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Assessment of Menstrual Hygiene Practices and its Associated Factors among Adolescent Students in Batu High School in Batu Town, East Shewa, Ethiopia: A Descriptive School-Based Cross-Sectional Study

Frehiwot Bekele (BSc)¹, Masresha Leta Serbesa (BSc, MSc)², Sr. Maleda Tefera Iffa (BSc, MSc)³

¹ Batu Hospital, Oromia regional state, Ethiopia

² Department of Midwifery, Harar Health Science College, Harar, Ethiopia

³ Department of Nursing, Haramaya University, Harar, Ethiopia

Corresponding Authors: Masresha Leta Serbesa (Email: masreshaleta3@gmail.com), Sr. Maleda Tefera Iffa (Email: maledaifa.21@gmail.com)

Abstract

Background: Menstrual hygiene management has not received adequate attention in the reproductive health sectors in developing countries which in turn contribute to poor menstrual hygiene practices in these countries. **Objectives:** To assess menstrual hygiene practices and associated factors among adolescent female students in Batu high schools in Batu town, East Showa, Ethiopia. **Methods:** A descriptive school-based cross-sectional study was conducted from May 25 to June 25, 2017, G.C, in Batu Town. A total of 310 adolescent's girls 'were participated in the study. Participants were selected by systematic sampling technique in every Kth = 9th. **Result:** Majority 218 (79.6%) of the adolescents have heard about menstruation before menarche, and the main sources of information about menstruation were 166 (60.6%) from friends. Majority of the participants 183(66.8%) practiced good menstrual hygiene, and 250 (91.2%) of adolescent girls were using sanitary pads as menstrual absorbent, while 10 (3.6%) were using a piece of clothes. A significant association was found between residence (P=0.001), parents' educational status (P=0.008), religion (P=0.001), family monthly income (P=0.019), types of sanitary materials (P=0.006) and menstrual hygiene practices. **Conclusion and Recommendation:** This study has highlighted the need of adolescent girls to have accurate and adequate information about menstruation and its appropriate management. Formal as well as informal channels of communication such as mothers, sisters, and friends, need to be emphasized for the delivery of such information.

BACKGROUND

A woman goes through several developmental milestones that greatly influence her reproductive health. Menarche, which is the establishment of menstruation, is one of these milestones. Menstruation is part of the female reproductive cycle that starts when girls become sexually mature at the time of puberty. It is a phenomenon unique to the females. During a menstrual period, a woman bleeds from her uterus via the vagina. The menstrual rhythm depends on the hypothalamus-pituitary-ovarian function whereas the amount of blood loss depends upon the uterine contraction. The menstrual period lasts from three to seven days. Each period commences approximately every 28 days if the woman does not become pregnant during a given cycle. A deviation of two or three days from the twenty-eight-day rhythm is quite common (Aid, 2009, Desalegn T, 2009). The human body experiences many physiological changes in its transition from childhood to adulthood.

Adolescence is the period between 10 and 19 years; a period of transition marked by physical, psychological and biological changes. The onset of menarche is arguably the single most important event during this transition for women, yet because of various social and cultural factors, it is a traumatic and uncomfortable time for girls. Menstrual hygiene is fundamental to the dignity and well-being of women, the social-cultural practices, and the lack thereof continues to disrupt girls' school attendance (Aid, 2009, Desalegn T, 2009, Ghattargi CH, 2005). Menstrual hygiene refers to personal hygiene during menstruation. This includes bathing at least once a day, wearing clean and regularly changed undergarments and using proper absorbent materials like pads and tampons which are also changed regularly. However, issues related to menstruation and its practices are still foggy due to taboos and socio-cultural restrictions resulting in adolescent girls remaining uninformed of the technical facts and hygienic practices to keep good health that is why sometimes it results into adverse health outcomes (USA Report, 2005).

Good menstrual hygiene practices are essential during menstruation; they include 1) regular change of clothing and underwear; 2) change of hygienic pads every three to four hours; 3) daily showering, especially in instances of dysmenorrhea; 4) adequate washing of genitalia after each voiding of urine and/or feces; 5) continuing normal routine and daily activities (e.g., going to school, doing physical exercise), and 6) maintaining a balanced diet with plenty of fruits and vegetables rich in iron and calcium (Fund, 2008). Despite these recommendations, menstrual hygiene practices are poor in developing countries. Lack of knowledge and poor personal hygienic practices during menstruation can lead to various gynecological problems in the reproductive life of girls like reproductive tract infections and inflammatory disorders (Sumpter C, 2013). Using unclean materials, insertion of unclean materials into the vaginal canal, use of highly absorbent tampons, frequent vaginal douching, and lack of hand-washing have been suggested to increase the risk of infection. Yet in many communities, these potentially harmful practices are common amongst the adolescent girls (House S, 2012). In one study, a higher prevalence of morbidities was found in women using unclean soaking material during menstruation, but it was not statistically significant. This study also reported that the three symptoms, urinary tract infection, vaginitis, pelvic inflammatory disease complexes were found to be more in women not washing genitals daily (Suneela G, 2001).

Poor menstrual health management (MHM) in schools has been shown to cause adolescent girls to worry and humiliation, contribute to monthly absenteeism and lead to poor performance in schools. United Nations children's fund (UNICEF) estimates that about 1 in 10 school-age African girls do not attend school during menstruation or drop out at puberty because of the lack of clean and private sanitation facilities to manage their menstruation hygienically (UNICEF, 2005). Menstrual hygiene needs to be addressed holistically and in context as a package of services that includes voice and space to talk about the issue, adequate water, privacy, facilities for washing and disposal of used sanitary pads. There is also a need for both men and women to have a greater awareness of good menstrual hygiene practices. However, in most parts of the world, it is considered as a taboo and rarely talked about. It has also been largely neglected by the society and other sectors focusing on sexual and reproductive health, and education. As a result, the practical challenges of menstrual hygiene are made even more difficult by socio-cultural factors and millions of girls continue to be denied their rights to water and sanitary health, education, dignity, and gender equity (Kamath R, 2013).

Poor menstrual health management in schools has been shown to cause adolescent girls to worry and humiliation, contribute to monthly absenteeism and lead to poor performance in schools. Ignorance about menstrual issues is prevalent not only amongst schoolgirls but also in organizations and communities. Therefore, adolescent girls need the support and guidance of parents and health workers to facilitate healthy life practices. Increased knowledge about menstruation right from childhood may raise safe practices and may help in mitigating the suffering of millions of women (Shukla, 2005a). Equipping adolescent girls with adequate information, and skills on menstrual hygiene and its management are seen as empowering them with knowledge which enhances their self-esteem and academic performance (Action: 2000). However, as per my literature search, there is no publication found about menstrual hygiene and its associated factors among female students in the study area. Therefore, the aim of this study is to assess the practice of menstrual hygiene and associated factors among female students in Batu high school in Batu Town Oromia regional state, Ethiopia.

METHOD AND MATERIAL

A descriptive school-based, cross-sectional study design was employed from May 25 to June 25, 2017, G.C, among 310 systematically selected female students from the governmental school of Batu high school. The schools were selected purposively. Then, the students were further stratified based on their grade. Students from each grade were selected proportionally to their class size. Finally, a systematic sampling technique was applied to select individuals in each grade from the list of students' name in their respective grades. The participant was selected every k^{th} interval

$$K = N/n = 2,368/274 = 9^{\text{th}}$$

The study area was undertaken among the adolescent girls' in Batu high schools in Batu town, East shawa Ethiopia. Batu town is situated eastern part of Oromia regional state in East Shoa Zone, 160 km from Addis Ababa the capital city of Ethiopia and 120 km from Adama capital city of the regional state. It had three urban Kebeles. Based on the central statistical agency population projection for the 2009 EFY, a total population of 64157. In the town, there are four high schools (4). One government and three non-governments high school.

The sample size is determined using single population proportion formula with the following assumptions: A 95 % confidence interval and 72 % good menstrual hygiene practice from the previous study conducted in northwest Ethiopia (Desalegn T, 2009), marginal error 5 %, and 5% non-response rate were added to the total sample. Accordingly, the sample size of 310 was obtained.

The data was collected using a structured questionnaire. The questionnaire consists of two sections; the first section contains socio-demographic characteristics and the second section contains questions related practices regarding menstrual hygiene, sources of information about menstrual hygiene, and others associated factors. All high school female students in regular programs who have started menstruation were included in the study.

Data was collected by grade ten completed female data collectors. Content validity was ascertained in consultation with the guide and experts in the field of public health. Reliability of the tool was established by pre-testing the questionnaire. This helps to ensure the clarity, ordering, consistency, and acceptability of the questionnaire. After this, the questionnaire was ready after necessary corrections and training were given for data collectors for 3 days at the time of data collection. During data collection, the questionnaire was checked for completeness on a daily basis by the data collector themselves and the supervisors. The completed questionnaire was also rechecked by the principal investigators to maintain the quality of data.

After data collection, each questionnaire was checked for completeness, then coded and entered into Epi-info version 3.5.1 and exported to SPSS for Windows version 20 for cleaning, editing, and analysis. The collected data was cleaned, checked for its completeness, categorized, coded and analyzed using the Statistical package for social sciences (SPSS) version 20.0. The result was interpreted and presented using appropriate tables, graphs, and charts. Crosstabs (Chi-square) was used to observe the association between dependent and independent variables. P-values less than 0.05 were considered as statistically significant. In order to confirm the ethical and legal standard of the investigator, approval was obtained from the ethical review board of Harar Health Science college. The survey was commenced after written consent obtained from Batu high school.

RESULTS

SOCIO-DEMOGRAPHIC CHARACTERISTICS OF THE RESPONDENTS

A total of 274 students provide valuable information and which makes the response rate of 100%. The age range of the participants was 13-19 years, 159 (58 %) were in between 13-15 years of age, and a mean age of participants was 15.72 years with standard deviation (SD) of +1.32 year. From the total respondents, 159 (58%) participants were from 9th grade and 115 (42%) from 10th grade. Most, 182 (66.4%) of them were from the Oromo ethnic group, and 89 (32.5%) were Orthodox Christians. Two hundred six (75.2%) of the participants

were from the urban area. Regarding the educational level of their parents, 222 (81%) of the parents of the participants were able to read and write. The majority, 212 (77.4%) of the respondents' families earned 500 to 1500ETB per month, and the most common source of income for the parents was from a trade. Majority of the respondents 166 (60.6%) were experienced menarche at the age of 13 years (Table 1).

Table 1: Shows description of demographic characteristics of adolescent female students in Batu High school in Batu Town, East Showa Ethiopia, 2017

Variables	Category	Number	Percentage
Age	13-15	159	58.0
	16-18	91	33.2
	>18	24	8.8
Residence	Urban	206	75.2
	Rural	68	24.8
Ethnicity	Oromo	182	66.4
	Amhara	64	23.4
	Tigre	10	3.6
	Others	18	6.6
Religion	Muslim	94	34.3
	Orthodox	89	32.5
	Protestant	73	26.6
	Others	18	6.6
Grade level	Grade 9	159	58.0
	Grade 10	115	42.0
Parents educational status	literate	222	81.0
	Illiterate	52	19.0
Family monthly income(ETB)	500-1500	212	77.4
	1501-2500	40	14.6
	2501-3500	14	5.1
	>3500	8	2.9
Age at menarche	12	10	3.6
	13	166	60.6
	14	89	32.5
	>=15	9	3.3

SOURCE OF INFORMATION ABOUT MENSTRUAL HYGIENE MANAGEMENT

Majority 218 (79.6%) of the participants were aware of menstruation before menarche and 166 (60.6%), 78 (28.5%), 19 (6.9%) and 11 (4%) were from, friends, elder sister, mothers, and teacher respectively (Figure 1).

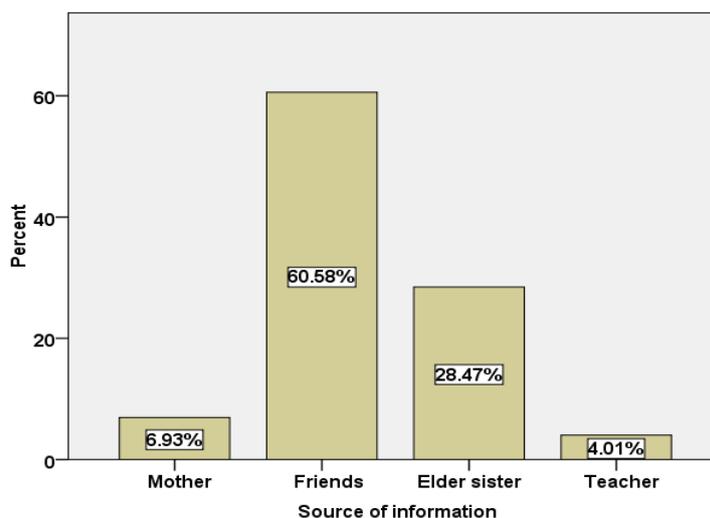


Figure1: Bar chart, distribution of the source of information regarding menstruation among adolescent female students in Batu High school in Batu Town, East Showa Ethiopia, 2017.

MENSTRUAL HYGIENE PRACTICE OF RESPONDENTS

The participants use different types of hygienic menstrual materials. Around 250 (91.2%) of adolescents use sanitary pads as menstrual absorbent, while 10 (3.6%) were using a piece of clothes. Regarding the frequency of changing the menstrual protective materials, 160 (58.4%) of participants change used sanitary materials properly (three or more times a day). The rest of the participants practiced menstrual hygiene unsatisfactorily (change sanitary materials less than required). Again it was found that only 21 (7.7%) girls used water and antiseptic for cleaning the external genitalia, while a majority of girls used water and soap. Majority 242 (88.3%) participants disposed their used sanitary materials into latrines, while 18 (6.6%) burying it and 31 (11.3%) wash and reuse pads. Most of the girls who reused the cloth during menstruation, 15 (48.4%) dried the cloth inside the house, 11 (35%) dried outside the house in the sunlight while 5 (16%) dried it outside the house without sunlight. A majority of the study subjects 197 (71.9%) preferred to change the absorbent at home in the toilet. However, 19 (6.9%) changed the absorbent at their schools in the toilet (Table 2). Overall 183 (66.8%) of the respondents had good hygienic practice during menstruation while only 91 (33.2%) had poor practice.

Table 2: Menstrual hygiene management among adolescent female students in Batu High school in Batu Town, East Showa Ethiopia, 2017

Hygienic practices	Category	Number	Percentage
Types of sanitary materials used	Piece of clothes	10	3.6
	Sponge	6	2.2
	Cotton wool	8	2.9
	Sanitary Pad	250	91.2
The frequency of changing sanitary materials	Change daily	10	3.6
	Changes 2 times daily	104	38.0
	Changes 3 times and above	160	58.4
A place to change used pad	At home in the latrine	197	71.9
	At home in a separate room	49	17.9
	At school in separate room	9	3.3
	At school in the female latrine	19	6.9
Disposal of sanitary materials after use	Burying	18	6.6
	Disposed of in toilet wastes	242	88.3
	Disposed on an open field	14	5.1
The practice of genital washing	Yes	265	96.7
	No	9	3.3
Medium used to wash genitalia	Water and antiseptics	21	7.7

	Soap and water	131	47.8
	Only water	122	44.5
Reuse the pad	Yes	31	11.3
	No	243	88.7
Places of drying used clothes in case of reuse	Outside the house in sunlight	11	3.5
	Inside the house	15	48.4
	Outside without sunlight.	5	16
Changing sanitary materials at school	Ye	97	35.4
	No	177	64.6

RESTRICTION AND REACTION PRACTICED DURING MENSTRUATION

Majority 210 (76.6%) of the respondents did not practice any restrictions. However, 64(23.4 %) of them did not attend any religious functions or visit the holy place, and 44(16.1%) girls were absent from schools during menstruation. Even though most of the respondents had heard about menstruation, a large majority of the participants showed varied reactions to their first menstruation. Principal emotions associated with menstruation included bad mood 174 (63.5%), stressed 37 (13.5%), worried 28 (10.2%), ashamed 25 (9.2%) and lack of confidence 10 (3.2%) (Figure 2).

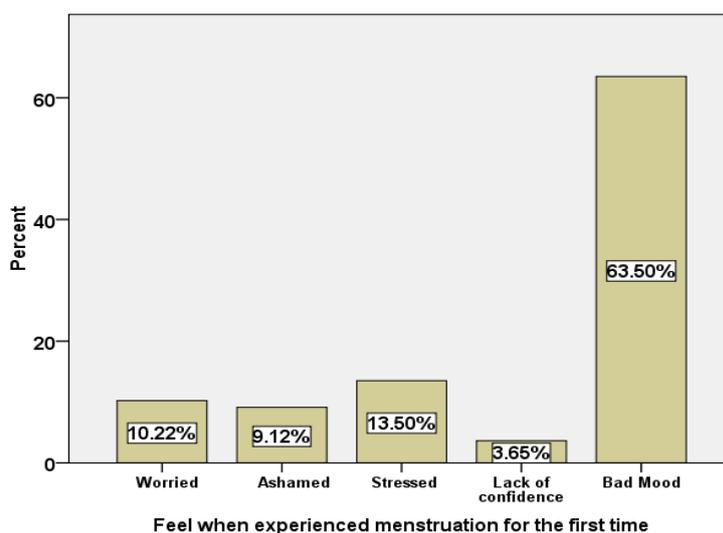


Figure 2: Reaction of the respondents to their first menstruation in Batu high school in Batu town, East Showa Ethiopia, 2017

AVAILABILITY AND FACILITIES FOR MENSTRUAL HYGIENE MANAGEMENT IN THE SCHOOL

Almost all of the student's mentions as school facilities are currently inadequate to manage their menses safely. All the respondents' school has enough water sources, but there was a continuous interruption of water supply in the school. All the respondents were reported as there were gender-segregated latrines in the school but it lacks hand washing facilities with soap. All the respondents were reported as there was no changing room/washroom for girls; sanitary protection materials were not available in case of emergency, and no sites were prepared for disposal used sanitary protection materials.

ASSOCIATION BETWEEN SELECTED VARIABLES AND THE PRACTICE OF MENSTRUAL HYGIENE

An attempt was tried to assess the factors that are affecting the practice of menstrual hygiene management practice. In this study factors that are associated with menstrual hygiene practice are a residence, religion, parents' educational status, family monthly income and types of sanitary materials used.

Eighty-two percent of adolescents who live in the urban had good menstrual hygiene practice than students who live in the rural area ($\chi^2= 8.034$, $P=0.001$). There is a statistically significant association between religion and practice of menstrual hygiene ($\chi^2=9.232$, $P=0.001$). There was a statistically significant association between the good practice of menstrual hygiene and parents' educational status ($\chi^2= 7.454$, $P=0.008$). There was also a statistically significant association between the good practice of menstrual hygiene and family monthly income (3.918, $P=0.019$). Seventy percent of adolescent's students these using sanitary pads had good menstrual hygiene practice than students these using other types of sanitary materials ($\chi^2= 4.539$, $P=0.006$).

Table 3: Association between selected variables and practice of menstrual hygiene among adolescent female students in Batu High school in Batu Town, East Showa Ethiopia, 2017

Variables	Menstrual Hygiene Practice		X ²	d _f	P-value
	Good	Poor			
Residence					
Urban	169(82.0%)	37(18.0%)	8.034	1	0.001
Rural	14(20.6%)	54(79.4%)			
Religion					
Muslim	71(75.5%)	23(24.5%)	9.232	3	0.001
Orthodox	69(77.5%)	20(22.5%)			
Protestant	36(49.3%)	37(50.7%)			
Others	7(38.9%)	11(61.1%)			
Parents educational status					
literate	175(78.8%)	47(21.2%)	7.454	1	0.008
Illiterate	8(15.4%)	44(84.6%)			
Family monthly income(ETB)					
500-1500	2(25.0%)	73(34.4%)	3.918	3	0.019
1501-2500	12(85.7%)	10(25.0%)			
2501-3500	30(75.0%)	2(14.3%)			
>3500	139(65.6%)	6(75.0%)			
Types of sanitary materials used					
Piece of clothes	4(50.0%)	76(30.4%)	4.539	3	0.006
Sponge	3(50.0%)	8(80.0%)			
Cotton wool	2(20.0%)	3(50.0%)			
Sanitary Pad	174(69.6%)	4(50.0%)			

DISCUSSION

Prior awareness regarding menarche and menstruation among girls is generally low in most of the cultures. In the present study, it was found that 79.6% % of the participants had prior knowledge about menstruation before menarche and the main sources of information about menstruation 60.6% were from friends and other sources of information were, 28.5%, 6.9% and 4% from elder sister, mothers, and teacher respectively. This finding is not comparable with a study conducted in India, Kolkata in which only 42.1% girls had prior knowledge about menstruation before menarche, the main source of knowledge being mother and sister 45% (Sudeshna R, 2012). The possible reasons for the difference might be due to silence, cultural taboos' in society. This indicates better communication between mothers and school girls on menstruation and menstrual hygiene practices in the present study. It is desirable that each and every girl child should be aware of menstruation, which is an important event at the threshold of adolescence and ideally before the attainment of menarche. Before bringing

any change in menstrual practices, the girls should be educated about the facts of menstruation, physiological implications, about the significance of menstruation and about proper hygienic practices with a selection of disposable sanitary menstrual absorbent.

The varied reactions to menarche may depend on the extent to which the girls have been prepared for menstrual hygiene practices. In the present study, principal emotions associated with menstruation included bad mood at 63.5% and stressed 13.5%. This finding was similar with others study findings conducted in India (Ghattargi CH, 2005, Shukla, 2005b). These negative feelings associated with menstruation could be because of participants not being psychologically prepared for attaining menarche. This could also be a reflection of the culture and taboos in the society regarding menstruation. Many restrictions were imposed on the girls in the present study, 64(23.4 %) of them did not attend any religious functions or visit the holy place, and 44(16.1%) girls were absent from schools during menstruation. This is very similar to the study conducted in India where not performing religious rituals was found to be the most common restriction observed, and 16 % of the girls reported school absenteeism (al. 2008). The hygiene-related practices of women during menstruation are of considerable importance, as they affect their health by increasing their vulnerability to infections, especially infections of the urinary tract and the perineum (Omidvar S, 2010). In the present study, 250 (91.2%) of adolescent girls were using sanitary pads as menstrual absorbent, while 10 (3.6%) were using a piece of clothes. In a similar study done in India 342 (91.2%) girls use an only napkin (readymade sanitary pads) during menses while 05 (1.3%) girls use only rag cloths (Sudeshna R, 2012).

Regarding the drying of the reused cloth, it is observed that most of the girls who reused the cloth used during menstruation 15 (48.4%) dried the cloth inside the house, 11 (35%) dried outside the house in the sunlight while 5(16%) dried it outside the house without sunlight. This finding was consistent with others study findings reported (Aid, 2009, Desalegn T, 2009, Ghattargi CH, 2005). This might be menstruation is considered as dirty and meant to be hidden which reflects the taboos found in the society. In the present study regarding hygienic practices during menstruation 131 (47.8%) of the participants reported that cleaning of external genital with soap and water was present whereas in a study done in India it was 78.4 % (Sudeshna R, 2012). This difference might be due to socioeconomic factors. Regarding the frequency of changing of the menstrual protective materials, 160(58.4%) of practiced menstrual hygiene satisfactorily (change sanitary materials property three or more times a day). The rest of them practiced poorly or changing sanitary materials inadequately, which is less than required (three times a day). In India, a previous finding in the frequency of changing sanitary materials shown 39.8% changed sanitary pad or cloth twice a day, 29.5% three times a day and 21.7% once a day which similarly shown very poor practice with current study (Fehr, 2010). There is a risk of infection by using super absorbency materials and if changed infrequently. We can minimize or avoid the risk by not using tampons, or by alternating between tampons and pads during the period (Adhikari P, 2007).

This study on disposal technique showed that 88.3% participants disposed their used sanitary materials into latrines, while 6.6% burying it and 11.3% wash and reuse pads. Study on Nigerian schoolgirls showed the various methods that students used for disposing of used menstrual absorbents include disposal with domestic wastes 71.2%; burning 24.3%; burial 4.3% and flushing in toilet 0.3% (Lawan, 2010). A study conducted in Saoner, Nagpur district showed that majority of the girls 52.2% burned, 39.79% threw it with the routine waste, and 6.72% used other methods of disposal [24]. A study was done in adolescent schoolgirls in Navi-Mumbai also reported 96.38% girls disposed of the sanitary pads in the house-dustbin while 3.01% and 0.61% girls disposed of it by the roads idea and latrine respectively (Nemade D, 2009). From this, it can be said there is an improper disposal technique.

Good menstrual hygiene practice includes the use of sanitary pads, changing the pads three times a day, changing the pads during the night, not reusing pads, taking special baths during menses, washing the genital area during every visit to the toilet, and not wearing bloodstained dresses. Overall 66.8% of the respondents had good hygienic practice during menstruation while only 33.2% had poor practice. The finding of this study was lower than studies conducted in Amhara regional state, Ethiopia and Northwestern Nigeria which were 90.9 % and 88.7 %, respectively (TK., 2014, Lawan, 2010). This implies that not all respondents that had good knowledge of menstruation and menstrual hygiene practiced it.

However, this finding is higher than the study done in Nepal which indicated that only 12.9% of the study participants practice good menstrual hygiene (SapkotaD1, 2013). In the present study, a significant association was observed between residence and level of practice. Eighty-two percent of adolescents who live in the urban had good menstrual hygiene practice than students who live in the rural area ($\chi^2= 8.034, P=0.001$). This finding is similar to the study done in Kano Northwestern Nigeria (Lawan, 2010). Significant associations between family income and menstrual hygiene practices were observed in the current study which is congruence with the study done in Karachi Pakistan where the study found an association between the income and menstrual hygiene practices (Ten, 2007).

CONCLUSION

This study has highlighted the need of adolescent girls to have accurate and adequate information about menstruation and its appropriate management. Formal as well as informal channels of communication such as mothers, sisters, and friends, need to be emphasized for the delivery of such information. In view of the vital role of the mothers, it is very important that the mother is armed with the correct and appropriate information on reproductive health so that she can give this knowledge to her growing girl child

RECOMMENDATIONS

- The government should give special emphasis on the provision of proper disposal kits and continuous water supply in the school.
- It is very important that the mothers should have the correct and appropriate information on menstrual hygiene to give their knowledge to their girl children since they are the main source of information about menstruation.
- It is essential for the Ministry of education to incorporate menstrual hygiene management education in the curriculum to improve their knowledge and practice.
- Health professionals should educate the community about menstruation to avoid restrictions during menstruation and to educate the girl child about good management of menstrual hygiene.
- Different stakeholders should be involved in developing Information, Education, and Communication for promoting positive attitudes towards management of menstruation and related problems among the adolescent girls.
- Further research with qualitative methods is especially recommended as this is a sensitive issue needing a study for adolescents' better understanding of menstrual hygiene practice.

List of Acronyms and Abbreviation

MHM: Menstrual Hygiene Management, **RTI:** Reproductive tract infections, **UNICEF:** United Nations Children's Fund, **WASH:** Water, Sanitation and Hygiene, **WHO:** World Health Organization

Consent for Publication

Not applicable

Availability of Data and Materials

This is a research article

Competing Interests

We declare that we have no competing interests.

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Authors' Contribution

FB, ML, and MT conceived the study, participated in the design, data analysis and interpretation of the result. FB involved in data acquisition, writing the draft manuscript as well as making all the changes as suggested by the coauthors. ML and MT critically reviewed the manuscript. All authors read and approved the manuscript.

References

- ACTION: F. F. 2000. Education for All. Dakar, Senegal. *World Education Forum*.
- ADHIKARI P, K. B., DHUNGEL S, MANDAL A: 2007. Knowledge and practice regarding menstrual hygiene in rural adolescent girls of Nepal. *Kathmandu University Med J*, 5, 382-386.
- AID, W. 2009. Is Menstrual Hygiene and Management an issue for Adolescent Girls? *Water Aid in South Asia Publication*.
- AL..., D. E. 2008. Menstrual Hygiene: How Hygienic is the adolescent girl? *Indian J Community Med*, 33, 77-80.
- DESALEGN T, B. M., ABAY M 2009. Age at menarche and the menstrual pattern of secondary school adolescents in northwest Ethiopia. *BMC Women's Health*, 9.
- FEHR, A. E. 2010. Stress, Menstruation, and School Attendance. *Effects of Water Access*.
- FUND, U. N. C. S. 2008. Sharing simple facts: useful information about menstrual health and hygiene. *New Delhi, India: Child's Environment Section*.
- GHATTARGI CH, D. D. 2005. Preparation and Practices regarding Menstruation: A comparative study in Rural and Urban Adolescent Girls. *Indian Journal of Community Medicine*, 30, 10-14.
- HOUSE S, M. T., CAVILL S. 2012. Menstrual hygiene matters hygiene around the world.
- KAMATH R, G. D., LENA A, CHANDRASEKARAN, V 2013. A Study On Knowledge and Practices Regarding Menstrual Hygiene Among Rural and Urban Adolescent Girls In Udupi Taluk, Manipal, India. *Global Journal of Medicine and Public Health*, 2.
- LAWAN, U. M., NAFISA, W. Y. & AISHA, B. M. 2010. Menstruation and Menstrual Hygiene among Adolescent School Girls in Kano, North-western Nigeria. *African Journal of Reproductive Health*, 14, 201-207.
- NEMADE D, A. S., GUJAR R. 2009. Impact of Health Education on Knowledge and Practices about Menstruation among Adolescent School Girls of Kalamboli, Navi-Mumbai. *Health and Population: Perspectives and Issues*, 32, 165-175.
- OMIDVAR S, B. K. 2010. Factors influencing hygienic practice during menses among girls from south India. *International Journal of Collaborative Research on Internal Medicine & Public Health*, 2, 411-423.
- SAPKOTADI, S. D., BUDHATHOKI SS3 2013. Khanal VK4 PH. School going adolescents of rural Nepal. *J Kathmandu Med Coll*, 2, 2-8.
- SHUKLA, S. 2005a. Working on menstruation with girls in Mumbai, India. *Vacha Women's Resource Centre*.
- SHUKLA, S. 2005b. Working on menstruation with girls in Mumbai, India. *Vacha Women's Resource Centre*.
- SUDESHNA R, A. D. 2012. Original article determinants of menstrual hygiene among adolescent girls. 3.
- SUMPTER C, T. B. 2013. A systematic review of the health and social effects of menstrual hygiene management. *PLoS one*, 8.
- SUNEELA G, M. S., MALTI M 2001. Perceived Reproductive Morbidity and Health Care Seeking Behavior among Women in An Urban Slum. *Health and Population*, 24, 178-88.
- TEN, V. T. A. 2007. Menstrual Hygiene: A Neglected Condition for the Achievement of Several Millennium Development Goals. *Europe External Policy Advisors*.
- TK., G. 2014. The practice of menstrual hygiene and associated factors among female Mehalmedahigh school students in Amhara regional state, Ethiopia. *Jpublic health*, 2, 189-95.
- UNICEF 2005. Sanitation, the challenge.
- USA REPORT 2005.