHM practice		COR (95% CI)	p value	AOR (95% CI)	p value
	Good	Poor				
Age						
≤16 years	148 (54.2)	125 (45.8)	1		1	
>16 years	244 (61.2)	155 (38.8)	1.33 (0.97–1.82)	0.073	1.33 (0.94–1.89)	0.104
Students live with						
Parents	267 (57.2)	200 (42.8)	1		1	
Peers	78 (70.9)	32 (29.1)	1.83 (1.16–2.87)	0.009	1.64 (1.00–2.69)	0.050
Relatives	26 (44.1)	33 (55.9)	0.59 (0.34–1.02)	0.058	0.57 (0.32–1.03)	0.062
Alone	21 (58.3)	15 (41.7)	1.05 (0.53–2.09)	0.892	1.56 (0.71–3.42)	0.272
Residence						
Rural	205 (48.5)	218 (51.5)	1		1	
Urban	187 (75.1)	62 (24.9)	3.21(2.27–4.53)	0.001*	2.59 (1.77–3.80)	0.001*
School grade						
9	210 (56.3)	163 (43.7)	1		1	
10	182 (60.9)	117 (39.1)	1.27 (0.93–1.73)	0.132	1.27 (0.90–1.79)	0.178
Mother’s educational status						
No formal education	174 (50.7)	169 (49.3)	1		1	
Primary	128 (61.2)	81 (38.8)	1.54 (1.08–2.18)	0.016	0.98 (0.57–1.70)	0.954
Secondary and above	90 (75.0)	30 (25.0)	2.91 (1.83–4.63)	0.001*	1.83 (1.01–3.30)	0.043
Father’s educational status						
No formal education	156 (50.6)	152 (49.4)	1		1	
Primary	136 (63.6)	78 (36.4)	1.70 (1.19–2.43)	0.004	1.12 (0.68–1.83)	0.669
Secondary and above	100 (66.7)	50 (33.3)	1.95 (1.30–2.93)	0.001	1.39 (0.76–2.56)	0.290
Knowledge status						
Poor	26 (33.3)	52 (66.7)	1		1	
Moderate	77 (57.5)	57 (42.5)	2.70 (1.51–4.84)	0.001	2.78 (1.64–5.28)	0.002
Good	289 (62.8)	171 (37.2)	3.38 (2.04–5.61)	0.001*	3.87 (2.21–6.77)	0.001*

COR, crude odds ratio; AOR, adjusted odds ratio; CI, confidence interval. * p value < 0.001.

findings from other studies that reported the usage to be 98.3% in Indonesia [12], 92.2% in Nigeria [20], and 80.4% in India [21]. The possible reasons for this discrepancy might be due to the difference in socioeconomic status to buy appropriate sanitary products, availability and accessibility of appropriate sanitary materials, and knowledge towards menstrual hygiene.

Regarding the frequency of changing menstrual absorbents, only 379 (56.4%) of the girls changed absorbents more than three times a day. This is lower than another study from southern Ethiopia [22] where 62.4% of the girls changed

absorbents more than three times a day, and other studies from Kenya where 60.6% of the respondents keep changing pads every 3–4 hours a day [8], and Indonesia where 75.6% of the respondents keep changing pads every 4–6 hours a day [23]. The disparity in the frequency of changing menstrual absorbents could be attributed to the difference in access to adequate sanitary materials and sanitary facilities (water and private latrine) at school.

It was investigated that 459 (68.3%) of the girls cleaned their external genitalia with water and soap during menstruation, which is in line with another study in Ethiopia

(69.5%) [22]. Furthermore, 321 (47.8%) of the girls took bath daily during menstruation. This is consistent with the study conducted in Kenya that reported 47.5% daily bathing during menstruation days among adolescent girls [8]. However, it is lower than other studies from Indonesia [17] and Nepal [24] that reported 99.8% and 78.7% daily bathing during menstruation, respectively. The possible explanation for this variation might be related to the difference in cultural beliefs about MHM practices and availability of sanitary facilities in the study areas.

Regarding the determinant factors of MHM practices, several studies revealed that girls' place of residence was significantly associated with their MHM practices [12, 14, 16, 25, 26]. Similarly, this study showed that girls living in urban areas were more likely to have good MHM practices compared to their counterparts. The discrepancy between urban and rural girls towards hygienic practices could be due to the differences in access to appropriate information about menstrual hygiene, access to appropriate and affordable sanitary products, and access to sanitary facilities at the household and school levels. It may also be partly attributed to socioeconomic differences between urban and rural residents, since the majority of Ethiopia's poor live in rural areas.

Furthermore, higher maternal education was positively associated with girls' good MHM practices in this study. Accordingly, girls whose mothers' educational status was secondary school and above were about 2 times more likely to have good MHM practices compared to girls whose mothers had no formal education. This finding is consistent with several other studies across the world that identified a positive association between higher maternal education and girls' good menstrual hygiene practices [18, 27–31]. This can be explained by the fact that educated mothers might have a better awareness of menstrual hygiene practices, and thus, they could have an open discussion with their daughters about menstruation and/or more likely provide appropriate sanitary materials for them to keep their menstrual hygiene during menstruation.

This study also revealed that a better knowledge about menstruation and its hygiene management was positively associated with good MHM practices of secondary schoolgirls. This supports other studies done in Ethiopia [7, 22], Nigeria [31], and India [32]. This is also in agreement with the findings of other studies that demonstrated that educational interventions on menstrual hygiene lead to more knowledge and better practices of MHM [5, 9, 33, 34]. The possible explanation might be due to the fact that sufficient knowledge of menstruation could empower the girls to overcome the negative influences of cultural beliefs and social taboo surrounding menstruation and its hygienic practices attributed by the community they live in, and hence, they could keep their hygiene during menstruation.

The study has its own limitations. First, the cross-sectional nature of the study design cannot establish the cause and effect relationships between the outcome and explanatory variables. Second, this study follows only quantitative data collection; hence, it lacks a qualitative component for triangulation. Thus, further longitudinal and mixed methods

study is recommended for researchers. Finally, since the study addressed the sensitive topic about menstruation, there may be social desirability bias. But the interviews were conducted in a private circumstance using well-trained female data collectors to minimize this bias.

5. Conclusions

In this study, more than half of secondary school girls had good MHM practices. The girls' living areas, knowledge status towards menstruation and its hygiene, and mothers' educational status were significantly associated with MHM practices. Therefore, there is a high need for awareness creation about menstruation and its appropriate management for schoolgirls. Mass media could be used to disseminate accurate information about menstrual hygiene management, particularly for rural settings. Policymakers and stakeholders should also give special attention towards making the school environment a comfortable place for girls to manage their menstrual hygiene.

Data Availability

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

Conflicts of Interest

The author declares that there are no conflicts of interest.

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