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Determinants of Teenage Pregnancies and Their Maternal Health Service Utilization in Assosa Woreda, Benishangul-Gumuz, Ethiopia

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Abstract:- Fertility and pregnancy during teenager period is associated with increased risk of maternal mortality and morbidity, premature termination of education and high rate of population growth. When teenagers become pregnant they are less likely to use antenatal and delivery care from health workers. The goal of the study is to investigate the determinants of teenage pregnancy and assess the pattern of use of antenatal care service utilization of women in Assosa Woreda. The information of this study was obtained from well designed questionnaire, focus group discussion and key informants. Women age groups 15-19 was used for teenage fertility assessment and women who have given birth at least once in age less than 20 years was used for assessment of maternal health service utilization. Binary logistic regression model was analyzed with the help Stata software. The results implied that teenagers' with marital status group fiancée, age at marriage, teenager's occupation category unemployed, using family planning and ethnicity category Tigre were statistically significantly affect teenage pregnancy. Similarly age, teenagers' with marital status group married, teenager's education category secondary and certificate& above ,teenager's parents education category certificate& above, teenager's occupation category unemployed, mass media, economic status, using family planning and history of child death were statistically significantly affect attending antenatal care. A range of factors including age marital status, age at marriage, occupation, family planning, ethnicity, level of education, place of residence, mass media, economic status history of child death, has influenced teenage fertility and their use of maternal health service. Change communication, strengthening school health program, empowering of young women specially the rural one, and promoting parent-children discussion on sexuality matters is recommended to improve the situation.

Keywords:- *Teenage pregnancy, Attending Antenatal care, Logistic Regression, Chi-square.*

I. INTRODUCTION

A. Background of the Study

Teenager is the transitional period from childhood to adulthood characterized by significant physiological, psychological and social changes. World health organization defines the age group 13-19 years of age as teenage (WHO, 2016).The term teenage pregnancy refers to women who are under 19 years old, not reached legal adulthood that becomes pregnant (WHO, 2009).

Teenagers are characterized by immature behavioral decision-making, exploration, experimentation, subjection to peer influences, and lack of knowledge about disease and protective measures against it. Moreover, behavior, which starts in adolescence frequently, leads to health problems that only emerge in later life at increased cost to both the individuals themselves and their societies. (Seifu, 2016)

Worldwide, teenagers suffer from a disproportionate share of early marriage, unwanted pregnancies, unsafe abortions, STI including HIV/AIDS, female genital mutilation, malnutrition and anemia, infertility, sexual and gender based violence, and other seriousreproductive health problems (UNFPA, 2014).

According to UNFPA report, each year, an estimated 14 million teenagers between the ages of 15 and 19 give birth globally, of which more than 90% occurs in developing countries. In the poorest countries, young motherhood often becomes a death sentence. An estimated 70,000 girls aged 15 to 19 die each year during pregnancy and childbirth and more than 1 million infants born to teenager's girls die before their first birthday. At least 2 million more are left with chronic illness or disabilities that may bring them life-long suffering, shame, and abandonment. Moreover, each year 2.2 to 4 million teenagers resort to unsafe abortion (UNFPA, 2015).

Teenagers and young people ages 10-24 are the largest group ever to be entering adulthood in Ethiopian history. This cohort of 21 million makes up 30% of total population. Teenegers' sexual and reproductive health is of national

concern to Ethiopia because the country has a youthful age structure with a broad-based population pyramid, typical characteristic of developing country. In the country, young people are defined as those in the age group 10-29 years of age while the age group 10-19 are said to be teenagers (FDRE, 2006).

Teenage pregnancy in Benishangul-Gumuz regional state is most influenced by universality of marriage, lower age at marriage, low level of literacy, poor standard of living, limited use of contraceptives and traditional ways of life.An estimated 156 women aged 15–19 years gave birth of total 783 randomly selected teenagers in Assosa Hospital (Beyene*et al.*, 2015).

B. Statement of Problems

Teenage pregnancy and childbearing entail a high risk of maternal death and the children of young mothers have higher levels of morbidity and mortality.Pregnancy and childbearing may cut short a teenager's education and threaten her economic prospects, employment opportunities and overall well-being.Teen mothers may pass on to their children a legacy of poor health, substandard education and subsistence living, creating a cycle of poverty that is hard to break GillamSthephen*et al*., 2007).

Teenagers' girl face considerable health risks during pregnancy and childbirth, accounting for 15% of the Global Burden of Disease for maternal conditions and 13% of all maternal deaths (Gillam Sthephen*et al*., 2007). Teenagers aged 15–19 years are twice as likely to die in childbirth and those under 15 are five times more likely to die in childbirth as women in their twenties. Infant and child mortality is also higher among children born to teen mothers (UNFPA, 201). Globally, the rates of population growth are more rapid when women have their first child in their teen years because early initiation into childbearing lengthens the reproductive period and subsequently increases fertility (Rafalimanana H., 2009).

At the societal level, the strong association between teenage childbearing and low levels of educational achievement for young women brings about a negative impact on their position and potential contribution to society. Teenage pregnancy substantially reduces human capital investments of young women by substantially reducing years of formal education and early adult work experience. In a multi country study conducted in sub-Saharan African countries, teenage fertility has contributed to the observed gender gap in education (UNFPA, 2014; Rafalimanana H., 2009; Klepinger D *et al.*, 2008; Eloundou-Enyegue*et al.*, 2010).

Beyond these social and economic consequences, the psychological and physical health consequences of early motherhood for the mother and her child are even more problematic. Many researchers have shown that teenage pregnancy is associated with adverse maternal and child health outcomes including obstructed labor, low birth weight, fetal growth retardation, and high infant and maternal mortality rate (UNFPA, 2014; Rafalimanana H., 2009; Eloundou-Enyegue*et al.*, 2010; Briggs*et al.*, 2011).

Complications from pregnancy and childbirth are the leading cause of death for adolescent girls between the ages of 15 and 19 in developing countries. Girls in this age group are twice as likely to die from pregnancy and childbirth-related causes, compared with older women. Children born to teenage mother are 50% more likely to die before the age of one than those born to women in their twenties furthermore, among teenagers who become pregnant only few of them seek antenatal and delivery care from health professionals (UNFPA, 2015; Bearinge*et al.*, 2007).

Various studies and publications have identified different determinants of teenage fertility but most of the findings were done in other countries and other regional states of Ethiopia. Additionally, much of them focus of pregnancies and use of maternal health service is among the general population of reproductive age group (women age group 15-49) rather than specific age group (Teen mothers). The current study focus on female 15-19 and has tried to fill the gaps in understanding the risk of teenage pregnancy and its consequences in AssosaWoreda.

C. Research Questions

Generally, this study has attempted to answer the following basic research questions

- What are the determinant factors to teenage pregnancy in AssosaWoreda?
- What are the determinant factors to teenage maternal health service utilization in AssosaWoreda?
- Is there the relationship between teenage pregnancy and factors?
- Is there the relationship between teenage maternal Health service utilization and factors?
- Is there the association between teenage pregnancy and maternal Health service utilization?

D. Objectives of the Study

- *General Objective*

The general objective of the study is to identify the determinants of teenage pregnancy and assess the pattern of use of antenatal care service utilization of teen mothers in AssosaWoreda.

- *Specific Objectives*

- To find out the significant factors associated with teenage pregnancy in AssosaWoreda
- To find out the significant factors associated with teenage maternal Health service utilization in AssosaWoreda

- To describe the relationship between teenage pregnancy and factors in AssosaWoreda
- To describe the relationship between teenage maternal Health service utilization and factors in AssosaWoreda
- To assess the association between teenage pregnancy and teenage maternal Health service utilization

E. Significance of the Study

The result of this study help the AssosaWoreda in reducing the death of women due to teenage pregnancy and early age pregnancy complication by giving awareness to community and benefit women, policy makers and program planners to design and implement appropriate and feasible programs and strategies to the woreda level. It also gives direction about the current policies and programs being implemented.For academicians, it direct to thoughts and genuine interest on the subject matter for further research.

II. LITERATURE REVIEW

A. Adolescents' sexuality

Premarital sexual activity is common practice among teenagers. The extent to which single women report that they are sexually experienced varies across countries. Less than 10% of single women in Senegal and Zimbabwe have had sexual intercourse. By contrast, 45% of women in Côte d'Ivoire are sexually experienced but not yet married, followed by 31% in Zambia.In six out of 11 sub-Saharan African countries, nearly one fifth of teenage women had first sexual intercourse before age 15. Experience of first sexual intercourse before the age of 15 years ranges from 5% in Zimbabwe to 32% in Côte d'Ivoire (Population Reference Bureau, 2011).

In Ethiopia, sizable proportion teenagers are sexually active. The proportion of sexually active teenager was 31.9% in Koladiba30.7% in north Gonder and 58% in Addis Ababa and most of these were conducted in out of wed lock situation (Gadisa, 2010). According to EDHS 2005, among women age 15-49, 32% had first sexual intercourse before age 15 years, 65% before age 18. The median age at first sexual intercourse for women age 15-49 years was 16 years which indicates that adolescent sexual activity is common in Ethiopia (CSA, 2007).

B. Teenage Pregnancy

Teenage pregnancy, defined as pregnancy in female aged 15 to 19 years, is a major public health issue. More than 16 million babies (11% of all births globally) are born to adolescent girls. Though most teenage pregnancies occur in developing countries, this is also a major concern in developed countries (WHO, 2016; Haupt, 2010). Teen mothers are at high risk of maternal and neonatal complications. Delivery in teenage is a leading cause of death in young women and the associated obstetric complications include maternal anemia, hypertensive disease in pregnancy, preterm birth, urinary tract infection, and so on(Leppälahti S, 2013).

Girls living in developing countries are the most at risk of adolescent pregnancy. The average fertility rate among women aged 15-19 year in the least developed countries is more than five times greater than that of the more developed regions. While adolescent pregnancy is declining overall worldwide, high rates in many countries persist, mostly where poverty and poor health are endemic. On average, one third of young women in developing countries give birth before age 20 years (UNFPA, 2015).

In Ethiopia pregnancy and delivery during teenager period is common. In a study conducted in Harar, eastern Ethiopia, among women aged 15-49 years, the mean age at first pregnancy was 19years and about 41% of those women who had been pregnant at least once had their first pregnancy between the ages of 15 to 19 years. Almost half (48.3%) of pregnancy was unwanted in this age group and after controlling for potential confounders, the pregnancy of teenagers was more likely to be unwanted (Worku and Fantahun, 2008).

C. Factors Associated with Teenage Pregnancy

➢ *Place of Residence*

Place of residence, especially the distinction between urban and rural area, affects the reproductive behaviors. Currently about 24% of rural women in the developing world begin childbearing in their teenage years versus 16% of urban-resident women. Both percentages are higher in Sub-Saharan Africa 30% of rural and 21% of urban teenagers (Bearinge*et al.*, 2007).

➢ *Education*

Education has been widely demonstrated that there exists a strong relation between women's education level and fertility control. Effect of education on fertility has been described in terms of three causal paths. Education reduces the demand for children by directly affecting the desired family size. It also reduces the economic utility of children, creates aspirations for upward economic growth that are not entirely consistent with having a large family, and increases the opportunity cost of women's time adolescents(Bearinge*et al.*, 2007). In Ethiopia, there was a 38% increase in childbearing among adolescents with no education, and a 70% decrease among adolescents with secondary or higher level of education between 2000 and 2005(MI, 2007).

➢ *Economical Status and Employment*

Women in the highest wealth quintile marry a year later than women in the lowest wealth quintile among women of aged 25-49 years. Women who are employed are less likely to be pregnant or bear child at early age and are more likely to use family planning (Cesare, 2016).

➢ *Media Exposure*

Exposure to mass media has no direct influence on pregnancy, but it represents an important element, which acts through the spread of sexual and reproductive health information, programs and experiences. Furthermore Media effect is even stronger among teenagers (Mary, 2012).

➢ *Religion and Ethnicity*

Differences in fertility levels according to race and religion have been observed throughout the world. In particular historical studies in North America suggested that Catholics have experienced relatively high fertility rates (Gupta and Leite, 2009). In Latin America the pregnancy was found to be associated with religion and ethnicity (Cesare, 2016). In Ethiopia, variation in religion and ethnicity has been shown to be related with the use of family planning, age at marriage and teenage pregnancy. For instance a study conducted in Awasa, ethnicity was associated with fertility among women of reproductive age group ((Gebremedhin, 2016).

D. Factors Associated with Use of Maternity Service

In developing countries, the use of modern health care such as maternal health care services can be influenced by the socio-demographic characteristics of women, the cultural context, and the accessibility of these services. Additionally, factors related to place of residence and socioeconomic status may account for variations in use of maternal health care. These factors include women's age, ethnicity, education, religion, culture, clinical need for care and decision making power of women. The costs, location, and quality of health services are also important. These factors interact in different ways to determine use of health care (Say *et al.*, 2007).

The effects of mother's education, household economic status, and place of residence are strongly and significantly associated with prenatal care and attended delivery, where the adjusted odds of receiving prenatal care before birth of the child and attended delivery from health professionals are much higher among mothers with some education, better household economic status and urban residence (Woldemicael, 2015).

In Butajira, urban dwellers were more than three times to use antenatal care than rural pregnant women. Equity in utilization of preventive MCH services was also affected by socio-economic status of the households. The heads of households being non-farmer, and having higher annual household income were also found to be associated with the use of antenatal care (Aliy, 2008). In Jimma, the use of antenatal care varies substantially if the pregnancy was wanted and approved by husband for prenatal care. More than three quarters of those who wanted pregnancy were found to have used antenatal care compared to 62% of women who did not want the pregnancy. The impact of husband approval was highest for teenagers than adult women (Biratu and Lindsrom, 2007).

III. METHODOLOGY

A. Study Area

Asosa is one of the 21 woredas in the BenishanguGumu z region of Ethiopia.Assosaworeda is found about 661 km far from Addis Ababa. Based on figures from the Central Statistical Agency in 2016, this woreda has an estimated total population of 107,869, of whom 56,007 are men and 51,862 are women; 21,237 of the population are urban dwellers. Of total women 15,558 are women age group 15-19. Assosaworeda has 78 kebele (4 urban kebeles and 74 rural kebeles)(EDHS, 2016).

B. Study Population

The population of this study was all women age groups 15-19 for teenage pregnancy assessment and all women who have given birth at least once in age less than 20 years of age was used for assessment of maternal health service utilization.

C. Method of Data Collection

The information of this study was obtained from well prepared questionnaire, key informants and focus group discussion. The questionnaireswas prepared in order to collect data to analysis both teenage pregnancy and maternal health service utilization.

D. Study Design and Study Period

Well prepared questionnaire was distributed to Assosaworeda women age group 15-19. Data collecting process was carried out in the time interval of 01-04- 2018 to 30-05- 2018. R-software and Stata-software will be used during data analysis.

E. Sampling Design

In this study simple random sampling techniques was adopted as an appropriate sampling design for selecting a representative sample of the population.

F. Sample Size Determination

In conducting researches that require taking a sample, we always have the stage of deciding the sample size. An appropriate sample size gives high precision, accuracy and confidence with minimum cost.

$$n_0 = \left[\frac{Z_{\alpha/2}}{\varepsilon}\right]^2 pq$$

$$n_0 = \left[\frac{1.96}{0.05}\right]^2 * 0.5 * 0.5 = 385$$

To calculate final required sample first find correction factor $n = \frac{n_o}{N} = \frac{385}{15{,}558} = 0.025$

Since $\frac{n_o}{N} < 5\%$, $n = n_0 = 385$

The overall sample size (385) of the survey was taken from 78 kebeles of AssosaWoreda. But for sake of cost minimization 30% of 78 kebeles (24 kebeles) was taken from kebeles of Assosaworedas.

	Urban	Rural	Total
	6,191	9,367	15,558
Sample	154	232	386

Table 1:- Sample size determination

G. Variables in the Study

➢ *Response Variable*

- Being pregnant (have ever given birth before 20 years) or not
- Attending antenatal care from health professionals at the time of being pregnant or not

➢ *Explanatory Variables*

For the outcome of interest, the independent variables are,

- Age
- marital status
- age at first marriage
- educational level of women
- Education level of parent
- current residence
- employment status
- access to mass media
- economic status
- use of family planning
- religion
- Ethnicity

Additional variables for use of maternal health service are

- Weigh of child
- Frequency of visiting health center
- Health status of child
- history of death of child
- child birth being planned or not

H. Methods of Data Analysis

The data was analyzed by using descriptive statistics such as frequency, percentage and graph and inferential statistics such as binary logistic regression and chi-square test of association.

I. Expected Outcomes

At the end of the research the researcher was expected that:

- Determinants for teenage pregnancy and maternal health service utilization of Assosaworeda statistically identified and communicated with relevant stakeholders
- The research published in a reputable journal

IV. RESULTS AND DISCUSSIONS

A. Descriptive Statistics on Teenagers' Pregnancy

The study intended to find the determinants of teenage pregnancy in AssosaWoreda. A total of 377 teenagers' fulfilling the inclusion criteria was considered. Among those respondents 180 (47.75%) Being pregnant (had given birth before 20 years).

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Variables	Categories	Yes	No	Total
Marital status	Unmarried	17	66	83
	fiancée	18	81	99
	married	60	40	100
	divorced	83	9	92
	widowed	2	0	2
Teenager's Education level	No education	42	3	45
	P;rimary	73	39	112
	Secondary	47	116	163
	Certificate and above	18	38	56
parent's Education level	No education	85	31	116
	Primary	35	61	96
	Secondary	37	39	76
	Certificate and above	23	65	88
Residence	Rural	119	107	226
	Urban	61	89	150
Teenager's Occupation	Student	63	170	233
	Employed	14	23	37
	Unemployed	103	3	106
mass media	No	56	13	69
	Yes	124	183	307
1. Economic status	Poor	77	56	133
	Middle	103	140	243
family planning	No	91	105	196
	Yes	89	91	180
Religion	Orthodox	60	79	133
	Protestant	54	73	127
	Muslim	63	35	98
	Others	3	9	12
Ethnicity	Oromo	10	41	51
	Amhara	63	51	120
	Berta	61	29	90
	Tigre	41	27	31
	Gumuz	19	35	53
	Shinasha	11	5	16
	others	12	3	15

Table 2:- Descriptive summary of factors with teenagers' pregnancy

As shown in table 2 of total teenagers' 83, 99, 100, 92 and 2 were unmarried, fiancée, married, divorced and widowed respectively. Similarly in considering education level of teenagers', 45 were uneducated, 112 primary, 163 secondary and 56 certificate and above. Among teenagers' parents, 116 were uneducated, 96 primary, 76 secondary and 88 certificate and above. And also the above table show us 226 teenagers' were lived in rural and 150 lived in urban.

According to above table, of total respondent 223 were students, 37 employed and 106 unemployed. With regard to exposure to mass media, 69 of the teenagers' had no any access of mass media and 307 of them had access of mass media. It is reported that 133 and 243 of women were poor and middle economic level respondents respectively. Furthermore, 180 of the teenagers'had the experience of using contraceptive while 196 of them had no any experience of using contraceptive. Of the total respondents, 133 were orthodox, 127 protestant, 98 Muslim, and 12 other religion followers. Lastly as shown in table 2, about 51 of them were Oromo, 120 Amhara, 90 Berta, 31 Tigre, 53 Gumuz, 16 Shinasha and 15 others ethnic groups.

B. Inferential Statistics on Teenagers' Pregnancy

➢ *Chi-square Test*

H_0: teenagers' pregnancy and the factors are independent Vs

H_1: teenagers' pregnancy and the factors are dependent

Variables	Pearson-Chi-square	P-value
Age	0.229	0.381
Marital status	134.1023	0.002
age at marriage	131.3373	0.003
Education level of teenager	79.9368	0.008
Education level of parents	51.69	0.00
current residence of teenager	0.014	0.0851
Occupation of teenager	145.28	0.00
access to mass	37.5	0.00
Economic status	8.28	0.004
family planning	0.34	0.599
Religion	0.41	0.7871
Age	0.160	0.2063

Table 3:- Chi-square test of independence between teenagers' pregnancy and factors

The small p-value (p-value<□□0.05) and the larger chi-square value indicate that the two variables (teenagers' pregnancy and factors) are dependent this implies there is a significant association between the two variables. The above table indicates there were significant relationship between teenagers' pregnancy and economic status, access to mass, teenagers' occupation, teenagers' education level, teenagers' parent education level, age at marriage & marital status.

- **Binary Logistic Regression**

- **Overall Model Goodness of Fit**

Chi-square	df	Sig.
305.05	29	0.000

Table 4:- Omnibus Tests of Model Coefficients

In this case the chi- square is significant. This implies the model fits well under omnibus test.

-2 Log likelihood	Cox &Snell R Square	Nagelkerke R Square
180.009	0.57	0.775

Table 5:- Model summary

In this study Cox and Snell R^2 indicate that 57% of variable in the teenagers' pregnancy is explained by the independent variable. Also nagelkerke R^2 indicate that 77.5%.

Chi-square	df	Sig.
228.275	30	0.96

Table 6:- Hosmer and Lemeshow Test

In this case the chi- square is non-significant. The non-significant chi-square (p > 0.05) indicates that the model fits the data well.

- *Final Logistic Regression Model*

P-value less than 0.05 and confidence interval excluding zero indicate significance between teenagers' pregnancy and explanatory variables.The output of the logistic regression model of teenagers' pregnancy showed teenagers' with marital status group fiancée, age at marriage, teenager's occupation category unemployed, using family planning and ethnicity category Tigre were statistically significantly affect teenage pregnancy.

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Variables	Categories	$\hat{\beta}$	SE	Wald	Sig.	Exp($\hat{\beta}$)	95% CI for $\hat{\beta}$
Age	-	0.335	0.23	1.04	0.30	1.398	[-0.298, 0.967]
Marital status	fiancée married divorced	1.61 -1.968 -.1418	0.805 1.598 1.657	2.00 -1.23 0.900	0.046 0.218 0.366	4.899 0.151 0.264	[0.319, 3.189] [-5.099, 1.163] [-4.489, 1.654]
Age at marriage	-	0.334	0.983	0.340	0.001	1.392	[0.142, 0.527]
Teenager's Education level	Primary Secondary Certificate & above	0.224 -0.799 0.0432	1.117 1.068 1.157	0.20 -0.75 0.04	0.841 0.454 0.970	1.256 0.433 1.265	[-1.966, 2.414] [-2.894, 1.294] [-2.224, 2.310]
parent's Education level	Primary Secondary Certificate and above	-1.189 -1.664 -1.524	0.846 0.825 0.809	-1.41 -2.02 -1.88	0.160 0.44 0.059	0.302 0.197 0.236	[-2.849, 0.469] [-3.281, -0.475] [-3.109, 0.608]
Residence	Urban	-0.023	0.424	-0.05	0.958	0.802	[-0.855, 0.809]
Teenager's Occupation	Employed Unemployed	0.520 3.93	0.688 0.875	0.76 4.49	0.45 0.00	1.734 46.79	[-0.829, 1.869] [2.216, 5.646]
mass media	Yes	0.748	1.063	0.7	0.48	2.114	[-1.336, 2.833]
Economic status	Middle	1.008	0.694	1.45	0.416	2.741	[-0.353, 2.369]
family planning	Yes	-1.293	0.61	-2.12	0.034	0.272	[-2.489, 0.097]
Religion	Protestant Muslim Others	-0.163 0.065 -1.879	0.808 0.935 2.173	-0.20 0.07 -0.86	0.84 0.945 0.387	0.88 1.117 0.15	[-1.747, 1.42] [-1.767, 1.897] [-6.138, 2.38]
Ethnicity	Amhara Berta Tigre Gumuz Shinasha others	1.523 0.333 -2.184 -0.316 1.774 3.312	0.717 1.056 1.199 0.924 1.428 2.024	2.12 0.32 -1.82 -0.34 1.24 1.64	0.34 0.753 0.069 0.732 0.214 0.102	4.625 1.396 0.111 0.713 5.816 28.53	[0.116, 2.927] [-1.738, 2.403] [-4.535, 0.167] [-2.127, 1.494] [-1.024, 4.52] [-0.655, 7.281

Table 7:- Final Logistic Regression Model ofteenagers' pregnancyon all potential explanatory variables.

$\hat{\beta}$: Indicates logistic regression coefficients; SE: standard error for estimates; sign: significance level;Exp($\hat{\beta}$): odds ratio ; 95%CI for $\hat{\beta}$: 95% confidence interval for logistic regression coefficients; the First Category of variablesare References (see Table 7)

Under the logistic regression model of the above table 7, when the effect of other factor keep fixed, a unit increases in marital status group fiancée increases teenagers' pregnancy by a factor of 4.899 than that of the unmarried category. Moreover, increasing age of teenagers' at marriage increase teenagers' pregnancy by a factor of 1.392. Similarly a unit increase in teenager's occupation category unemployed increase teenagers' pregnancy by a factor of 46.79 than that of the student category. Using family planning decrease teenagers' pregnancy by a factor of 0.272 than non-users. Finally ethnicity category Tigre had less teenagers' pregnancy than ethnicity category Oromo.

- *Descriptive Statistics on Attending Antenatal Care*

The study intends to assess the pattern of use of antenatal care service utilization of teen mothers in Assosa Woreda. A total of 180 teenagers' fulfilling the inclusion criteria was considered. Among those respondents 81 (45%) attend antenatal care at the time of pregnancies.

Attending Antenatal Care				
Variables	**Categories**	**Yes**	**No**	**Total**
Marital status	Unmarried	1	16	17
	fiancée	14	4	18
	married	25	35	60
	divorced	41	42	83
	widowed	0	2	2
Teenager's Education level	No education	26	16	42
	Primary	18	55	73
	Secondary	20	27	47
	Certificate and above	17	1	18
parent's Education level	No education	17	68	85
	Primary	28	7	35
	Secondary	15	22	37
	Certificate and above	21	2	23
Residence	Rural	58	74	132
	Urban	23	25	48
Teenager's Occupation	Student	56	7	63
	Employed	13	1	14
	Unemployed	12	91	103
mass media	No	3	53	56
	Yes	78	46	124
2. Economic status	Poor	6	71	77
	Middle	75	28	103
family planning	No	31	60	91
	Yes	50	39	89
Religion	Orthodox	48	12	60
	Protestant	16	38	54
	Muslim	17	46	63
	Others	0	3	3
Ethnicity	Oromo	9	1	10
	Amhara	42	21	63
	Berta	17	44	61
	Tigre	2	2	4
	Gumuz	9	10	19
	Shinasha	1	10	11
	others	1	11	12
Weight of newly born baby	Less than 2500gm	44	57	101
	greater than 2500gm	37	42	79
attend antenatal clinic	Sometimes	43	63	106
	Always	38	36	74
risk of unplanned pregnancy	No any risk	31	32	63
	Risky	46	22	68
	Highly risky	4	45	49
Health status of child	Unhealthy	63	26	89
	Healthy	18	73	91
history of death of child	No	34	81	118
	Yes	44	18	62

Table 8:- Descriptive summary of factors with attending antenatal care

As shown in table 8 in total teenagers' 17, 18, 60, 83 and 2 were unmarried, fiancée, married, divorced and widowed respectively. Similarly in considering education level of teenagers' 42 were uneducated, 73 primary, 47 secondary and 18 certificate and above. Among teenagers' parents, 85 were uneducated, 35 primary, 37 secondary and 23 certificate and above. And also the above table show us 132 were lived in rural and 48 lived in urban. According to above table, of total respondent 63 were students, 14 employed and 105 unemployed.

With regard to exposure to mass media, 56 of the teenagers' had no any access of mass media and 108 had access of mass media. It is reported that 77 and 103 of women were poor and middle economic level respondents respectively .Furthermore, 89 of the teenagers'had the experience of using contraceptive while 91 had no any experience of using contraceptive. As shown in table 8, about 10 of them were Oromo, 63 Amhara, 61 Berta, 41 Tigre, 19 Gumuz, 11 Shinasha and 12 others ethnic groups. Of the total respondents, 60 were orthodox, 54 protestant, 63 Muslim, and 3 other religion followers.

According to above table, of total newly born babies 105 were less than 200gm and the remaining 79 greater than 2500gm. When compared to teenagers' who follow antenatal care 53 were sometimes and 28 always attend antenatal care. Furthermore, 89 of the teenagers' children were unhealthy and 91 healthy. Finally, 118 of the teenagers'had no history of child death while 62 of them had history of child death.

C. Inferential Statistics on Attending Antenatal Care

➢ *Chi-square Test*

H_0: attending antenatal care and the factors are independent Vs

H_1: attending antenatal care and the factors are dependent

Variables	Pearson-Chi-square	P-value
Age	29.9209	0.00
Marital status	29.57	0.00
age at marriage	0.276	0.742
Education level of teenager	43.29	0.00
Education level of parents	64.455	0.72
current residence of teenager	0.225	0.635
Occupation of teenager	108.27	0.00
access to mass	51.62	0.00
Economic status	75.27	0.00
family planning	8.89	0.003
Religion	45.57	0.00
Ethnicity	39.69	0.00
Weight of your newly born baby	0.019	0.024
attend antenatal	56.37	0.00
risk of unplanned pregnancy	41.4	0.00
Health status of child	70.46	0.00
history of death of child	0.148	0.195

Table 9:- Chi-square test of independence between attending antenatal careand factors

The small p-value (p-value<□□0.05) and the larger chi-square value indicate that the two variables (attending antenatal care and factors) are dependent this implies there is a significant association between the two variables. The above table indicates there are significant relationship between attending antenatal care, economic status, access to mass, teenagers' occupation, teenagers' education level, teenagers' parent education level, health status of child, risk of unplanned pregnancy, attend antenatal care, ethnicity, religion, family planning, age& marital status.

➢ *Binary Logistic Regression*

- *Overall Model Goodness of Fit*

Chi-square	df	Sig.
206.816	30	0.000

Table 10:- Omnibus Tests Model Coefficients

-2 Log likelihood	Cox &Snell R Square	Nagelkerke R Square
51.005	0.73	0.91

Table 11:- Model summary

In this study Cox and Snell R^2 indicate that 73% of variable in the attending antenatal careis explained by the independent variable. Also nagelkerke R^2 indicate that 91%.

Chi-square	df	Sig.
107.145	31	0.67

Table 12:- Hosmer and Lemeshow Test

In this case the chi- square is non-significant. The non-significant chi-square ($p > 0.05$) indicates that the model fits the data well.

- *Final Logistic Regression Model*

P-value less than 0.05 and confidence interval excluding zero indicate significance between attending antenatal care and explanatory variables.The output of the logistic regression model of attending antenatal care showed that age, teenagers' with marital status group married, teenager's education category secondary and certificate& above, teenager's parents education category certificate& above, teenager's occupation category unemployed, mass media, economic status, using family planning and history of child death were statistically significantly affect attending antenatal care.

Variables	Categories	$\hat{\beta}$	SE	Wald	Sig.	Exp($\hat{\beta}$)	95% CI for $\hat{\beta}$
Age	-	0.716	0.174	4.11	0.00	2.045	[0.374, 1.057]
Marital status	fiancée	4.025	1.176	3.421	0.091	55.999	[1.719, 6.331]
	married	2.436	1.064	2.29	0.022	11.429	[-0.352, 4.521]
	divorced	2.74	1.053	2.61	0.089	15.619	0.621, 4.014]
Age at marriage	-	0.153	0.025	0.62	0.535	1.015	[-0.033, 0.064]
Teenager's Education level	Primary	-1.602	0.418	-3.83	0.077	0.201	[-2.421, -.783]
	Secondary	-0.786	0.434	-1.81	0.057	0.456	[-1.635, 0.064]
	Certificate and above	2.348	1.077	2.18	0.029	10.462	[-2.224, 5.282]
parent's Education level	Primary	2.773	0.502	5.52	0.14	16	[1.788, 3.757]
	Secondary	1.003	0.431	2.33	0.072	2.727	[0.159, 1.848]
	Certificate and above	3.738	0.788	4.74	0.00	42	[0.237, 4.458]
Residence	Urban	-0.16	0.338	0.47	0.635	1.174	[-0.502, 0.823]
Teenager's Occupation	Employed	0.486	1.112	0.44	0.663	1.625	[-1.695, 2.665]
	Unemployed	-4.105	0.505	-8.13	0.00	0.016	[-5.095, -3.116]
mass media	Yes	3.399	0.622	5.47	0.00	29.957	[2.181, 4.619]
Economic status	Middle	3.456	0.479	7.21	0.00	31.696	[2.517, 4.396]
family planning	Yes	0.909	0.308	2.96	0.003	2.481	[0.306, 1.511]
Religion	Protestant	-2.251	0.439	-5.12	0.059	0.105	[-3.112, -1.39]
	Muslim	-2.382	0.429	-5.54	0.068	0.092	[-3.224, -1.539]
Ethnicity	Amhara	-1.504	1.087	-1.38	0.167	0.222	[-3.635, 0.627]
	Berta	-3.148	1.092	-2.88	0.074	0.043	[-5.289, -1.01]
	Tigre	-2.197	1.453	-1.51	0.13	0.111	[-5.045, 0.651]
	Gumuz	-2.302	1.149	-2	0.055	0 .10	[-4.556, 0.049]
	Shinasha	-4.499	1.148	-3.03	0.062	0.011	[-7.414, -1.585]
	others	-4.595	1.148	-3.1	0.082	0.010	[-7.503, -1.686]
Weight of newly born baby	greater than 2500gm	0.325	0.312	1.04	0.298	1.141	[-0.287, 0.938]

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attend antenatal clinic	Always	-1.250	0.436	-2.87	0.084	1.564	[-2.104, -0.396]
risk of unplanned pregnancy	Risky Highly risky	0.769 -2.389	0.362 0.579	2.13 -4.12	0.053 0.600	2.158 0.09	[0.608, 1.478] [-3.524, 0.462]
Health status of child	Unhealthy	-3.101	-0.429	-7.23	0.00	0.045	[-3.942, -2.259]
history of death of child	Yes	0.33	0.311	1.045	0.2887	1.143	[-0.192, -0.873]

Table 13:- Final Logistic Regression Model ofattending antenatal careon all potential explanatory variables.

$\hat{\beta}$: Indicates logistic regression coefficients; SE: standard error for estimates; sign: significance level;Exp($\hat{\beta}$): odds ratio ; 95% CI for $\hat{\beta}$: 95% confidence interval for logistic regression coefficients; the First Category of variables are References (see Table 13)

Under the logistic regression model of the above table 13, when the effect of other factor keep fixed, increasing age of teenagers' increases attending antenatal care by a factor of 2.045. A unit increases in marital status group married increase sattending antenatal care by a factor of 11.429 than that of the unmarried category. Similarly a unit increase in teenager's education level category certificate and above increase attending antenatal care by a factor of 10.462 than that of the uneducated category.

Moreover, a unit increases in teenager's parents education level category certificate and above increase attending antenatal care by a factor of 42 than that of the uneducated category. In the same way a unit increases in teenager's occupation category unemployed decrease attending antenatal care by a factor of 0.016 than that of the student category. Using mass media increase attending antenatal care by a factor of 29.57 than did not using mass media. Similarly a unit increase in teenager's economic status category middle increase attending antenatal care by a factor of 31.696 than that of the poor category. Using family planning increase attending antenatal care by a factor of 2.481 than non-users. Finally health status of child category unhealthy decrease attending antenatal careby a factor of 0.045 than category healthy.

Key Informants Guide	**Health Extension Workers and Gender Coordinator**	**Focus Group Discussion Guide**	**Teen Mothers**
What is the prevalence of adolescent teenage in the communities?	Parents especially mother marry her daughter at early age. Teenager believed that contraception was appropriate. But stemmed from their religious backgrounds. The level of teenage pregnancy is highest amongst the community. Rates of teenage pregnancies are higher in societies where it is traditional for girls to marry young and where they are encouraged to bear children as soon as they are able.	What are the social norms regarding teenage pregnancy in this area?	Teen pregnancy is a cultural battle ground in struggles over morality, education and family. Teens did not think their communities encouraged teen sex or pregnancy, but normative messages differed greatly, with either moral or practical rationalizations. Teenage pregnancies are associated with social issues, including lower educational levels and poverty.
What is cultural perspective of teenage pregnancy?	Cultural rules and practices that has contributed to increases in the rate of adolescent pregnancy. Teenage pregnancy is not accepted in our culture.	How do people relate to pregnant girls?	Teenage pregnancy in developed countries is usually outside of marriage and carries a social stigma. Adolescent pregnancy can also have negative social and economic effects on girls.

How do you think cultural practices and norms of this community could influence teenage pregnancy?	Teenage pregnancy is something our community frowns on and it is a shame for a family to have an adolescent unmarried girl become a mother. Teenage pregnancy is not acceptable in my village, it's a breach of the behavior code in our community.	What is cultural perspective of teenage pregnancy?	Low levels of education amongst the parents could be cited as a reason behind early motherhood. Religious beliefs could lead to teenage pregnancy The cultural norms of the community were denoting certain behaviors as acceptable by providing support and assistance to the teenagers.
How does teenage pregnancy and motherhood affect the school, community, women folks and society as a whole?	Teenage pregnancy and marriage minimize number of female students in a school. Community also loss active educated girls. While many girls who become mothers before completing schooling they may not be able to succeed academically. teen mothers failed to succeed with schooling because they lacked support to avoid the numerous disruptions to school attendance.	How do you cultural practices and norms of this community could influence teenage pregnancy?	Adolescent pregnancy is a multifaceted problem with grave consequences involving a higher incidence of physical risks to mother. Mother as a role model could be cited as a reason for early pregnancy.
Who should support the pregnant teenager and teenager mothers to thrive and how?	Husband, family, friends, school community should support pregnant teen mothers. Friends were very supportive. No one condemned them for their actions. Boyfriends responsible for early pregnancies. Family assistance minimized any disruption in the lives of the teenage mothers. Govt. provided assistance to teenage mothers. Minimized all types of financial problems. Baby's father assisted the teenage mothers with child support. Teachers very supportive at school. All forms of assistance available to ensure the teenager completed school on schedule.	How does teenage pregnancy and motherhood affect the school, community, women folks and society?	Teenage pregnancy increase high school female dropouts. Teen pregnancy and motherhood can influence younger siblings
Are there some forms of teenage support groups? Peer groups, community support groups, motherhood support groups?	Hidir for female age 15-25. Gender office in school. Chances for valued participation in socially and culturally stable communities.	What major stressors do teenagers face during pregnancy, delivery and after delivery?	Teen pregnancy has become an issue that educators and public policy makers are obliged to treat as a serious problem. Various participants in spite of support from friends, family and teachers had undergone stress, regret and trauma during their pregnancies, which had made them more mature as individuals.

How do clinicians receive and treat the pregnant adolescent and the teenage mother?	Health extension workers are responsible to treat pregnant teenagers' by giving reproductive health advice. Sex education programs for teenagers. Health extension workers can play a primary role in promoting, advocating for their infants.	What is the community's contribution to the welfare of pregnant teenagers?	In health extension clinic, attention has been given in explaining teen pregnancy. The society in which they were growing was not condemning teenage motherhood.
What measures are in place to encourage teenage access to reproductive health services	Encourage teen mother to take antenatal and post natal care. All of the young women were knowledgeable about contraceptives and their availability.	How is the teenager who wants to utilize reproductive health services?	Adolescents have special sexual and reproductive health needs. Many teenagers are not taught about methods of birth control and how to deal with peers who pressure them into having sex before they are ready. Many pregnant teenagers do not have any cognition of the central facts of sexuality.
		What is the user and provider relationship in terms of teenager reproductive health services?	People don't understand that there is a lot of help out there, you just have to ask for it and find it.
		What motivates the teenager to use available reproductive health services?	Youth-serving agencies and medical professionals recognize the important roles that parents play in the motivation of adolescents. Information on delaying the onset of an active sexual life, the use of modern contraceptive methods and the use of sexual and reproductive health services.

Table 14:- Focus Group Discussion and Key Informants Results

D. Discussion

The main purpose this study was to identify the determinants of teenage pregnancy and assess the pattern of use of antenatal care service utilization of teen mothers in Assosa Woreda.

➢ *Discussion on Teenage Pregnancy*

Marital status was significantly associated teenage pregnancies. This finding is in accordance with the studies (Raj A, 2013).The result of this study suggested that age at marriage was significant predictive factor for teenage pregnancies. The current study is consistent with other findings of (Gebremedhin, 2016).Accordingly the teenager's occupation also had significant association to teenage pregnancies. This result is consistent with (Cesare, 2016). Family planning also had significant association to teenage pregnancies. This result is consistent with (Gebremedhin, 2016; Cheesbrough *et al.*, 2002).The results of this study indicated that ethnicity was significant predictive factor for teenage pregnancies. This result is consistent with (Cesare, 2016; Gupta and Leite, 2009; Gebremedhin, 2016).

➢ *Discussion on Attending Antenatal Care*

The results of the study revealed that age has a significant association with attending antenatal care. Similar finding was obtained from (Darroch J*et al.*, 2016).Marital status was significantly associated attending antenatal care. This finding is in accordance with the studies (*Fukundo GZ et al., 2015*). Accordingly the teenager's education level and teenager's parents' education level also had significant association to with attending antenatal care.This result is also in accordance with the studies (Say *et al.*, 2007; Woldemicael, 2015).

The results of this study indicated that teenager's occupation was significant predictive factor for attending antenatal care. This result is consistent with (T Govender *et al., 2018*). Similarly the results of the study revealed that mass media has a significant association with attending antenatal care. Similar finding was obtained from (James S *et al., 2012*). Accordingly the economic status also had significant association to attending antenatal care. This result is consistent with ((Say *et al.*, 2007; Woldemicael, 2015; Aliy, 2008).Family planning also had significant association to attending antenatal care. This result is consistent with (Solarin I *et al.* 2013). Lastly history of child death also had

significant association to attending antenatal care. This result is consistent with (Yousuf F I *et al.*, 2010).

V. CONCLUSIONS

Out of the total 377 teenagers', about 47.75% were being pregnant or had given birth before 20 years and 45% were attending antenatal care. The result of logistic regression model showed that teenagers' with marital status group fiancée, age at marriage, teenager's occupation category unemployed, using family planning and ethnicity category Tigre were statistically significantly affect teenage pregnancy.

Similarly age, teenagers' with marital status group married, teenager's education category secondary and certificate& above ,teenager's parents education category certificate& above, teenager's occupation category unemployed, mass media, economic status, using family planning and history of child death were statistically significantly affect attending antenatal care. Goodness of the fit of logistic regression by means of statistical test was tested and indicates the model fit the data best.

Peer pressure, absence of discussion on sexuality with parents, loose follow up of school teachers and parents on the activity of students are factors predisposing adolescents to premarital sexual engagement. When adolescents get pregnancy, only less than 50% of them sought ANC service from health workers. Adolescent women in rural area are less privileged in getting reproductive health service than urban counterparts. Teenagers living in rural area are characterized by high rate of fertility, unmet need for contraception and early marriage but low rate of use of family planning and seeking ANC from health workers when becoming pregnant.

RECOMMENDATIONS

Based on the findings of the study the following recommendations are made:

- The ministry of health and policy makers and school should work on awareness of teenagers' about risk of early age pregnancies and reproductive health service.
- Currently Assosa Woreda is undergoing vast developmental activities which include expansion of school and health facility especially in rural areas. This has to be continued as it has direct impact on the reduction of fertility and promoting utilization of maternal health service.
- In the recently revised family law of Ethiopia, the legal age for marriage is 18 years or above for both boys and girls. But in Assosa Woreda significant proportions of them are getting marriage before the age of 18. So the prohibition of marriage before the legal age should be reinforced by the concerned body.
- Besides the legal enforcement of age at marriage, programs focused on increasing the opportunities for education and empowerment in decision-making for the young women should be considered, which are likely to result in delayed marriage and if pregnant will use existing maternal health service.
- To improve the utilization of family planning especially to the rural teenage woman appropriate behavioral change communication through all available media should be used. One of the possibilities could be building health extension workers capability to handle the family planning and other reproductive health needs of adolescents to provide user friendly service.
- School health programs need to be strengthened through incorporating sexual and reproductive health issues including ANC and family planning in the existing curriculum and use of school mini-media for dissemination of information.

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