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Menstrual Hygiene Management Practice and Associated Factors among Adolescent Girls in High Schools of Damboya District, Kembata Tembaro Zone, South Ethiopia

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Abstract

Background: Good menstrual hygiene is vital to health, well-being, dignity and productivity of women and girls. Adolescent school girls in developing countries including Ethiopia often face challenges for good menstrual hygienic management practice. This study aimed to assess menstrual hygiene management practice and associated factors among adolescent girls in high schools of Damboya District, SouthEthiopia.

Methods: School-based cross-sectional study was conducted among adolescent girls of Damboya high schools from January to February, 2018. A multistage stratified sampling procedure was used to select two schools from the district and sections from each school. Pre-tested questionnaireswere used to collect the data with the help of eight diploma female teacher data collectors, and two degree holders as supervisors. Data was entered into Epi-data version 3.1 and then exported to SPSS version 21 for analysis. Multivariable analysis was performed and odds ratio, and 95% CI at P-value < 0.05 was used to measure strength of the association.

Results: A total of 698 respondents were involved in the study, giving a response rate of 96.4%. Of the total girls, only 39.4% had good menstrual hygiene management practice. Less than half, 295(42.3%) of the school girls had good knowledge on menstruation and menstrual hygiene management; and about two third, 447(67.6%) of school girls felt not comfortable with school sanitation facilities. Mothers education status (AOR: 15.42; 95% CI: 9.18-25.89), access to buy safe sanitary materials (AOR: 0.16; 95% CI: 0.10-0.26), good knowledge (AOR: 4.34; 95% CI: 2.42-7.80), and fair knowledge (AOR: 2.41 95% CI: 1.29-4.51) were significantly associated with good menstrual hygiene practice.

Conclusion: The menstrual hygiene management practice of school girls was low. Mothers' educational status, access to buy safe materials and knowledge on menstruation were factors associated with menstrual hygiene management practice.

Introduction

Menstruation is an integral and normal part of human life, indeed of human existence, and menstrual hygiene is fundamental to the dignity and well-being of women and girls and an important part of the basic hygiene, sanitationandreproductive health services to which every woman and girl has a right[1]. Good menstrual hygienic management practice such as;- use of safe sanitary protective materials, washing of used absorbents with water and soap before reuse, not wearing absorbent damps, drying of them with sunlight outside home, disposing properly, adequate changing protective materials, adequate cleaning of the genital areas, and personal hygiene are essential during menstruation period[2]. Having a good menstrual hygienic practice will enhance the confidence of adolescent girls in many aspects[3]. On the other hand, poor menstrual hygienic practices will increase susceptibility to reproductive health related problems [3, 4].

Menstrual hygiene practice is affected by many factors including accessibility of safe sanitary materials and adolescents knowledge about menstruation[3,5]. As a result of cultural taboos, females are often deprived of utilizing the main resources in the community. Furthermore, academic performance and involvement is highly affected by different conditions associated with menstruation[6]. Even though, adolescents experienced healthy part of life during adolescence, majority of them were less informed, less experienced and less comfortable to obtain reproductive health information and services than adults[2].The central practical dimension of menstruation is the need to manage it hygienically, safely and with dignity. This challenge is present across women's' and girls' daily lives. Hygienic, convenient and affordable materials for absorbing menstrual flows that are appropriate in a localized socio-cultural context are needed. Absence of water, soap, under wear with pants and dignified and environmentally safe disposal of used sanitary materials were the main documented challenges [7, 8].

Schools were places where adolescents particularly girls can share information about pubertal and psychosocial changes and ways to cope with new challenges[8-10]. Regarding Menstrual Hygiene Management(MHM), schools should provide separate rooms used for girls to change absorbents and to rest in case of pain[7]. Some schools may have the capacity to form some clubs where girls can discuss about pubertal information and their experiences or teach other girls about menstrual hygiene management. The involvement of boys in certain discussions related to pubertal information has ability to increase awareness, confidence and communication, with positive impact on the development of gender norms[2, 9].

Menstrual hygiene problem is a wide issue that affects girls' daily lives and future development[2]. Therefore, assessing the menstrual hygiene practice of adolescent girls and addressing the gap is essential to promote good health[5, 11].

Globally billions of women and girls face challenges regarding monthly coming menstruation. Everyday more than 800 million females in reproductive age group are menstruating and hundreds of millions of adolescent girls continue to face menstrual health problems[2].According to some reports, there were significant link between poor menstrual hygiene and urinary or reproductive tract infections and other illnesses[1, 12]. Primarily poor personal hygiene and unsafe sanitary conditions during menstruation result in gynecological problems[12-14]. According to Omidvar, S. and K. Begum, some infections were reported as a result of poor personal hygiene and sanitation related to menstruation[15]. Poor menstrual hygiene has ability to cause fungal infections, reproductive tract infection(RTIs) and urinary tract infection(UTIs) which might lead to cervical cancer and other illnesses[16].

Significant barriers to high-quality MHM also persists across Ethiopia, particularly high in rural and remote areas. Girls obtain inadequate education during puberty about menstrual health and low access to services. Study showed that only one third of school girls reported that they received MHM information at schools[6]. Another study showed that approximately 80% of women and girls in rural areas used homemade alternatives[9].Less than half of girls used commercial sanitary pads[17].About 11% of girls changed their menstrual cloths once a day, 70% of them used only underwear or pants worn under their dress or nothing at all to manage menstrual bleeding, and 95% of them noted they did not have access to safe toilet facilities with water access in their schools[6, 9]. Over the last five years, there has been attention given on improving women and girls' MHM experience through various sectors of the Ethiopian government, international and local donors and social enterprises. Up to date most of the efforts focused on providing products to manage menstruation and limited interventions to increase MHM awareness. Despite the limited evidence, donors and implementers do still consider educational outcomes as a key driver for investment in MHM[2].Therefore, this study assessed the magnitude of the menstrual hygiene management practices and associated factors among adolescent girls in Damboya district, Kembata Tembaro zone, Southern Ethiopia.

Methods

School based cross-sectional study was conducted from January to February, 2018 in high schools of Damboya district. The district is one of eight districts found in Kembata Tembaro Zone; S/N/N/P/R (South Nations Nationalities and Peoples Republic) of Ethiopia and it is located 110 and 350 kilometers away from Hawassa, a capital of S/N/N/P/R and Addis Ababa respectively. The district has a total population of 108,359 of which 51% are females. The district is divided into 17 rural and 3 urban kebeles. There are 34 governmental schools comprising of 22,940 students and 612 teachers. Among them, 4 are high schools with 2,589 female students according to human resource profile of education office of the district. There are 20 health posts and 4 health centers with a total of 237 healthcare practitioners, including HEWs as district health office population profile.

The source population was all adolescent girls found in high schools of the district while the study population was selected adolescent girls found in two high schools in the district. Adolescent girl students enrolled in the sampled high schools in 2017/18 regular program was included in the study while critically ill girl students and those students incapable to provide informed consent were excluded from the study. Single population proportion formula was used to calculate the required sample size with the assumptions of level of confidence 95%, 5% margin of error and the proportion of population with good menstrual hygiene practice of 57% in Adama town, Ethiopia[3].The population correction formula was used since the source population was less than 10,000 and using a design effect of 2 and by considering 10% non-response rate; the final sample size was 724.

A multistage stratified sampling procedure was used to select two schools from the district and sections from each school. For selection of study participants, sample size was proportionally allocated for each of the selected schools using proportion of female students in each school and total number of students in two schools. Finally, the numbers of study participants were selected by simple random sampling technique. The sampling frame was obtained from the student registration books of the respective schools. Data was collected using pre-tested self-administered questionnaires adapted from reviewing different literatures of similar studies. To ensure its consistency, it was translated to local languages "kambatissa and Amharic" and back-translated in to English by language professionals. The questionnaires were distributed to study participants by eight diploma female teacher data collectors with past experience in data collection. The data was collected in class and the instructors cooperate with data collectors in disseminating the questionnaires. Besides, male students were not in the classroom while females filling the questionnaires. To ensure the quality of data, the questionnaires were translated by language professionals and pretest was conducted on 5% of the sample in school outside of the study area, Odoricho high school prior to actual use in data collection and relevant corrections were made accordingly. Two days training was given to data collectors and supervisors concerning the purpose of the study and method of data collection. During data collection, supportive supervision was made and data was checked for the completeness.

Ethical Consideration

Ethical approval for this study was obtained from the Institutional review board (IRB) of Hawassa University (letter No: IRB/106/10 and dated: 26/01/2018). Then the endorsement by the research review committee, the selected district was informed about the objective of the study through a support letter from the department of public health and letter of cooperation was obtained from Damboya district health office and sent to respective schools and permission was secured from each selected school through formal letter. According to recommendations of the declaration of Helsinki, the purpose of the study was explained and informed written consent was obtained from each study participants and consent from parents/guardians was taken for those with age <18 years and their confidentiality, privacy and anonymity was maintained.

Operational Definition

Menstrual hygiene management practice

To measure respondents' menstrual hygiene management practice, 10 closed-ended menstrual hygiene management practice-related questions were presented and for each correct answer, 1 point and 0 for incorrect ones was assigned. Adolescent school girls who scored 6 and above points correctly were judged as having good menstrual hygiene management practice and who scored less than 6 points were judged as having poor menstrual hygiene management practice as similarly described in previous study[5].

Knowledge of school girls on menstruation and menstrual hygiene management

To measure the respondents' knowledge on menstruation and menstrual hygiene, there are also 10 closed-ended questions assigning 1 and 0 for correct and incorrect answers respectively. School girls who scored 8 and above points were considered as having good knowledge, school girls who scored 4–7 points were considered as having fair knowledge while those who scored less than or equal to 3 points as having poor knowledge on menstruation and menstrual hygiene as similarly described by previous study[5].

Classification of respondents as comfortable or not comfortable with school sanitation facilities

There are six closed-ended questions developed to measure whether the respondents were comfortable or not on school sanitation facilities assigning 1 and 0 for correct and for incorrect answers respectively. School girls who scored 3 and above points were considered as comfortable while those who scored less than 3 were considered as not comfortable as described by other study [3].

The collected data was checked for completeness, cleaned, coded and entered into Epi-data version 3.1 and exported to SPSS version 21 for analysis. Descriptive statistics were computed and tables, graphs and numerical summary presented the results. Bivariate analysis was done to identify the association between dependent and independent variables. Those variables with a P-value <0.25 in the bivariate analysis were selected for multivariate logistic regression. Multiple logistic regressions were performed to identify factors independently associated with dependent variable. Variables with P-value <0.05 was considered statistically significant and strength of association was measured using odds ratio and 95% confidence intervals.

Results

Socio-demographic and socio-economic characteristics of the respondents

In this study, out of 724 school girls sampled, 698 provided information with a response rate of 96.4%.The mean (standard deviation) age of the students in years was 15.72 (1.91). Out of total respondents, 398(57%) were selected from grade 9 and the remaining 300(43%) were selected from grade 10. About two third of the study participants, 479(68.6%) were residing in rural area. Majority of the respondents, 633(90.7%) and 594(85.1%) were Kambata in ethnicity and protestant religion followers respectively. (Table-1).

Knowledge on menstruation and menstrual hygiene management

Among the respondents, more than three quarter of them, 550(78.8%) heard information about menstruation before menarche. Out of them, 239(34.2%)stated that the source of information about menstruation was school teachers and about one quarter, 184(26.4%) heard from the family members but only, 51(7.3%) heard from mass media. About two third of the school girls, 423(60.6%) said that the cause of menstruation is due to hormonal change and 432(61.9%) responded that the source of menstrual blood is from the uterus. About half of the school girls, 394(56.4%) didn't know pain during menstruation means that someone is not sick, 321(46%) avoid eating food to reduce pain during menstruation and 481(68.9%) stated that they didn't know all types of materials used for menstrual blood soaking is not clean. More than three quarter of the school girls, 545(78.1%) knew the advantage of changing sanitary materials two or more times per day. About half, 341(48.9%) didn't know disposed menstrual absorbents may contain HIV/AIDS or hepatitis virus and 278(39.8%) didn't know poor hygiene of genital area can predispose to reproductive tract infections. Majority of the respondents, 570(81.7%) knew external genital should be washed three times or more per day during menstruation period. Based on measurement criteria, 295(42%), 194(28%) and 209(30%) study participants had good, fair and poor knowledge about menstruation and menstrual hygiene management practices respectively. (Figure-1).

Accessibility of safe sanitary protective materials

Majority of the school girls, 595(85.2%) heard the availability of tampons/modes, sanitary pads/napkins as safe sanitary products for menstrual soaking near the school compound. More than half of the school girls, 389(55.7%) bought safe-sanitary products from the shops in the last six months. For those girls who bought sanitary materials from the shop in the last six months, 221(56.8%) reported that they got the money from their mothers. Lack of money was the main reason among girls who did not buy sanitary products from the shop.

School sanitation facilities

Regarding school sanitation facilities during menstrual period, 318(45.6%), 361(51.7%) and 238(34.1%) school girls were worried to change used sanitary protection, access to water during menstrual period and about being observed by other peoples when washing absorbents used when they were at school respectively (Figure-2). Moreover, two third, 447(67.6%) of school girls felt not comfortable with school sanitation facilities.

Menstrual hygiene management practice

More than half, 365(52.3%) of the school girls used safe sanitary materials (Tampon ,sanitary pad/napkin, or menstrual up) during menstrual period for menstrual hygiene management in the last six months; over two-third 569(81.5%) used absorbents during menstrual period. Less than half of respondents, 312(44.7%) used soap to wash menstrual absorbents every times. Regarding drying of absorbents, about one third,223(31.9%) dried absorbents on sunlight. Less than one fifth, 131(18.8%) used absorbent damp usually and nearly half, 356(51.0%) disposed used materials in waste disposal/dustbin. Half of school girls,351(50.3%) took bath less than two times /day during menses, 353 (50.6%) clean external genital areas less than three times /day; and over two- third 478 (68.5%) of them change menstrual protective materials less than three times/day during menstrual period in the last six months. Moreover, less than half respondents,285(40.8%)were able to Clean external genitalia with both soap and water (Table-2). Based on measurement criteria, 275(39.4%) adolescent school girls practiced good menstrual hygiene management whereas, 443(60.6%) practiced poor menstrual hygiene management.

Factors associated with menstrual hygiene management practice

Among nine variables in bivariate logistic regression analysis, seven of them had a p-value less than 0.25, which were candidates for multiple logistic regressions. Bivariate analysis revealed that age of school girls, educational status of mothers and fathers, prior information before menarche, access to buy safe sanitary materials, family monthly income and knowledge of respondents on menstruation and menstrual hygiene management were candidate for multiple logistic regressions. The above mentioned were again entered in to multiple logistic regression model to obtain variables which were independently associated with outcome variable and the variables with p-value less than 0.05 in multivariable logistic regression analysis were taken as significant predictors of outcome variable.

Multiple logistic regression revealed that school girls whose mothers educated secondary and above level were fifteen times (AOR: 15.42; 95% CI: 9.18-25.89) more likely to have good menstrual hygiene management practice as compared to girls whose mothers educated below secondary level. In this study, access to buy safe materials was negatively associated with menstrual hygiene management practice. Girls who had no access to buy safe

sanitary materials were 84.2% (AOR 0.158; 95% CI: 0.10-0.26) less likely to have good menstrual hygiene management practice as compared to girls who had access to buy safe sanitary materials. Moreover, school girls who had good knowledge on menstruation and menstrual hygiene management were four times more likely to have good menstrual hygiene management practice (AOR: 4.34; 95% CI: 2.42-7.80) as well as school girls who had fair knowledge were two times more likely to have good menstrual hygiene management practice when compared to girls who had poor knowledge (AOR 2.41; 95% CI 1.29-4.51).

Discussion

The onset of menstruation is one of the most important changes occurring among the girls during the adolescent years. The girl's physical, psychological and social development will be affected by bodily changes associated with puberty [18]. This study was conducted to assess menstrual hygiene management practices and associated factors among adolescent girls in high schools of Damboya district.

In this study, 39.4% of the respondents had good menstrual hygiene management practices[19]. This finding is similar with study done in western Ethiopia which found 39.9%[17]. However, it is lower than findings from studies conducted in Adama town and Amhara regional state, Ethiopia which obtained 57% and 90.9% respectively[3, 20]. This might be due to the difference in residents of study participants since most of the study participants in this study were participated from rural area as compared to previous studies that could affect the access of getting health information and communication related to menstrual hygiene management practices from different media. The finding of this study is higher than study done in Northwest Ethiopia which found 29.8% of good menstrual management practices[5].

Regarding method of pad disposal technique at schools, finding from this study revealed that9.6% of study participants disposed in anywhere in open field which was comparable with studies done in different parts of Ethiopia[3, 5, 17, 20]. This might be due to unavailability of proper disposal facilities in the schools or lack of knowledge and the negative consequence of improper disposal of used sanitary materials in everywhere. This improperly disposed materials results in clogged, overflowing toilets and polluting the environment[2]. There is also the risk of HIV/AIDS or hepatitis virus transmissions if someone touches infected menstrual blood and has uncovered cuts or sores on their hands[1].Menstrual blood and used sanitary products should be treated as potentially infectious and disposed of as such, a way with hand hygiene critical[7, 8, 22].

This study found that 42% of study participants had good knowledge about menstruation and menstrual hygiene. It is higher as compared to finding from the study conducted in Wegera district, Northwest Ethiopia which found 34% [5]. However, it is lower than findings from studies conducted on towards sustainable solution for school menstrual hygiene management in survey conducted from multi-country including Ethiopia and on assessment of knowledge and practice of menstrual hygiene among high school girls in West Ethiopia[6, 17].In this study, the magnitude of girls using safe sanitary protection materials such as; tampons/commercial pads was 55.7%. This finding was higher than finding from multi-country survey that reported 24% of Ethiopian girls used disposable pads to manage their menstruation[7].

This might be due to long time interval between two studies conducted since both the awareness of using this safe protection materials and ability to afford it will be changed throughout time.

In this study, school girls whose mothers educated secondary and above were fifteen (15.42) times more likely to have good menstrual hygiene management practice compared with school girls whose mothers educated primary level and illiterate. This finding is similar with study done in Adama town and West Ethiopia [3, 17].This is obvious that secondary and above level educated mothers may provide more information about menstruation and menstrual hygiene to their daughters. Girls from educated families may discuss openly about sexual and reproductive health issues including menstruation and support them financially to buy safe sanitary materials [6-8, 22].

In this study, girls who had no access to buy safe sanitary materials were 84.2% less likely to have good menstrual hygiene management practice compared with girls who had access to buy safe sanitary materials. This study was supported with study done in wegari District, Northwest Ethiopia[3]. The finding is confirmed by this study, which reported almost half, 55.7% of school girls are unable to use safe sanitary protection materials such as: tampons/commercial pads. This might be mainly due to lack of money to buy commercially available safe materials by themselves and or due to lack of adequate financial support from family members and others during menstrual period. From this it can be said that; some of the school girls may be suffering from using unclean rags, cottons, towels or pieces of clothes and prolonged use of the same sanitary pads that increase the risk of infections[1].

In this study school girls who had good knowledge were four times(4.34) more likely to have good menstrual hygiene management practice and school girls who had fair knowledge were 2.41 more likely to have good menstrual hygiene management practice. This finding is almost similar with the studies done in different parts of Ethiopia [5, 6, 21]. The finding is lower compared with a study done in western Uganda[23].This might be due to less accessibility to health counseling service and poorly educating of adolescent school girls on menstruation and good menstrual hygiene management practices in schools and communities with the help of school teachers and health professionals. In the other hand; it may be due to low educational level and illiteracy of mothers in the study area that were not interested to express their views and educate their daughters about menstrual hygiene.

Conclusion

Menstrual hygiene management practice of adolescent school girls was low. Majority of the respondents had poor knowledge on menstruation and menstrual hygiene as well as significant proportion of respondentswas unable to know disposed menstrual absorbents damp may contain HIV/AIDS or hepatitis virus and they disposed it in unsafe place. School girls were mainly depended on their mothers to buy safe sanitary materials and lack of money was the main reason for those who were unable to buy this products. Almost half of school girls were worried to for access of water, getting separate toilets in schools and change their sanitary protection when at school. Therefore schools were not facilitated for their adolescent girls. Mothers' educational status secondary and above level, access to buy safe sanitary materials and girls having good and fair knowledge on menstruation and menstrual hygiene management were significantly associated factors with good menstrual hygiene management practice. The Health extension workers and school teachers should provide education about the facts of menstruation, physiological implication, self care practice, about the significance of menstruation and development of secondary sexual characters, and above all about proper hygienic practices, selection of safe sanitary menstrual absorbent and needs to avoid poor health outcome due to poor self care practices. Schools should avail safe sanitary materials in places where adolescent girls can easily obtain it and separate toilet for girls. Improving mothers' educational status can help breaking the silence on monthly challenges of menstruation at community levels and support adolescent girls on every aspect. This can also be achieved through local health extension workers (HEWs) by creating awareness on how to use disposable sanitary pads (and reuse in the case of washable) sanitary napkins, the best washing, drying and disposing practices and other health and hygiene related issues.

List of Abbreviations

- AIDS: Acquired Immuno Deficiency Syndrome
- AOR: Adjusted Odds Ratio
- CI: Confidence Interval
- HEWs: Health Extension Workers
- MHM: Menstrual Hygiene Management
- SNNPR: Southern Nations Nationalities and Peoples Republic
- RTIs: Reproductive Tract Infection
- UTIs: Urinary Tract Infection

Table 1: Socio-demographic characteristics of study participants in Damboya District

Variables (n=698)	Frequency	Percentage
Age categories in years		
12-14	172	24.6
15-17	385	55.2
18-20	141	20.2
Grade level		
Grade 9	398	57
Grade 10	300	43
Residence		
Urban	219	31.4
Rural	479	68.6
Religion		
Protestant	594	85.1
Orthodox	59	8.5
Muslim	37	5.3
Others(*)	8	1.1

Ethnicity		
Kembata	633	90.7
Hadiya	42	6.0
Others(#)	23	3.3
Educational status of mothers		
Primary(1-8 grade) or illiterate	428	61.3
Secondary(9-10 grade) and above	270	38.7
Educational status of fathers		
Primary(1-8 grade) or illiterate	409	58.6
Secondary(9-10 grade) and above	289	41.4
Parents monthly income in ETB		
Below 1000	362	51.9
1001-2000	97	13.9
Above 2000	239	34.2
Note: - *# indicates Wolayita, Gurage, Oromo and Amhara ethnicity;* ** indicates catholic, Adventist and Hawarat religion followers*		

Table 2: Menstrual hygiene management practice of school adolescent girls in Damboya district, South Ethiopia, 2018

Variables(n=698)	Frequency	Percent
Used absorbents during menstrual period		
Yes	569	81.5
No	129	18.5
Frequency of absorbent damp used		
Usually	131	18.8
Some times	567	81.2
Type of sanitary material used during menses		
Underwear (pants), towel, or clothes	221	31.7
Cotton, sponges, mattress, or others	112	16.0
Tampon ,sanitary pad/napkin ,or menstrual up	365	52.3
Used soap to wash menstrual absorbents		
Never	71	10.2
Some times	315	45.1
Every time	312	44.7
Dried absorbents washed in sunlight		
Yes	223	31.9
No	475	68.1
Change sanitary protection materials per day during menstrual period		
<3times	478	68.5
≥3times	220	31.5
Management of used absorbents		
Dispose in waste disposal/dustbin	356	51.0
Dispose in anywhere in open field	202	28.9
Take home to wash and reuse	140	20.1
Bath during menses per day		
<2times	351	50.3
≥2times	347	49.7
Clean external genital per day during menstrual period		
<3times	353	50.6
≥3times	345	49.4
Clean external genitalia with both soap and water		
Yes	285	40.8%
No	413	59.2%

Figures

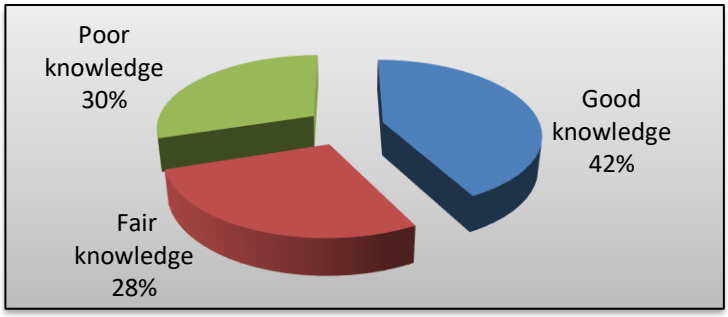

Figure 1: School girls' knowledge status about menstruation and menstrual hygiene management practices in Damboya district high schools.

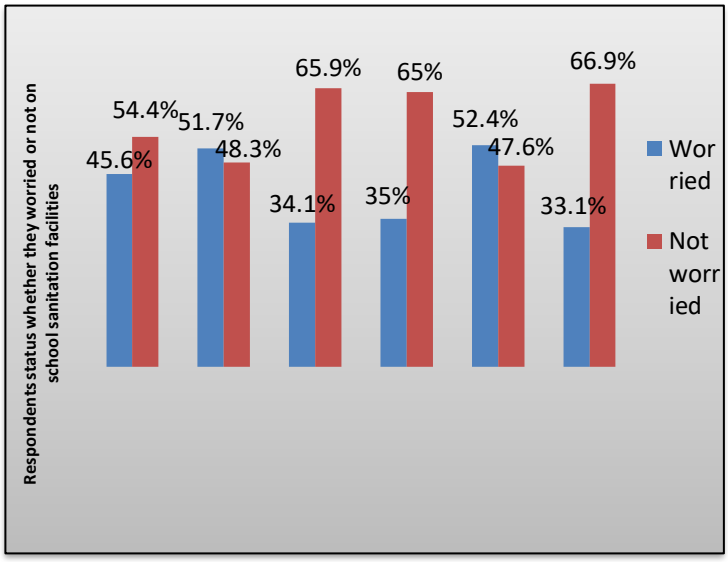

Figure 2: Responses of study participants whether they worried or not about school sanitation facilities during menstrual period at school

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