

## Research Article

# Predictors of Knowledge Towards Menstruation in Ethiopia

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### ABSTRACT

Menstruation is a physiological process that reproductive age group women will pass through. Due to myth and misconception about it, menstruation is considered as being unhealthy and impurity. Therefore, the study was aimed at assessing the level of knowledge and associated factors. A cross-sectional study design was used. Randomly selected 422 female students were involved. Binary and multivariable logistic regressions conducted using statistical Package for Social Sciences (SPSS) version 20. P-value less than 0.05 was taken as a significant association. The study revealed that 90.7% of the respondents scored high level of knowledge towards menstruation. Age of the respondents (AOR= 3.573, 95% CI= 1.440, 8.861), use

of medication without consultation of the health personnel (AOR=3.081, CI: 1.385, 6.851) and being informed about menstruation before menarche (AOR= 0.326, 95% CI: 0.137, 0.778) were significantly associated with high level of knowledge towards menstruation. The study had shown that most of the respondents scored high level of knowledge about menstruation. Age of the respondents and those who used medication with consultation of health personnel and being informed about menstruation before menarche were associated with high level of knowledge towards menstruation.

**Keywords:** Menstruation; Knowledge; Predictors

### Introduction

Adolescence is the transition period from childhood to adulthood, which includes the age group of 10-19 years. In adolescent age group women, the important feature is the onset of menstruation [1]. Menstruation is a reproductive change involving the shedding of the inner lining of the uterus. It first occurs in the age group 11-15 years [2,3]. Menstrual cycle is a natural phenomenon occurring every 28 days [4].

Adolescents often do not use the reproductive health services [5]. Furthermore, lack of knowledge about menstruation and fear of discussion about menstrual problems prevails in most of the women [6]. Therefore, different programs should focus on supporting the women. In addition, women need psychological reassurance on menarche because most of them have misconceptions. This alleviate unhealthy behaviors related to menstruation [5,7].

Menstruation and menstrual practices are associated with taboos and cultural beliefs. During menarche, lack of information is common. The information they could get is even incomplete and inappropriate [5,8]. The source of information is their mothers, sisters, teachers, friends and relatives [4].

Females need special support because of their social role and responsibilities in shaping the reproductive system related health of the women [9,10]. However, in some developing countries, women forced to stay outside the home during menstrual periods. They are also socially isolated This increases the incidence of reproductive organ disorders [4,9].

Menstruation is a physiological process, which reproductive age group women will pass through [5]. Menstruation is a periodic

change occurring in women with associated secondary sexual characteristics developments. It depends on the functioning status of the ovary, the pituitary gland and the hypothalamus as well. After menstruation, the endometrium will regenerate [10]. The occurrence might infer females' excellent reproductive health. Though, myths and misconceptions exists. Due to unclear understanding of menstruation, it is considered as being unhealthy and impurity [11]. Moreover, most of those girls are unaware of the reproductive system functional changes with age [5].

Geographical conditions, race, nutritional status and other environmental factors affect menarche. A woman is considered to have 500 menses in her lifetime with associated 50-200 ml of blood loss in each menses [12]. Knowledge towards menstruation and menstrual hygiene practice is an important health indicator [13].

The first menstruation is unforgettable part of life. It is a pubertal milestone in the women reproductive life [13,14].

Among reproductive age group women there is an increased incidence of reproductive tract infections [4]. The consequence of those infections is severe and deleterious. It might lead to infertility [15].

In addition to previously addressed variables, the study tried to discuss the effect of medication use without consultation of the health personnel. Therefore this research was conducted with the aim of determining the level of knowledge towards menstruation and associated factors. Findings from the study would help health policy makers in understanding predictors of knowledge towards menstruation and in designing interventions in facilitating reproductive health services.

## Materials and Methods

### Study area, period and design

The study was conducted in Adama town on governmental high schools. Adama town is found 100 km East West of Addis Ababa. The study was conducted from April 11-15, 2016. A cross-sectional study design was used.

### Population and eligibility criteria

The source population was all female governmental high schools students in Adama town. The study population was selected female governmental high schools students. All regular female students aged 10- 19 were included in the study. Female students who were not available due to sick leave were not included.

### Sample size determination and sampling procedure

Single population proportion formula was used to calculate the required sample size. Proportion of level of knowledge towards menstruation of 50% (p), margin of error of 5% (d), and 95% confidence level (1.96) and adding non-response rate of 10%, the sample size was determined to be 422.

Multistage sampling technique was used to select the study subjects. First, stratification made into grades 9 and 10. Then, grades were further stratified by section. Sample size proportionally allocated to each grade and section according to their number of students. Then, frames of students developed from student roster. Eligible students were selected using simple random sampling technique from the sampling frame.

### Operational definition

**Level of knowledge on menstruation:** To measure the respondent's knowledge towards menstruation closed ended questions was used. 1 point was given for correct answer and 0 for incorrect answers or don't know option. Therefore, respondents who scored average (50%) and above were considered as having high level knowledge while a score of less than 50% was considered as low level of knowledge.

**Data collection:** A structured questionnaire was developed after reviewing relevant literatures [3,4,7,9,11]. It was translated to Amharic and Afan Oromo languages. The students filled a structured and self administered questionnaire. It was comprised of 'closed-ended' questions assessing socio-demographic characteristics, knowledge about menstruation and experiences related to menstruation.

Data collectors with experience on data collection and a supervisor was recruited for data collection, training was delivered. The training focused on ethical issues like confidentiality and there was a discussion on the content of the questionnaire in detail.

**Data quality assurance and ethics statement:** The data quality was maintained through careful design of questionnaire by standardizing, translation from English to Amharic and Afan Oromo languages and back to English. Pretesting was done. The data collectors and supervisors provided the necessary introduction and instruction to the students and

clarified problems that were raised during data collection. The questionnaires were checked for the completeness immediately after data collection. During the completion of questionnaire, the students were given the chance to ask about what is not clear. The principal investigator and the supervisor closely monitored the data collection process.

The study was conducted after obtaining ethical clearance from Adama General Hospital and Medical College. Schools' director/directress was briefed on the objectives of the study. Verbal informed consent was obtained from the participants. Confidentiality was maintained by omitting their names and addresses on the questionnaires. Students were informed of their full right to skip or ignore any questions or terminate their participation at any stage and the participants were assured that their participation recorded anonymously. All the data obtained in due course were confidentially kept.

**Data analysis and processing:** Data checked manually for completeness and then coded and entered using Epi Data 3.1. The generated data were exported to SPSS version 20. The data were cleaned by visualizing, calculating frequencies and sorting. Frequencies and proportions were computed. Statistical association was done for categorical variables. Significance determined by using crude and adjusted odds ratios with 95% confidence intervals. To assess the association among dependent variables and independent variables, logistic regressions was employed to identify different predictor considering p-value less than 0.05 as significant associations. Finally, the results presented as tables and figures.

## Results

### Socio-demographic characteristics

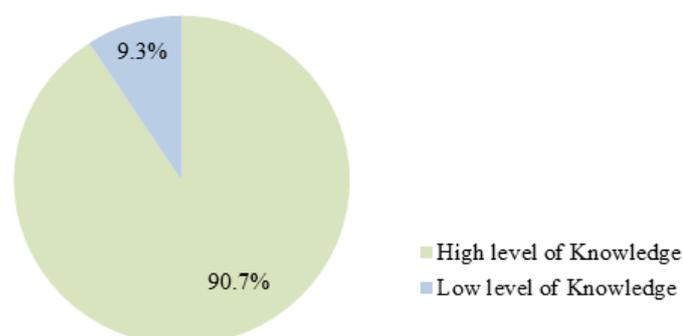
Of the respondents from the 9<sup>th</sup> grade, 152 (38.2%) was in the age group of 14-16. Seventy nine (19.8%) were from the oromo ethnic group and 110 (27.6%) were the follower of orthodox religion. Of the respondents from the 10<sup>th</sup> grade, 99 (24.9%) lives with their mother and father. Eleven (2.8%) and 31 (7.8%) of the student's mother and father attended tertiary education (Table 1).

### Knowledge towards menstruation

About 380 (95.5%) had information about menstruation. Preferred source of information for 198 (49.7%) of the respondents were their mother. One hundred thirty one (32.9%), 54 (13.6%), 60 (15.1%), 82 (20.6%), 1 (0.3%) were able to communicate with their father, brother and male relatives very easily, easily, moderately, difficultly and never respectively. Regarding perception about menstruation 346 (86.9%) and 288 (72.4%) perceive menstruation as a natural process and as a body waste respectively. About 336 (84.4%) of the respondents perceive that average duration of menstruation as being 3-5 days and 304 (76.4%) perceive average cycle of menstruation as being one month. Majority 331 (83.2%) stated that there would be no menstruation during pregnancy and 366 (92.0%) of the respondents know tampon as one of the soak-ups (Table 2). Of the respondents, 37 (9.3%) scored lower level of knowledge and 361 (90.7%) scored higher level of knowledge (Figure 1).

**Table 1:** Socio-demographic characteristics.

Variables	Variables	n(%)	
		9 <sup>th</sup> grade	10 <sup>th</sup> grade
Age	14-16 years old	152(38.2%)	48(12.1%)
	17-19 years old	47(11.8%)	151(37.9%)
Ethnic group	Oromo	79(19.8%)	60(15.1%)
	Amhara	37(9.3%)	61(15.3%)
	Woliata	49(12.3%)	45(11.3%)
	Tigre	13(3.3%)	10(2.5%)
	Other	21(5.3%)	23(5.8%)
Religion	Orthodox	110(27.6%)	123(30.9%)
	Muslim	44(11.1%)	37(9.3%)
	Protestant	42(10.6%)	34(8.5%)
	Other	3(0.8%)	5(1.3%)
Live with	Mother and father	99(24.9%)	95(23.9%)
	Mother only	37(9.3%)	37(9.3%)
	Father only	12(3.0%)	7(1.8%)
	Relatives	33(8.3%)	39(9.8%)
	Alone	9(2.3%)	10(2.5%)
	Other	9(2.3%)	11(2.8%)
Mother educational status	Can't read and write	31(7.8%)	39(9.8%)
	Only read and write	72(18.1%)	62(15.6%)
	Primary education	41(10.3%)	31(7.8%)
	Secondary education	44(11.1%)	49(12.3%)
	Tertiary education	11(2.8%)	18(4.5%)
Father educational status	Can't read and write	10(2.5%)	14(3.5%)
	Only read and write	51(12.8%)	47(11.8%)
	Primary education	59(14.8%)	47(11.8%)
	Secondary education	48(12.1%)	56(14.1%)
	Tertiary education	31(7.8%)	35(8.8%)

**Figure 1:** Level of knowledge towards menstruation.

### Source of information about menstruation

Two hundred seventy nine (70.1%) had information regarding menstruation from their mothers. One hundred eleven (27.9%) and 192(48.2%) had an information from their sisters and school teachers, respectively Table 3.

### Experiences related to menstruation

Of the respondents, 307(77.1%) knows menstruation before starting menstruation and 346 (86.9%) were informed about

menstruation before menarche. Concerning pain during menstrual flow, 117(29.4%) had experienced pain. The School performance of 300(75.4%) respondents affected by the menstruation associated problems (Table 4).

### Predictors of knowledge towards menstruation

In the final model, age of the respondent, informed about menstruation before menarche and use of medication without consultation of the health personnel found to be significantly associated with high level of knowledge ( $p < 0.05$ ).

Age was found to be one predictor of high level of knowledge towards menstruation. Accordingly female adolescents in the age group of 17-19 were about 3.6 times more likely to had higher knowledge relative to the reference group of female adolescents in the age group of 14-16 (AOR= 3.573, 95% CI: 1.440, 8.861).

Furthermore, female adolescents who were not informed about menstruation before menarche by someone were about 67.4% less likely to had high knowledge relative to female adolescents informed about menstruation before menarche (AOR= 0.326, 95% CI: 0.137, 0.778). Female adolescents who didn't use medication without consultation of health personnel were 3.1 times more likely to had higher knowledge towards menstruation than female adolescents who used medication without consultation of health personnel(AOR=3.081, CI : 1.385,6.851) (Table 5).

### Discussion

The study assessed the level of knowledge and factors associated with it. Concerning the level of knowledge, most of the respondents scored high level of knowledge towards menstruation. This infers the provision of information should be supported by different organization. Sexual and reproductive education need to be delivered on the continuous basis to enhance the knowledge of the students.

In this study, 90.7% had higher knowledge towards menstruation. This finding is similar to the study done in Amhara regional state which showed that 90.7% of the participants had high level of knowledge [16]. This might be related to the fact that both study settings are urban areas. This in turn increase the availability of information from media, girls clubs and more literate family. On the other hand, a study did in western Ethiopia showed that only 60.9% had scored good knowledge [17]. A similar study did at Mangalore, India showed that 46.7% has good knowledge about menstruation [18]. This difference might be due the difference in the source of information and the time gap.

The result showed that 77.1% of the respondents knows menstruation before starting menstruation. But a study done in India showed that 99.6% had awareness about menstruation before menarche [19]. The difference might be due to a difference in the reproductive health related discussions within the community. On the contrary, according to a study done in Nagpur district, 36.95% had prior information about menstruation from their mother [20]. This difference might be due to the difference in the literacy level of mothers and other sources of information.

**Table 2:** Knowledge towards menstruation.

Variables	n(%)
<b>Information about menstruation</b>	
Yes	380(95.5%)
No	18(4.5%)
<b>Preferred source of information</b>	
Mother	198(49.7%)
sister	49(12.3%)
School teachers	28(7%)
Peers	22(5.5%)
Reading	25(6.3%)
Health personnel	60(15.1%)
Others	16(4.1%)
<b>Communication with father, brother and male relatives about menstruation</b>	
Very easily	131(32.9%)
Easily	55(13.8%)
Moderately	60(15.1%)
Difficulty	82(20.6%)
Never	70(17.6%)
<b>Perception about menstruation</b>	
Natural	346(86.9%)
Comes due to sin	29(7.3%)
Other	40(5.8%)
<b>Perception about menstrual blood as body waste</b>	
Yes	288(72.4%)
No	110(27.6%)
<b>Perception about source of menstrual bleeding</b>	
Uterus	334(83.9%)
Kidney	55(13.8%)
Other	9(2.4%)
<b>Perception about age of first menstruation</b>	
5-7 years	51(12.8%)
9- 15 years	301(75.6%)
18- 20years	25(6.3%)
Other	21(5.3%)
<b>Average duration of menstruation</b>	
3- 7 days	336(84.4%)
6- 10 days	36(9.0%)
10- 15 days	10(2.5%)
Other	16(4.0%)
<b>Average cycle of menstruation</b>	
One week	62(15.6%)
Two week	16(4.0%)
One month	304(76.4%)
Other	16(4.0%)
<b>Age at which menstruation stops</b>	
30- 35 years	26(6.5%)
35- 40 years	15(3.8%)
40-45 years	177(44.5%)
>49 years	170(42.7%)
Other	10(2.5%)
<b>Presence of menstruation during pregnancy</b>	
Yes	67(16.8%)
No	331(83.2%)
<b>Type of soak ups known</b>	
Tampon/modes	366(92.0%)
Other	32(8.3%)

**Table 3:** Source of information about menstruation.

Variables	n (%)	
<b>Source of information</b>	<b>Mother</b>	
	Yes	279(70.1%)
	No	119(29.9%)
	<b>Father</b>	
	Yes	19(4.8%)
	No	379(95.2%)
	<b>Sister</b>	
	Yes	111(27.9%)
	No	287(72.1%)
	<b>Brother</b>	
	Yes	3(0.8%)
	No	395(99.2%)
	<b>Relatives</b>	
	Yes	14(3.5%)
	No	384(96.5%)
	<b>School teachers</b>	
	Yes	192(48.2%)
	No	206(51.8%)
	<b>Peers</b>	
	Yes	60(15.1%)
	No	338(84.9%)
	<b>Television and Radio</b>	
	Yes	40(10.1%)
	No	358(89.9%)
<b>Reading</b>		
Yes	88(22.1%)	
No	310(77.9%)	
<b>Health personnel</b>		
Yes	23(5.8%)	
No	375(94.2%)	
<b>Others</b>		
Yes	2(0.5%)	
No	396(99.5%)	

According to a study did in Mangalore, India, age has no significant association with knowledge about menstruation [18]. However in this study female adolescents in the age group of 17-19 were about 3.6 times more likely to had higher knowledge relative to those in the age group of 14-16. This implies that as the age of the female adolescents increased, the access to information and utilization of information might increase as well.

Mother is ideal source of information to their daughters. It is easy to talk about the issue with member of the family who has the same sex. In this study, 70.1% had information about menstruation from their mothers. This is supported by a study conducted in India which showed that the major source of information were their mothers [19].

The variables that may affect knowledge towards menstruation might not be exhaustive. Furthermore, due to the sensitive nature of the issue there might be social desirability bias that over estimate the level of knowledge.

**Table 4:** Experience of menstruation.

Variables	n (%)
<b>Knows about menstruation before starting menstruation</b>	
Yes	307(77.1%)
No	91(22.9%)
<b>Being Informed about menstruation before starting menstruating</b>	
Yes	346(86.9%)
No	52(13.1%)
<b>Pain severity</b>	
Doesn't interfere with class activities	53(13.3%)
With vomiting and diarrhea	83(20.9%)
Interferes with class activities leading to absenteeism	145(36.4%)
Relief on using medication	117(29.4%)
<b>Action during menstruating</b>	
Go to family members	175(44.0%)
Go to clinics	58(14.6%)
Buy medication from drug stores without consultation of health personnel	35(8.8%)
Use traditional medicine	37(9.3%)
Other	93(23.4%)
<b>Use of medication without consultation of health personnel</b>	
Yes	196(49.2%)
No	202(50.8%)
<b>Interference with class attendance</b>	
One day every cycle	229(57.5%)
Two days every cycle	110(27.6%)
Three days every cycle	50(12.6%)
Four days every cycle	9(2.3%)
<b>Menstrual problem Interference with school performance</b>	
Yes	300(75.4%)
No	98(24.6%)

**Table 5:** Predictors of knowledge towards menstruation.

Variables	Level of Knowledge		Crude OR (95% CI)	Adjusted OR(95% CI)
	High	Low		
<b>Age</b>				
14-16	171	29	1	1
17-19	190	8	4.028(1.793,9.050) †	3.573(1.440,8.861) †
<b>Grade level</b>				
Grade 9	173	26	1	1
Grade 10	188	11	2.569(1.232,5.354) †	1.609(0.695,3.726)
<b>Menstrual Knowledge before menarch</b>				
Yes	282	25	1	1
No	79	12	0.584(0.281,1.214)	0.589(0.271,1.282)
<b>Being informed by someone before menarch</b>				
Yes	319	27	1	1
No	42	10	0.355(0.161,0.786)	0.378(0.165,0.869) †
<b>Use of medication without consultation of health personnel</b>				
Yes	169	27	1	1
No	192	10	3.067(1.443,6.523)	2.893(1.305,6.413) †
<b>Menstrual problem Interference with school performance</b>				
Yes	269	31	1	1
No	92	6	1.767(0.714,4.371)	1.170(0.449,3.050)

†: Significant Association

## Conclusion

In the study, knowledge towards menstruation and predictors were identified. According to the finding of this study, majority of the students had high level of knowledge towards menstruation. Majority of them had prior information about menstruation. For most of them, the source of information were their mothers. Concerning pain severity, majority of them described that the pain they felt while menstruating relieved on using medication. The study showed most of the female adolescents agreed that having menstruation interfere with class one day every cycle and menstruation interferes with the school performance. As finding showed, age of the respondents, being informed by someone before menarche and use of medication without consultation of health personnel were associated with high level of knowledge about menstruation.

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