



**DETERMINANT OF MANISTRATUION RELATED PROBLEM AMONG ADOLESCENT
HIGH SCHOOL GIRLS IN CASE OF TEPI TOWN SOUTH WEST ETHIOPIA**

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Abstract: Adolescent girls often lack knowledge regarding reproductive health including menstruation hygiene which can be due to socio-cultural barriers in which they grow up This study was undertaken to examine the knowledge, perception, practices and experiences of adolescent females between the ages of 10-19 years old on issues regarding menstruation and menstrual hygiene. This study is cross sectional using a non-experimental descriptive survey research. The sample size was selected using a multistage sampling technique: stratified, simple random and purposive sampling technique. The study found out that most of the adolescents used sanitary pads as absorbent during their last menses, changed menstrual dressings 2-4 times per day; most increased the frequency of bathing. Institutionalizing sexuality education in Tepi high schools; developing and disseminating sensitive adolescent reproductive health messages targeted at both; parents and their adolescent females and improving access of the young females to youth health services are vital means of meeting the reproductive health needs of the adolescent females in Tepi.

Key words: Adolescent, Menstruation, Multistage sampling, Logistic regression

Introduction: Adolescence is a significant period in the life of a woman. Adolescent girls often lack knowledge regarding reproductive health including menstruation which can be due to socio-cultural barriers in which they grow up. These differences create various problems for

the adolescent girls. The need of the hour for girls is to have the information, education and an enabling environment to cope with menstruation issues [1].

Menstrual hygiene deals with the special health care needs and requirements of women during monthly menstruation or menstrual cycle. Learning about hygiene during menstruation is a vital aspect of health education for adolescent girls as patterns that are developed in adolescence are likely to persist into adult life. It was against this background that this study was planned to evaluate adolescent secondary

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school girls' knowledge of menstruation and menstrual hygiene, as well as their practices of menstrual hygiene. It was envisaged that findings from the study will be a pointer to some adolescence reproductive health needs in northern Nigeria, and will also provide foundation for policy makers and program managers to make rational decision on improving adolescence reproductive health in Nigeria [2].

The menarche or time of onset of menstruation varies with race and family, but the average for most girls is from 10 to 14 years until 45 to 55 years. Geographical conditions, racial factors, nutritional standards, environmental influences and indulgence in strenuous physical activity can all affect the age of menarche. A woman will have approximately 500 periods in her lifetime. The estimated blood loss is between 50 ml and 200 ml. Menstruation is just another piece of that continuing conversation. The girls emphasized the need for emotional support and assurance that menstruation was normal and healthy--not bad, frightening, or embarrassing. Before bringing any change in menstrual practices they should be educated about the facts of menstruation and its physiological implications. The girls should be educated about the significance of menstruation and development of secondary sexual characteristics, selection of a sanitary menstrual absorbent and its proper disposal [2].

Studies have shown that the girls lack knowledge about menstruation and due to lack of hygiene, they are likely to suffer from RTI's. Attitude of parents and society in discussing the related issues are barriers to the right kind of information, especially in the rural areas. Menstruation is thus construed to be a matter of embarrassment in most cultures. It was therefore decided to conduct a study to explore the level of knowledge and practices regarding menstrual hygiene among the adolescent girls [1].

Although adolescence is a healthy period of life, many adolescents are often less informed, less

experienced and less comfortable accessing reproductive health information and services than adults. In many parts of the developing countries, a culture of silence surrounds the topic of menstruation and related issues as a result many young girls lack appropriate and sufficient information regarding menstrual hygiene. This may result in incorrect and unhealthy behavior during their menstrual period (WHO Report, 1999). [3]

Objective of the study

The general objective of this study will be to identify the determinant of menstruation problem among adolescence high school girls in grade students in case of Tepi-town.

Specifically, the study sought to:

- To assess awareness and behavior towards menarche and menstruation related problems among high school adolescent girls.
- To determine the economic factor affecting the existing practices of menstrual hygiene.
- To identify the issues and challenges of menstruation encountered by the adolescent girls.

This research breaks the silence on menstrual hygiene management by creating awareness on the topic and the impact it has on high school girls, exploring and sharing lessons of the management aspects and promoting integration of Menstrual Health Management in health and hygiene/life orientation strategies. Moreover, it provides information that strengthens preventive programs that promote women's sanitary health. Also, this research critically studies an issue that faces every woman in every society in the world over including ours as well; with the aim of providing viable information for managing menstrual hygiene in girls and women at large.

Working Definition of Terms

Define fundamental terms that are contained in this work. A working definition will be offered based on their context of usage within this particular work. They include:

Menstruation – menstruation is defined as the discharging of blood, secretions and tissues

debris from the uterus that recurs in non-pregnant breeding-age females at approximately monthly intervals and is considered to represent a readjustment of the uterus to the non-pregnant state following proliferative changes accompanying the preceding ovulation.

Menstrual Hygiene - this is defined as the conditions or practices (as of cleanliness) conducive to menstrual health of females experiencing menstruation.

Severe menstrual problem – is a menstruation problem that keep students away from class or school for one or more days.

Mild menstrual problem- when the problem doesn't interfere with normal class attendance on using or without medication.

Adolescent- According to WHO a person between 10-19 years of age.

Menstrual hygiene practice- To measure the respondent's menstrual hygiene practice.

Material and Methods

Study design: The study design was school based cross-sectional which designed to reveal facts about the study in order to examine the perception about menstruation, highlight the socio-cultural beliefs associated with managing menstruation, and the problem associated with menstrual practice.

Study population: The population chosen to provide answers to research questions in the study is adolescent females between the classes of 9th -10th. Adolescent females were studied to get the actual experience of menstruation. Specifically, the study population of this study is grade nine and ten female students in Tepi high school.

Grade nine (N1=815)

Grade ten (N2=284)

N=1099

Data collection instrument and procedure:

Data was collected using pre-tested structured self-administered questionnaires. It is composed of 'closed-end' questions assessing different variables like the respondent's socio-demographic characteristics, menstrual hygiene practice and experience. To ensure its

consistency it was translated to 'Amharic' and back translated to English by language professionals.

The questionnaire is distributed to the students by three data collectors with past experience on data collection, the data was collected while students were in class rooms and the instructors cooperated with data facilitators in disseminating the questionnaire.

Inclusion and exclusion criteria: All regular female students with in the class of 9 – 10 were included into the study. In contrary Female students who were sick and unable to respond were excluded from the study.

Sample size and sampling technique: Single population proportion formula was used to calculate the required sample size. Proportion of knowledge about menstrual hygiene management, margin of error, confidence interval, design effect and non-response rate were assumed to be 10% respectively 50% proportion was considered.

Taking the above the study population is 1099 and a population correction formula was used. Multistage sampling technique was used to select the study subjects. In every step of selection, simple random sampling technique is used.

To determine the sample size, use the following method.

standard normal deviation usually set as 1.96

α = Level of significance =0.05

p = population proportion =0.5

d = Margin of errors=0.1

Therefore, we have the following information to determine the sample size of the population.

P= q= 0.5

N1= 815

N2= 284

N=1099

$$n = \frac{(z_{\alpha/2})^2 Pq}{d^2}$$

$$= \frac{(1.96)^2 \times 0.5 \times 0.5}{(0.1)^2} = 96$$

After the appropriate adjustment with total population the final sample size become 88

Variables considered in the study: There are two types of variables. These are dependent variables and independent variables.

Dependent variable-

$$Y = \begin{cases} 1 & \text{Normal menstruation} \\ 0 & \text{Mild menstruation problem} \\ 2 & \text{Sever menstruation problem} \end{cases}$$

Independent variable-

- Socio-demographic characteristics
- Students experience -school comfort to keep hygiene

Statistical data analysis: The analysis is carried out in two sections. In the first section, results of descriptive statistics are presented; in the second section, we examined menstruation problem among adolescence high school girls in grade students in case of Tepi-town using ordinal logistic regression (OLR) model with the help IBM SPSS statistics 20.

Ordinal logistic regression: There are several occasions when the outcome variable is polytomous. Such outcome variable can be classified into two, multinomial and ordinal. A number of logistic regression models have been developed for analyzing ordinal response variables. These include the proportional odds model (POM), two versions of the partial proportional odds model-without restrictions (PPOM-UR) and with restrictions (PPOM – R), continuous ratio model (CRM), and stereotype model (SM). The most frequently used ordinal logistic regression model in practice is the constrained cumulative logit model called the proportional odds model The POM is widely used in epidemiological and biomedical applications but requires strong assumptions that may lead to incorrect interpretations if the assumptions are violated [4]

The PO model has some appealing features. At first, it is invariant under several categories as only the signs of the regression coefficients change when the Y codes are inverted (i.e., Y_1 is coded as Y_k , Y_2 as Y_{k-1} and so on). Secondly, it is invariant under collapsibility of the ordered categories as the regression coefficients do not change when response categories are collapsed or the category definitions are changed. Thirdly,

it produces the most easily interpretable regression coefficients as $\exp(-\beta)$ is the homogenous odds ratio over all cut-off points summarizing the effects of the explanatory factor X on the response Y in one single frequently used measure. Due to these reasons, the PO model is by far the most used regression model for ordinal data. Let Y be the categorical variable with C ordered categories. Cumulative probability reflects the ordering with:

$$\Pr(Y \leq 1) \leq \Pr(Y \leq 2) \leq \dots \leq \Pr(Y \leq c) = 1 \quad \text{Let, } \pi_i = \Pr(Y \leq i), \quad i = 1, \dots, c - 1$$

Then the odds of the first i cumulative probability are:

$$\text{odds}(Y \leq i) = \frac{\Pr(Y \leq i)}{1 - \Pr(Y \leq i)} = \left[\frac{\pi_i}{1 - \pi_i} \right], i = 1, 2, \dots, c - 1$$

The POM models the log –odds (logits) of the first i cumulative probabilities as:

$$\text{logit}[Y \leq i] = \log \left[\frac{\pi_i}{1 - \pi_i} \right] = \log \left[\frac{\pi_i}{\pi_{i+1} + \dots + \pi_c} \right], \\ i = 1, 2, \dots, c - 1$$

Consider a collection of Pexplanatory variables for the l^{th} subject denoted by the vector $X'_l = (x_{1l}, x_{2l}, \dots, x_{pl}), l = 1, 2, \dots, n$. The relationship between the predictor and response variables is not linear in logistic regression. Instead, the logistic regression function, which is the logit transformation of $\pi_i(X_l)$ is used:

$$\pi_i(X_l) = \Pr(Y_l \leq i | X_l) = \frac{e^{(\alpha_i - \beta_1 x_{1l} - \dots - \beta_p x_{pl})}}{1 + e^{(\alpha_i - \beta_1 x_{1l} - \dots - \beta_p x_{pl})}} =$$

$$\frac{e^{(\alpha_i - X'_l \beta)}}{1 + e^{(\alpha_i - X'_l \beta)}}$$

$$i = 1, 2, \dots, c - 1; l = 1, 2, \dots, n$$

Where β is a column vector of P regression coefficients and α_i is i^{th} intercept coefficient.

Then the logit or log-odds of the first i cumulative probabilities is modeled as a linear function of the explanatory variables as:

$$\text{logit}[Y_l \leq i | x_l] = \log \left[\frac{\pi_i(X_l)}{1 - \pi_i(X_l)} \right]$$

$$= \alpha_i - \beta_1 x_{1l} - \dots - \beta_p x_{pl} = \alpha_i - X'_l \beta \quad \text{for } i = 1, 2, \dots, c - 1; l = 1, 2, \dots, n$$

Results

Result of descriptive statistics: The study was conducted on 88 adolescent girls. The response variables considered in this study are ordinal assuming three out comes (0-normals,1-mild,2-sever.), which are indicators of menstruation

related problem among adolescent high school girls in grade(9&10) students in Tepi town, figure 1 shows that the total number of sample 51.1% of the respondent normal,39.8% mild and 9.1% are sever menstrual problem.

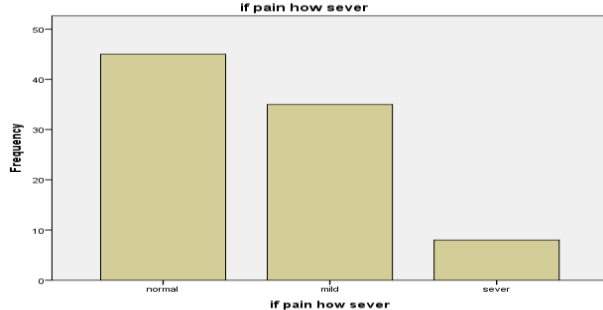


Figure 1: Simple Bar chart of the menstruation related problems.

From the total number of sample 88 adolescent girls ;the percentage of first reaction when girls experienced for the first time 13.6% of cried are normal,15.9% are mild and 4.5% are sever

,hacked off 3.4%are normal ,8.0% are mild and 1.1% are sever ,first reaction when girls experienced for the first time run to mother 11.4% are normal,13.6% are mild and 5.7%are sever ,run to father 1.1% are normal,4.5% are mild and sever and don't tell anyone 10.2% are normal ,0% are mild and sever ,so the variable has association .In ever experienced health problems during menstruation of who say no 12.5% are normal,38.6%are mild and 18.2% are sever and who say yes ever experienced health problem during menstruation ,27.3% are normal,3.4% are mild and 0% are sever, so the variable has association, and In grade of adolescent girls of grade 9 19.3% are normal and mild ,8.0% are sever and grade 10 of 31.8%normal,20.5% mild 1.1% are sever ,so the variable has association

Table 1 Menstruation related problem according to selected independent variables.

Variable	Level	N	Menstruation related problem			Chi-square		
			Normal	Mild	Sever	Value	DF	P-value
Grade	Grade 9	41	17(19.3%)	17(19.3%)	7(8.0%)	6.840	2	0.033*
	Grade 10	47	28(31.8%)	18(20.3%)	1(1.1%)			
Pocket Money	Yes	15	5(5.7%)	10(11.5%)	0(0.0%)	5.970	2	0.051
	No	72	29(33.3%)	27(31.0%)	16(18.4%)			
Subject	HPE	10	7(8.0%)	3(3.4%)	0(0.0%)	5.032	2	0.081
	Biology	78	28(31.8%)	34(38.6%)	16(18.2%)			
Age	14-16	42	13(14.8%)	26(29.5%)	4(4.5%)	16.248	2	0.000*
	17-20	43	32(36.8%)	9(10.2%)	4(4.5%)			
Health problem	Yes	61	11(12.5%)	34(38.6%)	16(18.2%)	39.572	2	0.000*
	No	27	24(27.3%)	3(3.4%)	0(0.0%)			
Religion	Christian	54	18(20.5%)	24(27.3%)	12(13.6%)	2.903	2	0.234*
	Muslim	34	17(19.3%)	13(14.8%)	4(4.5%)			
first time of menstruation	Cried	30	12(13.6%)	14(15.9%)	4(4.5%)	17.581	8	0.025*
	hacked	11	3(3.4%)	7(8.0%)	1(1.1%)			
	Run to mom	27	10(11.4%)	12(13.6%)	5(5.7%)			
	Run to dad	9	1(1.1%)	4(4.5%)	4(4.5%)			
	Don't tell any one	11	9(10.2%)	0(0.0%)	0(0.0%)			
father education	Illiterate	34	18(20.5%)	24(27.5%)	12(13.6%)	2.903	2	0.234
	Literate	34	17(19.3%)	13(14.8%)	4(4.5%)			

*: Significant at 5%

Ordinal logistic regression: Multiple Ordinal logistic regressions were fitted based on the chi-square test result of bi-variable analysis. Based on results displayed in Table 1 those

independent variables that are associated with menstruation problem status of school adolescence girls at 5% level significance were selected for multiple ordinal logistic regression

analysis. The result displayed in Table 1 showed that the five predictor variables were significantly associated with menstruation problem status.

When the proportional odds model is used in the analysis of ordinal data, the coefficients of the explanatory variables in the model are interpreted as the logarithm of the ratio of the odds of the response variable. This means that estimates of this odds ratio, and corresponding confidence intervals, can be easily found from the fitted model. As long as interpretation for categorical (nominal or ordinal) explanatory variables concerned, unlike logistic regression, we do not have the option to directly specify the reference category (last or first,) as SPSS ordinal automatically takes the last category as the reference category. Moreover, due to the parallel lines assumption is held, the interpretation of the result obtained by modeling is held, the interpretation of the result obtained by modelling severely or moderately menstruation problem status versus normal menstruation and severely menstruation problem status versus moderately menstruation problem status.

In Experienced health problems during menstruation, was significantly associated with girl’s menstruation status. Menstruation related problem who had experienced health problems during menstruation were 35.163 times more likely to be severely menstruation related problem as compared to who had no experienced health problems during menstruation, holding others covariates constant.

In our study, Age of adolescent girls, was found out to be significantly associated with girl’s menstruation related problem (P<0.05). Menstruation related problem who had Age of adolescent girls between 14-16 years were 2.134 times more likely to be severe menstruation problem as compared to 17-20years those keeping all other covariates fixed. Similarly, from Table 2 we can also observe that First reaction for the first times of menstruation occur is significantly related with the menstruation related problem status of adolescent of girls. As compared to don’t tell anyone girls, being severe problem is 6.104 and 26.23 times more likely for run to father and run to mother, respectively.

Table 2 Ordinal Logistic Regression Results of menstruation related problem among adolescence high school girls in grade (9&10) students in case of Tepi-town in Sheka zone, South West Ethiopia (2018).

Variable	Level	Estimate	S.E	Wald	Df	Sign	CL	
							Lower	Upper
Age	14-16	1.009	0.504	4.011	1	0.045*	0.022	1.997
	17-200 (Ref)							
First reaction	Cried	1.565	0.844	3.439	1	0.064	-0.089	3.219
	Hacked	1.955	0.998	3.841	1	0.050	0.000	3.911
	Run to Mom	1.809	0.860	4.429	1	0.035*	0.124	3.495
	Run to Dad	3.267	1.036	9.937	1	0.002*	1.236	5.298
	Don’t tell							
Experienced during menstruation	No	3.560	0.753	22.338	1	0.000*	2.084	5.036
	Yes (Ref)							

CL: Confidence Interval, S.E: Standard Error, *: Significant at 5%

Menstruation is a very complex process involving many different hormones, the sexual organs and the nervous system. Regular exercise and keeping fit and healthy can help to regulate the menstrual cycle. For adolescents and young females, a study found that 67.2% of girls aged 13–19 suffer from it [5]. The study

has estimated age at menarche in the contemporary adolescents in the region’s high schools. The age at menarche in this study was 13.78(SD 1.32) years with median age of 14 years. When it is compared to many European countries and European descendants, the result is higher by not less than one year

(www.mom.org accessed in July 2003). Heavy menstrual bleeding, occurring monthly, can result in anemia. The average age of menarche is around 12–13, but menarche can typically occur between ages 9 and 15 years. Premature or delayed menarche should be investigated; many older sources state that this should be done if menarche begins before 10 years or is delayed after 16 years [6], while newer, more evidence based sources state that it should be done if menarche begins before 9 years, if menarche has not begun by age 15, if there is no breast development by age 13, or if there is no period by 3 years after the onset of breast development [7].

The current study shows that Age of adolescent girls, was found out to be significantly associated with girl's menstruation related problem ($P < 0.05$). menstruation related problem who had Age of adolescent girls between 14-16 years were 2.134 times more likely to be severe menstruation problem as compared to 17-20 years those keeping all other covariates fixed. A related study done in Nigeria, around 84.0% were not psychologically prepared for the first menses and 66.3% used insanitary materials as menstrual absorbent. Other Study done on Iron deficiency show that many girls felt uncomfortable talking about menstruation with fathers, wanting them to be supportive but silent; others believed that fathers should be excluded completely [8 & 9].

In our study girls First reaction for the first time of menstruation occur, From Table 2 we can also observe that First reaction for the first times of menstruation occur is significantly related with the menstruation related problem status of adolescent of girls. As compared to Don't tell anyone girls, being sever problem is 6.104 and 26.23 times more likely for run to father and run to mother, respectively.

Girls experienced health problems related to menstruation not only at the onset but also throughout till menopause. About 74% of the girls had experienced on one or more occasions such problems. The most frequently

experienced one at menarche was abdominal and back pain 55%, followed by mood changes like irritability and depression 35%. This is a bit higher than the population survey of Glasgow and Nigeria [10] but lower than other study released from Nigeria that was 72% and Tehran 71%. Still it is lower than the report from Finland 79% and on Moroccan girls 69%. This could be explained in such a way that as abdominal pain is significantly more frequent in girls with early maturity and menarche b\c of that there have adolescent Girls experienced health problems related to menstruation [11]

Adolescent girls in Makurdi metropolis experienced upset and tension during their 1st period with 48.0% and 25.5% respectively. Study done by [12] among the Australian women revealed that a high proportion (80%) considered menstruation to be inconvenient or embarrassing. Similar research done in Andhra Pradesh University detected that around 78.5% knew menstrual bleeding originated from the uterus. Nearly 50% of the students who experienced such health problems consulted their mothers or other family members for comfort/assurance or drugs. This is consistent with the study done in Nigeria. Similarly, in our study have adolescent Girls experienced health problems related to menstruation is 69.3% and have no experienced health problems related to menstruation 30.7% so, there is significantly related to menstruation related problem [13 & 14].

Conclusion and recommendation: The purpose of this study is to determine menstruation related problem among adolescent high school girls in Tepi town.

The descriptive result showed that of the 88 sample; 51.1% normal, 39.8% mild, 9.1% are sever menstrual problem the result obtain from the chi –square test (grade of girls., age of adolescent girls, experienced health problems, religion, first reaction for the first time of menstruation occur, girls get permeant pocket money from their parents, fathers education level of girls and Before the onset of

menstruation have you knowledge what Subject) variable are significantly associated menstruation related problems.

In these studies, ordinal logistic regression was used. in ordinal logistic regression model, we found that the most important determinant factor associated with menstrual related problem were (age of adolescent girls, experienced health problem, religion, first reaction for the first time of menstruation occur. The occurrence of menarche while the girls are in the elementary schools indicates where future interventions should be targeted. Girls might not be expecting when their menarche would occur .in society where cultural and religious taboos around menstruation are common, parents and schools, as well as, public health professional maturing girls so that they could pursue their education without embarrassment and fear. The health education or any education related to ARH, sexual and reproductive maturation, should encompass and complete the circle,” parent-student-teacher”

Information is power, and knowledge is well known to influence attitude over time. The government and NGOs should therefore work towards developing and disseminating sensitive program targeted at both parents and the adolescents on the unmet needs of adolescents including sexuality education. The electronic and print media, community organizations and faith-based organizations are veritable means of disseminating these messages.

Youth friendly services provide good milieu for the adolescents to interact and learn more about their health. The government and NGOs should tap from this wealth of experience and facilitate access to these services for all adolescents both in school and at home.

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