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Original Research Article

Magnitude of safe menstrual hygiene management practice and its associated factors among adolescents' girls in secondary and preparatory schools in Dire Dawa city, Eastern Ethiopia, 2023

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ABSTRACT

Background: In Africa, numerous adolescent girls miss school due to menstrual cramps, inadequate menstrual hygiene supplies, insufficient water and sanitation facilities in educational institutions, and anxiety regarding potential menstrual accidents. Therefore, the aim of this study is to evaluate the prevalence of safe menstrual hygiene management (MHM) practices in Dire Dawa City, Eastern Ethiopia, in 2023.

Methods: A facility-based cross-sectional study design was carried out in Dire Dawa City, Eastern Ethiopia. A Participants were chosen through a simple random sampling method. Data entry was performed using Epi Data version 4.1, and analysis was conducted using SPSS version 24. Both bivariate and multivariate logistic regression analyses were utilized to explore the relationship between MHM and independent variables. An adjusted odds ratio (AOR), 95% confidence interval (CI), and a p value of less than 0.05 were deemed statistically significant.

Results: The findings revealed that 62.6% of the students practiced safe MHM. Factors significantly associated with safe MHM included the residence of adolescent girls [AOR=2.58, 95% CI=1.37-4.83], the educational level of mothers [AOR=2.94, 95% CI=1.26-5.05], receiving regular pocket money from parents [AOR=1.9, 95% CI=1.2-2.98], and family size [AOR=5.5, 95% CI=3.12-9.89].

Conclusions: The study indicates that over half of the adolescent girls engaged in safe MHM practices. It is recommended that educational initiatives be implemented for rural teenage girls regarding safe menstrual hygiene practices, alongside fostering family support through resources and guidance.

Keywords: Menstrual hygiene management, Dire Dawa city, Adolescents' girls

INTRODUCTION

Menstruation refers to the regular shedding of the uterine lining through the vagina, accompanied by blood, regulated by the hormones of the hypothalamus-pituitary-ovarian axis. The onset of menstruation, known as menarche, marks a significant milestone in female puberty and signifies reproductive maturity.[1] Typically, girls begin menstruating around the age of 13 and continue until approximately 51 years of age. The menstrual cycle averages 28 days, although it can vary between 21 and 35 days. The duration of bleeding can range from two to seven days, with variations in flow intensity. It is common for the menstrual cycle to be irregular during the first two years following menarche.[2]

MHM encompasses personal hygiene practices during menstruation, which include selecting appropriate sanitary products, ensuring their correct usage and disposal, and maintaining body cleanliness. Effectively managing menstruation involves addressing menstrual blood flow while also engaging in daily activities such as attending school, participating in sports, and performing routine tasks.[3,4]

Worldwide, approximately 2.3 billion girls and women face challenges in managing their menstruation due to insufficient MHM facilities, prohibitive costs, and a lack of awareness. Consequently, many resort to using unsuitable alternatives, such as old clothing or other unsanitary materials, which heightens their risk of infections and other health issues.[5,6] Recent research indicates that around 10% of women globally are susceptible to genital infections, including urinary tract infections and bacterial vaginosis, with 75% having experienced a genital infection at some point. Notably, common risk factors for vaginal infections include pregnancy and inadequate hygiene practices.[7,8]

In low-income nations, the challenges associated with menstruation and inadequate menstrual hygiene contribute to the school absenteeism of millions of girls and women, thereby increasing the risk of school dropout.[9] UNESCO reports that numerous adolescent girls in Africa are unable to attend school due to menstrual cramps, inadequate menstrual hygiene supplies, and insufficient water and sanitation facilities in educational institutions, unwelcoming environments, and anxiety regarding potential menstrual accidents.[10]

In Ethiopia, similar to other African nations, MHM represents a significant challenge for adolescent girls during their schooling. Many schools lack essential resources for managing menstruation, including menstrual products, designated areas for changing, access to running water, and proper disposal facilities. Research conducted in Southern Ethiopia, Western Ethiopia, and Ambo City indicates that the prevalence of safe MHM was recorded at 39.7%, 39.9%, and 46.7%, respectively.[8,11,12]

Various factors influence menstrual hygiene practices, such as the age of the adolescents, their educational background, the educational levels of their parents, family size, place of residence, living conditions, household income, inadequate WASH facilities, lack of privacy in latrines, women's knowledge about menstruation, and the fear of being teased by boys.[10,12-15]

Furthermore, there is a scarcity of information regarding menstruation and its hygienic management, as well as its impact on girls' education in Ethiopia. A previous study revealed that approximately 43.0% to 54.5% of female students missed school for 1 to 4 days during each menstrual cycle due to menstruation-related issues.[16,17] Therefore, the current study was aimed at assessing the magnitude of safe MHM practice and its associated factors among adolescents' girls in secondary and preparatory schools in Dire Dawa City, Eastern Ethiopia, in 2023.

METHODS

Study setting and design

A facility-based cross-sectional study was conducted from September 1 to October 30, 2023, in Dire Dawa, Eastern Ethiopia. Dire Dawa is one of the most known and ancient cities in Eastern Ethiopia, It is located around 515 km from Addis Ababa. The Somali Regional State borders it in the east, west, and north, and the Oromia Regional State in the south and east. Dire Dawa has a total area of 1,558.64 square kilometers with an estimated density of 237.2 people per square kilometer. According to an unpublished report from the Dire Dawa Bureau of Education, the 2024 academic year saw a total enrollment of 19,954 students in secondary education. This includes 10,537 male and 9,417 female students. These students are distributed across 33 secondary and preparatory schools, which consist of 14 public and 19 private institutions.

Study population, sample size determination, and sampling procedure

The source of population of this study was all adolescents' girls who were attending their education at the selected secondary and preparatory schools in Dire Dawa City, but the study population was all adolescents' girls sampled from the selected secondary and preparatory schools in Dire Dawa City, Eastern Ethiopia. All 14-19-year-old female adolescents who started menses and who were willing to participate in the study were included in the study. Female adolescents who had no history of menstruation before data collection day, evening class girls, and those who were seriously ill at the time of data collection were excluded from the study.

The determination of the sample size was conducted using a single population proportion formula, referencing a previous study in Ambo town that reported a safe

management proportion of menstrual hygiene practices at 46.4%.[12] With a confidence level of 95% and a margin of error set at 5%, the total sample size was adjusted to 422 after accounting for a 10% non-response rate.

A multistage sampling approach was employed to identify the study participants. The student population was categorized into two groups: public and private schools. From these categories, 30% of the schools were randomly selected using a lottery method, resulting in the inclusion of 8 schools (4 public and 4 private) in the study. The total number of female students in each selected school was obtained from the respective student registration records. The sample size was then proportionally distributed among the selected schools based on the number of female students enrolled. Finally, participants were chosen from each school through a simple random sampling method, utilizing the list of female students as the sampling frame.

Data collection tool and procedure

Data were collected through a self-administered interview using a standardized questionnaire developed from previous similar studies and UNICEF.[2,4,8,13,18] A structured and pre-tested questionnaire was employed to gather data, which included inquiries regarding sociodemographic characteristics, knowledge of menstruation, practices related to MHM, and the availability of WASH facilities in schools. The initial questionnaire was drafted in English, subsequently translated into Afan Oromo and Somaligna to enhance comprehension for both data collectors and participants, and then translated back into English to ensure consistency. A team comprising eight BSc nurses and four MSc graduates specializing in maternity was assembled for the data collection and oversight tasks. To uphold the quality of the data, the data collectors underwent a two-day training session focused on the study's objectives and the questionnaire's content prior to the commencement of data collection. A pretest was conducted with 5% of the sample from a high school, which was excluded from the main study. To ensure the validity of the data collection tools, discussions were held among data collectors and supervisors to address any inconsistencies or ambiguities in the questionnaire before the actual data collection began. Furthermore, the collected data were subjected to daily cross-checks for consistency and completeness. The integrity of the data quality was maintained through comprehensive training and effective supervision of the data collectors.

Operational definitions

Safe MHM practices refer to the use of clean menstrual materials by female students to absorb or collect menstrual blood, which can be changed in a private setting as needed throughout the menstrual period. Additionally, it includes the use of soap and water for washing as required and the availability of facilities for the disposal of used menstrual materials. This practice was evaluated through a set of 10 questions, where each correct answer was assigned one point, while incorrect answers and responses indicating uncertainty were scored as zero. The total score for MHM practices was derived from these 10 points, with participants achieving a mean score or higher classified as practicing safe MHM, and those scoring below the mean classified as unsafe.[13,18]

Knowledge of MHM was assessed using 8 questions, with each correct answer earning one point, while incorrect answers and uncertain responses received zero points. The total knowledge score was calculated from these 8 points, with participants scoring at or above the mean considered to have good knowledge of MHM, and those scoring below deemed to have poor knowledge.[9,13,18]

Access to water supply was defined as the availability of adequate water collection and usage points within the school, facilitating convenient access to water for drinking and personal hygiene purposes.[18]

Data processing and analysis

The data were entered into into Epi Data version 4.1, and the data was exported to SPSS version 24 for analysis. First descriptive analysis was done, and then, bivariate analysis was done. In multivariable logistic regression analysis, a variable with a $p<0.2$ in bivariate logistic regression analysis was entered, and the point degree of association was declared at a $p=0.05$. An odds ratio with a 95% confidence interval was used to measure the degree of association between those significant independent variables and safe MHM practice. The dependent variable was classified as a dummy variable. The model fit was checked by the Hosmer and Lemeshow test, which is the most reliable test of model fit available in SPSS. Hence, the chi-square value for the Hosmer-Lemeshow test is 4.024 with a significance level of 0.74. This value is greater than 0.05, therefore indicating the goodness of model fit.

A Multicollinearity test was also done to assess how much the variance of an estimated regression coefficient increases if the predictors are correlated. All values of the variance inflation factor were less than two. All values of the tolerance test were also above 0.2. These values show that there was no problem with multicollinearity in this study. The results are presented in the form of narrations, tables, and graphs.

RESULTS

A total of 422 adolescent girls who were enrolled in the secondary and preparatory schools of Dire Dawa City, Eastern Ethiopia, were invited to the study. Eight collected questionnaires were omitted since they were considered invalid (no response, incomplete response, or the same response to each item). Finally, 414

questionnaires were considered valid, and the response rate was approximately 98.1%.

Sociodemographic characteristics of the study participants

Regarding the socio-demographic characteristics of the respondents, the majority (72.5%) of the girls were in the age category of 13-16, and the mean age of the study participants was 15.34±1.01 years. About two-thirds of the students (73.7%) were from urban areas. About half (213, or 51%) of the female students were from preparatory schools (grades 11 and 12). More than half, 233 (56.3%) of the girl's mothers had formal education, and more than three-fourths, 341 (82.4%) of their fathers had no formal education.

Nearly three-fourths 305 (73.7%) of participants were less than 15 years of age at menarche, and more than half (230, or 55.6%) of the girls were living with their parents. Regarding the family size and pocket money of female students, 184 (44.4%) of them have less than five family sizes, and more than half 224 (54.1%) of the female students did not obtain regular pocket money from their parents, respectively (Table 1).

Knowledge of menstruation and its hygiene management among adolescent's girls in secondary and preparatory schools in Dire Dawa City, Eastern Ethiopia, 2023

Overall, in the present study, 350 (84.5%) of the adolescent's girls had good knowledge of menstruation and its hygiene management (Figure 1).

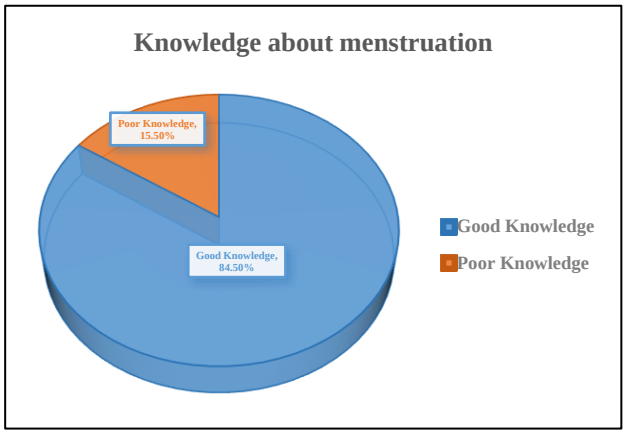

Figure 1: The overall knowledge of menstruation among adolescent's girls in secondary and preparatory schools at Dire Dawa city, Eastern Ethiopia, 2023.

Majority 333 (80.4%) of them knew that menstruation was a physiological process, and, about 301 (72.7%) knew that the cause of menstruation was hormonal. Nearly three-fourths of 310 (74.9%) of girls knew the origin of the menstrual blood was from the uterus, while 104 (25.1%) thought that it was from the vagina. Regarding the duration of menstruation, 288 (69.6%) of them responded that, on average, the duration of menstruation lasts up to five days.

Regarding the normal menstrual cycle, the majority 288(69.6%) of them responded that, in the category of 20-35 days. Most 361 (87.2%) of the girls knew that taking care of personal hygiene during menstruation was important. Regarding the good absorbent during menstruation, most 339 (81.9%) of them stated that the sanitary pad was good absorbent (Table 2).

Safe MHM practice among adolescent's girls in secondary and preparatory schools at Dire Dawa City, Eastern Ethiopia, 2023

In general, in the present study, of the overall MHM practices, 259 (62.6%) of the students had safe MHM practices (Figure 2).

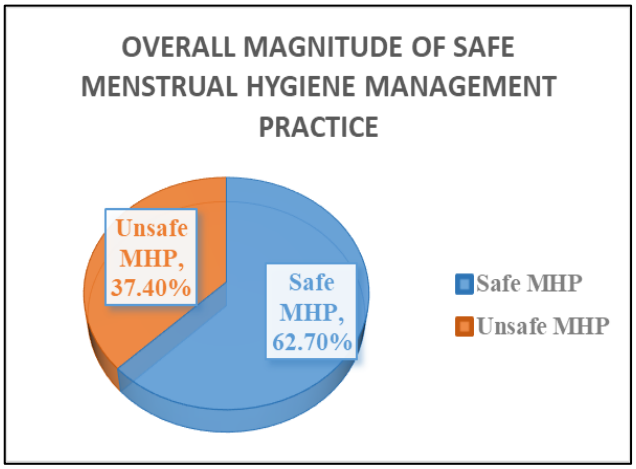

Figure 2: The overall magnitude of Safe MHM practice among adolescent's girls in secondary and preparatory schools at Dire Dawa city, Eastern Ethiopia, 2023.

The majority, 385 (93%) of the respondents, used sanitary pads to absorb menstrual blood, and about 346 (84.1%) of them used commercial disposable sanitary pads. More than half, of the study participants have changed pads more than two times per day during menstruation and washed their hands after they change pads/sanitary materials. Most of the study participants, 388 (93.7%), had washed their genitalia during menstruation. Regarding the disposal of the used sanitary pads, 279 (67.4%) of the respondents disposed of them in dustbins, and about 198 (47.8%) of them disposed of them by wrapping them in paper (Table 3).

Sociocultural and environmental factors for the management of menstrual hygiene in schools

About 259 (62.6%) adolescent girls reported that they had access to clean water at school. Regarding

accessibility of toilet facilities at school, a majority of 359 (86.7%) of adolescent girls had access to toilet facilities, but 149 (36%) of students reported that toilets do not contain a container to dispose of the sanitary napkins.

Nearly three-fourths (74.3) of the participants reported that their school has handwashing facilities. Regarding school absenteeism during menstruation, nearly one third (136, or 32.6%) of adolescent girls reported that they had missed class during menstruation, and about one-fourth 109 (26.3) of the adolescent girls reported that menstruation interfered with the school performance (Table 4).

Factors associated with safe MHM practice and its associated factors among adolescent's girls in secondary and preparatory schools in Dire Dawa City, Eastern Ethiopia, 2023

In the current study, residence, mother educational status, family size, regular pocket money, hearing about menstruation before menses start, knowledge about menstruation, communication about menstruation with families or friends, and having access to clean water at school were associated with safe MHM practice only at COR at p<0.05.

Multivariate logistic regression analysis was used to minimize the effect of confounding variables and identify real factors in safe MHM practice. Accordingly, residence, mother educational status, family size, and regular pocket money were all significantly associated with safe MHM practice at both crude and adjusted odd ratios at p<0.05.

In this study, the residence of adolescent's girls was significantly associated with safe MHM practices. The odds of safe MHM practice were almost two [AOR=2.58, 95% CI=1.37-4.83] times higher in students with urban residence as compared to their counterparts.

This study also revealed that a mother's educational status was significantly associated with safe MHM practices. Girls whose mother's educational status was formal were about three [AOR=2.94, 95% CI=1.26-5.05] times more likely to have safe MHM practices as compared to their counterparts.

The present study revealed that having regular pocket money from parents' adolescent girls was significantly associated with safe MHM practices. Students who have regular pocket money from their parents were almost two [AOR=1.9, 95% CI=1.2-2.98] times more likely to have safe MHM practices as compared to their counterparts.

Finally, the present study revealed that family size was significantly associated with safe MHM practices. Adolescent's girls with a family size less than five were almost three [AOR=5.5, 95% CI=3.12-9.89] times more likely to have safe MHM practices as compared to their counterparts (Table 5).

Table 1: Socio demographic characteristics of female adolescents in public secondary and preparatory schools of Dire Dawa city, Eastern Ethiopia.

Characteristics		N	Percent (%)
Age (in years)	13-16	300	72.5
	16-19	114	27.5
Residence	Urban	301	72.7
	Rural	113	27.3
Grade	9-10	201	48.6
	11-12	213	51.4
Marital status	Married	30	7.2
	Unmarried	384	92.8
Educational level of father	Have no formal education	73	17.6
	formal education	341	82.4
Educational level of mother	Have no formal education	181	43.7
	Have formal education	233	56.3
Occupation of father	Merchants	122	29.4
	Private	117	28.2
	Government employee	169	40.8
	Other	6	1.4
Occupation of mother	Merchants	77	18.5
	House wife	98	23.6
	Government employee	135	32.6
	Private	101	24.3
	Other	3	0.7
Family size	≥5	213	51.4
	< 5	201	48.6

Continued.

Characteristics		N	Percent (%)
Age of menarche (in years)	<15	230	55.6
	≥15	184	44.4
With whom do you live	With both parents	305	73.7
	Others	109	26.3
Obtain regular pocket money from their parents	Yes	190	45.9
	No	224	54.1

Table 2: Knowledge of menstruation and its hygiene management among adolescent's girls in secondary and preparatory schools at Dire Dawa city, Eastern Ethiopia, 2023.

Characteristics		N	Percent (%)
Menstruation is	Physiological process	333	80.4
	Pathological process	81	19.6
Cause of menstruation	Hormones	301	72.7
	Disease/other	113	27.3
Source of menstrual blood	Uterus	310	74.9
	Vagina	104	25.1
How long menstrual blood lasts	Two- seven	288	69.6
	Greater than seven	126	30.4
Normal menstrual cycle	20-35	288	69.6
	>35	126	30.4
Mensuration is life long	Yes	130	31.4
	No	284	68.6
Important to take care of personal hygiene during menstruation	Yes	361	87.2
	No	53	12.8
Good absorbent during menstruation	Sanitary pads	339	81.9
	Old cloths or towel	75	18.1

Table 3: Safe MHM practice among adolescent's girls in secondary and preparatory schools at Dire Dawa city, Eastern Ethiopia, 2023.

Characteristics		N	Percent (%)
Used absorbent materials during menstruation	No	28	7
	Yes	385	93
Uses commercial disposable sanitary pads	No	66	15.9
	Yes	346	84.1
Changes pads more than two times a day during menstruation	No	236	57
	Yes	178	43
Cleans reusable clothes with soap as well as with the water	No	348	84.1
	Yes	66	15.9
Did you wash hands after you change pads or the sanitary materials	No	234	56.5
	Yes	180	43.5
Wash your genital during period menstruation	No	26	6.3
	Yes	388	93.7
Use soap for cleaning external genitalia in menstruation	No	16	3.9
	Yes	398	96.1
Bathing during menstruation with water and soap	No	150	36.2
	Yes	264	63.8
Properly dispose used sanitary pads or the materials in the dustbins	No	135	32.6
	Yes	279	67.4
Disposes pads by wrapping with paper	No	216	52.2
	Yes	198	47.8

Table 4: Sociocultural and environmental factors for the management of menstrual hygiene in schools.

Characteristics		N	Percent (%)
Had access to clean water	Yes	259	62.6
	No	155	37.4
Had access to clean toilet facilities at school	Yes	359	86.7
	No	55	13.28
Girls' individual toilet compartments contain a container for disposing of sanitary napkins	Yes	265	64.0
	No	149	36.0
The school have hand-washing facilities	Yes	308	74.3
	No	106	25.7
School absenteeism during menstruation	Yes	136	32.9
	No	278	67.1
Menstruation interferes school performance	Yes	109	26.3
	No	305	73.67
Have you ever heard about menstruation before your menstrual starts	Yes	362	87.4
	No	52	12.6
Communication with family/friends about menstruation	Yes	179	43.2
	No	235	56.8

Table 5: Results of bivariate and multivariate analyses for assessment of safe MHM practice and its associated factors among adolescent's girls in secondary and preparatory schools at Dire Dawa city, Eastern Ethiopia, 2023, (n=414).

Variables		Safe menstrual hygiene practice, N (%)		COR (95%CI)	AOR (95%CI)	P
		Safe MHP	Unsafe MHP			
Residence	Urban	200 (66.4)	101 (33.6)	1.81 (1.67-2.81	2.58 (1.37-4.83)	0.03
	Rural	59 (52.2)	54 (47.8)	1	1	
Mother education	Formal	164 (70.4)	69 (20.6)	2.15 (1.43-3.32)	2.94 (1.26-5.05)	0.00
	No formal	95 (52.5)	86 (47.5)	1		
Family size	≥5	115 (54)	98 (46)	1		
	<5	144 (71.6)	57 (28.4)	2.15 (1.43-3.23)	5.5 (3.12-9.89)	0.00
Regular pocket money	Yes	135 (71.1)	55 (28.9)	1.97 (1.31-2.98)	1.9 (1.2-2.98)	0.005
	No	124 (55.4)	100 (44.6)	1		
Heard about menstruation before your menstrual starts	No	26 (50)	26 (50)	1		
	Yes	233 (64.4)	129 (35.6)	1.8 (1.007-3.24)		
Knowledge about menstruation	Poor	33 (51.6)	31 (48.4)	1		
	Good	226 (64.6)	124 (35.4)	1.71 (1.001-2.92)		
Communication about menstruation with families/ friends	No	81 (45.3)	98 (54.7)	1		
	Yes	161 (68.5)	74 (31.5)	1.79 (1.20-2.69)		
Had access to clean water at school	Yes	174 (67.2)	85 (32.8)	1.68 (1.12-2.53)		
	No	85 (54.8)	70 (45.2)	1		

DISCUSSIONS

The main objective of this study was to determine the magnitude of safe MHM practices and their associated factors among adolescent's girls in secondary and preparatory schools in Dire Dawa City, Eastern Ethiopia, in 2023. Accordingly, study revealed that magnitude of safe MHM practice among adolescents' girls in secondary and preparatory schools in Dire Dawa City was 62.6%. This finding was almost comparable with the previous studies conducted in the East Hararghe Zone (58.3%, Northeast Ethiopia (62.4% Batu Town, East Shewa (60.8%) and Dang District, Nepal (64%).[17,19-21]

However, the result of this finding was lower than the studies done at Goba Town, South East Ethiopia (71.4%, Bahir Dar city (84.3%), Lucy Village of Ethiopian Great Rift Valley (70.2%), Ogbomoso, Oyo State, Nigeria (88.7%), adolescent school girls in Kano (92%), Indonesia (98.3%), Nelamangala, India (80.4%) and pastoralist community in Kenya (71.2%).[22-29] The observed discrepancy may stem from various factors, including differences in socioeconomic status that affect

the ability to purchase suitable sanitary products, the availability and accessibility of appropriate sanitary materials, and the level of knowledge regarding menstrual hygiene.

However, the current finding is higher than the study's done in Southern Ethiopia (39.7%), Western Ethiopia (39.9%, Ambo City, Oromia (46.7%), Akaki Kality Sub-city, Addis Ababa (45.2%), rural Uganda (9.5%) and Ghana (50.8%).[8,11,12,30-32] A variations in sociodemographic characteristics and the composition of the study population could contribute to these differences. Another potential explanation lies in the differing methodologies employed to assess MHM in the current study compared to previous research.

In this study, the odds of safe MHM practice were almost higher in students with urban residence as compared to their counterparts. This finding was in line with studies conducted at East Hararghe Zone, Mehalmeda high school students in Amhara Regional State, Northeast Ethiopia, Central Ethiopia, Kembata Tembaro Zone, South Ethiopia, Harari Region, Kano Northwestern Nigeria, and India.[2,4,11,17,19,33,34] It is plausible that girls residing in urban areas have greater access to information on MHM and are more likely to obtain sanitary pads available in the market. This finding underscores the necessity for targeted support for girls in rural areas, who face sociocultural barriers that hinder effective menstrual management.

In the current study, mother's education status was significantly associated with safe MHM practice, which is also supported by several studies, such as those done in Adama, Weliso District, South West Shoa Zone, East Hararghe Zone, Pakistan and Lebanon.[14,19,35-37] This can be explained by the fact that mothers with higher levels of education are more likely to possess a comprehensive understanding of menstrual hygiene practices, enabling them to engage in open discussions with their daughters about menstruation and to provide appropriate sanitary materials to ensure proper menstrual hygiene.

Adolescent girls with a family size less than five were more likely to engage in safe MHM practices than those with a family size greater than five, which is in line with studies done in the northern region of Ghana, adolescent girls in a resettlement colony of Delhi, Dang District, Nepal, and Ogbomoso, Oyo State, Nigeria.[21,25,37,38] This might be due to the fact that Adolescent girls from smaller families may possess greater knowledge and more favorable attitudes toward sexual and mental health (SMH) compared to their counterparts from larger, extended families.

Furthermore, the concentrated attention and education they receive in smaller family settings facilitate enhanced guidance and awareness regarding SMH.

In the present study, having pocket money from their families was significantly associated with the safe MHM practice in which adolescents Girls who earn permanent pocket money from their families were more likely to have safe MHM practices compared to those who don't earn permanent pocket money from their families. This finding was in line with studies conducted in western Ethiopia, Harari Region and Eastern Ethiopia, and south India.[8,19,33,39] This could be due to the fact that the fact that girls who get money from their parents can easily buy sanitary napkins for their menstrual hygiene.

Limitations

The cross-sectional design of this research presents challenges in establishing a causal relationship between the dependent variable and its associated factors. To address these limitations, longitudinal studies are recommended. Additionally, the sensitive nature of the topic may lead to a heightened risk of social desirability bias. To mitigate this, we employed female data collectors and female educators to assist in the data collection process. Furthermore, there was a potential for recall bias regarding the precise age of menarche. To reduce this bias, we correlated the participants' first menstruation with the grade level they were in at that time.

CONCLUSION

The findings of this study indicate that over fifty percent of adolescent girls in secondary and preparatory schools in Dire Dawa City engage in safe MHM practices. Factors such as residing in urban areas, having mothers with formal education, belonging to families with fewer than five members, and receiving regular pocket money are associated with a higher likelihood of practicing safe MHM.

This study advocates for the implementation of educational initiatives aimed at rural adolescent girls regarding safe menstrual hygiene practices, fostering family support through resources and guidance, promoting financial independence to facilitate access to hygiene products, and collaborating with the community to cultivate a supportive environment for safe menstrual hygiene practices. By adopting these recommendations, we can empower adolescent girls to embrace and sustain safe menstrual hygiene practices, ultimately enhancing their health outcomes and overall well-being.

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