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Original Article

Prevalence of Unplanned Pregnancy and associated risk factors among Pregnant Women in Ethiopia

Melkamu A. Zeru,

Department of Statistics, College of Sciences, Bahir Dar University, Bahir Dar, Ethiopia

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ABSTRACT

Introduction: Unplanned pregnancy is a public health problem that affects maternal and child health, including maternal death, abortion, and low birth weight. Consequently, the government established family planning for action to prevent and reduce the health problems for most disadvantaged women.
Objective: This study was conducted to examine the overall prevalence of unplanned pregnancy and its associated risk factors in Ethiopia.
Methods: A Population based cross-sectional study was conducted from Ethiopian 2016 demographic health survey data. A total of 3894 pregnant women were included in the study and the samples were selected trough multistage stratified cluster sampling. Uni-variate and multiple logistic regression analysis were used to identify factors associated with an unplanned pregnancy. Variables with p-value < 0.05 were identified as significant factors.
Results: Among 3894 understudy pregnant women, 31.02% (95% CI = 28.21-38.58 %) of pregnancies was unplanned. The analysis result revealed that women whose age ≤ 30 years [adjusted odds ratio(AOR) = 5.42, 95 % CI=2.38 - 12.34], women in rural [AOR =1.11, 95% CI=1.03 - 2.39], illiterate women [AOR =2.3,95% CI=2.02 - 4.09], women drinks alcohol [AOR =1.45,95% CI=1.31- 1.67], smoker women [AOR = 1.52, 95% CI 1.49 - 2.65],women chewing chat[AOR =1.66, 95% CI=1.66 1.18 - 2.33], unemployed women[AOR =4.97, 95%CI=1.31-12.38], poor economic level [AOR =8.42,95%CI=5.87- 14.39] and none-user contraceptive methods [AOR =1.7, 95% CI=1.14 – 3.87] were found to be associated with unplanned pregnancy.
Conclusion: The prevalence of unplanned pregnancy in the study area was 31.02%. The findings suggest that certain groups of women are at increased risk of unplanned pregnancy and would benefit from targeted family planning interventions.

Introduction

Unplanned pregnancy is a public health problem that affects maternal and child health, including maternal death, abortion, low birth weight, preterm birth and high

*.Corresponding Author: melkamu.ayana@gmail.com

infant mortality.[1, 2] It concerns in both developing and developed countries, because of its adverse social and health outcomes for mothers, children and family as a whole.[3] Worldwide, about 85 million annual pregnancies are unintended, of these pregnancies 38% were unplanned births that implies two in every five pregnancies are unplanned.[4] The impact is substantial costs to healthcare systems, social services as well as significant emotional distress to women, and their families.[4, 5] In recent years, scholars have started to criticize some fundamental assumptions made by demographic health surveys and fertility surveys in measuring the prevalence of unplanned pregnancy.[6]

Modern methods of contraception have a vital role in preventing unplanned pregnancies. Studies show that 85% of women who stopped using contraception became pregnant during the first year. Half of women had discontinued their contraceptive methods due to issues related to use of the method such as health concerns, side effects or inconvenience of use[7] between 20% and 40% of all births that occur in developing countries are unplanned that poses risk for family health in millions of women and children.[8] Unplanned pregnancies can result from a lack of contraceptive use, contraceptive failure and incorrect use of contraceptives.[9] Many studies had also shown that other variables can also influence the likelihood risk of unplanned pregnancies including sociodemographic and economic conditions[10-13] and similarly reproductive and environmental factors contribute their own impact.[14-16]

Sub Saharan Africa countries are also suffering from unplanned pregnancy.[17] In most African countries including Ethiopia, abortion remains both unauthorized and unsafe which is a leading cause of maternal death accounted for a global average of 1.3 % of pregnancy-related fatalities.[18] The rate of unplanned pregnancy was much higher in Eastern Africa than in the Northern, Southern and Western Africa, where the rate ranges between 56 and 83 per 1,000 women.[5]

In Ethiopia few studies were conducted on issues related to an unplanned pregnancy and they suggested that unplanned pregnancy is one of the main causes of maternal mortality.[19] An institution-based study conducted in Felege Hiwot hospital and Arba Minch, showed a prevalence of unplanned pregnancies was 39.5% [20] and 29.4%.[21]

About 35% of pregnancies in reproductive age where unplanned, this higher proportion of married women turned to induced abortion to avoid unplanned pregnancy.[22] The study on pregnancy surveillance in Kersa district confirms that 578(37.9%) were unplanned.[23]

Unplanned pregnancy is associated with an increased risk of problems for the mother and fetus. If a pregnancy is not planned before conception, a woman may not be in optimal health for childbearing and also women with an unplanned pregnancy could delay prenatal care that may affect the health of her child. Thus, the purpose of present study was to determine overall prevalence of unplanned pregnancy and its associated risk factors in Ethiopia.

Material and Methods

Current study was a population based cross-sectional study, used to assess factors that affect unplanned pregnancy among mother enrolled in Ethiopia demographic and health survey of 2016. Demographic and Health Surveys (DHS) are nationally-representative household surveys that provide data for a wide range of

monitoring and impact evaluation indicators in the areas of population, health, and nutrition. The specific survey data sample was obtained using multistage stratified cluster sampling. Ethiopia has 9 administrative regions. Each region was stratified into urban and rural areas, yielding of 18 sampling strata. Since the construction of a new sampling frame is likely to be too expensive, DHS surveys should use an adequate pre-existing sampling frame which is officially recognized. The data was collected from January 18, 2016, to June 27, 2016.[24] Data was obtained from Ethiopian demographic health survey (EDHS) by extracting variables and an essential information from the data set.
Since a simple random sampling is not feasible for a DHS, the sample size for a complex survey with clustering such of DHS can be calculated by using a design effect (Deft) and given by:

$$n = Deft^2\left(\frac{1/p - 1}{\alpha^2}\right)$$

Where, P is the proportion, α is standard error

The required sample size becomes 3894. The selection of the study subjects was based stratified sampling, typically in this study the two-level stratification was used that involves first stratifying the population by region at the first level and then by urban-rural within each region. After the total sample size has been estimated, sample elements were allocated to different regions and from each region those samples also allocate in urban and rural. This allocation is aimed at strengthening the sampling efficiency at the national level and reducing sampling errors.

Data analysis

Data entry, cleaning and coding were done using SPSS version 24. Chi-square test was used to test the association between unplanned pregnancy and each independent variable.
One problem of univariate analysis for predicting dependent variable based on single factor approach is, it ignores the chance of a collection of variables become an important predictor of the outcome when taken together. So, it is necessary to overcome the possibility of excluding variables at the univariate analysis, so that a univariate test with p-value less than 0.25 was used for selection of variables for the multivariate analysis. Multiple logistic regression was fitted by entering all variable with p-value < 0.25 in the univariate and adjusted odds ratio (AOR) with their 95 % confidence interval (95% CI) were determined to identify significant factors of unplanned pregnancy. Multivariate analysis with p-value < 0.05 was used to identify determinant factors of unplanned pregnancy. The Hosmer and Lemeshow test of goodness of fit was used to model diagnosis with p-value > 0.05 that provided a good fit for the statistical model.

Results

A total of 3894 women were enrolled. The average age of the study participants was 32.8 years with a standard deviation of ±5.3 years (32.8 ± 5.3, 95% CI= 22.4 - 43). Among 3894 pregnant women, 1208 (31.02%) confirmed that their pregnancy was unplanned while the remaining were planned pregnancies. Out of 1208 who had unplanned pregnancy 430(35.59%) women had age less than 35 years and 436(36.09%) were single, 541(44.79%) were married.
Out of the total unplanned pregnancy, 433(35.84%) were living in the urban area.

Based on the education status of those unplanned pregnant women, more than half, 874(72.35%) were illiterate. In the same expression, about 526(43.5%) women had a religion of orthodox and 425(35.2%) were Muslim while the remaining were Protestants. Based on the concern of economic level of unplanned pregnant, 650 (53.81%) women had poor economic status while only 207(17.65%) were rich and in concern of occupation, 229(18.95%) were unemployed. Furthermore, when we consider the behavioral condition of unplanned pregnant women, about 417(34.52%) were alcohol users, 391(32.38%) had the smoking habit, 359(29.72%) had chat chewing history and 394(32.62%) did not use a contraceptive method (Table 1).

The result shown in Table 1, indicates the variable age, education status, residence, occupation, religion, smoking, chat chewing, use of the contraceptive method and economic status had significant association with unplanned pregnancy ($p < 0.05$).

Since age cannot be experimentally control and have an impact on the study outcome as well it is causally related with the predictor of interest, so it is assumed as confounder variable. Therefore, multivariate analysis was performed with adjusting for age variable.

Women whose age was ≤ 30 years were 5.42 times more likely to had an unplanned pregnancy than those whose age was > 30 years [AOR = 5.42, 95 % CI = 2.38─12.34]. For the residence variable, women who live in rural were 1.1 times more likely to had unplanned pregnancy as compared with urban residents [AOR=1.1, 95% CI=0.03─2.39]. Similarly, women who were illiterate were 2.3 times more likely to had unplanned pregnancy as compared to the literate women [AOR=2.3, 95% CI= 0.022─4.93]. Based on occupation status women who was unemployed (including farmer, merchant, daily worker etc.) were 4.97 times more likely to had unplanned pregnancy as compared to the employed [AOR = 4.97, 95%CI = 1.31 - 12.38] and women who had poor economic status were 8.42 times as higher to get unplanned pregnancy as compared to the rich [AOR=8.42, 95%CI=5.87-14.39]. In behavioral related factors, women who drinks alcohol, smoking cigarette and women who chews chat were 1.45 times [AOR=1.45, 95% CI= 0.31-3.67], 1.52 times [AOR=1.52, 95% CI=1.59-1.65] and 1.66 times [AOR=1.66, CI=1.18 - 2.33] more likely to had unplanned pregnancy than women who did not drink alcohol, did not smoking cigarette and did not chewing chat, respectively. Women who did not use contraceptive methods were 1.7 times more likely to had unplanned pregnancies than women who had use contraceptive methods [AOR=1.7, 95% CI=0.14-1.87] (Table 2).

Discussion

The present study aimed to assess the prevalence and risk factors of unplanned pregnancy in Ethiopia using EDHS 2016 data. According to the findings of this study, the overall prevalence of unplanned pregnancy was 31.02% (95%CI = 28.21-38.58 %) which is consistent with the study conducted in Ethiopia.[10, 25] However, the finding of current study was lower than the studies conducted in different area of Ethiopia[8, 20, 23, 26] and the finding of the study in Tanzania.[27] The mentioned differences might be due to study time, sample size difference and socio-cultural characteristics as well as the difference in the availability and accessibility of maternal health services including family planning methods. Furthermore, the discrepancy of present study finding to that of a study in Tanzania may be

Table 1. Summary of Unplanned pregnancy by socio-demographic, medical and behavioral variables in Ethiopia

Variables	Pregnancy		Chi-square p - value
	Planned, n (%)	Unplanned, n (%)	
Age			
≤ 30 years	957(35.63)	430(35.59)	0.021*
> 30 years	1729(64.37)	778(64.41)	
Marital status			
Single	584(21.74)	436(36.09)	0.043*
Other	892(33.22)	231(19.12)	0.003*
Married	1210(45.04)	541(44.79)	
Residence			
Rural	834(34.52)	433(35.84)	0.06
Urban	1582(65.48)	775(64.16)	
Religion			
Muslim	631(23.49)	425(35.2)	0.010*
Protestant	594(22.12)	257(21.3)	0.261
Orthodox	1461(54.39)	526(43.5)	
Economic status			
Poor	379(14.11)	650(53.81)	0.001*
Medium	1578(58.75)	351(29.06)	
Rich	729(27.14)	207(17.13)	
Education status			
Illiterate	1831(68.17)	874(72.35)	0.004*
Literate	855(31.83)	334(27.65)	
Alcohol Use			
Yes	761(28.33)	417(34.52)	0.025*
No	1925(71.67)	791(65.48)	
Smoking			
Yes	816(30.38)	391(32.38)	0.047*
No	1870(69.62)	817(67.62)	
Chat chewing			
Yes	624(23.23)	359(29.72)	0.007*
No	2062(76.77)	849(70.28)	
Occupation			
Employed	285(10.61)	229(18.95)	0.023*
Unemployed	2401(89.39)	979(81.06)	
Use contraceptive			
Yes	85(64.39)	394(32.62)	
No	47(35.61)	814(67.38)	0.002*

Note: * refers significance at 5%

Table 2. Univariate and multivariate analysis of unplanned pregnancy among pregnant women in Ethiopia

Variables	COR (95% CI)	P-value	AOR (95% CI)	P-value
Age				
≤ 30 years	3.7(1.4 - 5.7)	0.031*	5.42(2.38 - 12.34)	0.004*
> 30 years	-		-	
Marital status				
Single	0.85(0.38 - 0.68)	0.853	5.77(1.27 - 26.07)	0.001*
Other	1.63(0.71 - 1.59)	0.219	5.33(1.62 - 17.53)	0.024*
Married	1		1	
Residence				
Rural	2.1(0.55 - 5.07)	0.024*	1.11(0.03 - 2.39)	0.046*
Urban	1		1	
Religion				
Muslim	1.11 (1.53 - 2.31)	0.011*	7.82 (1.96 - 3.20)	0.007*
Protestant	1.61 (0.69 - 3.74)	0.24	3.1 (3.76 - 8.44)	0.025*
Orthodox	1		1	
Economic status				
Poor	3.53(1.24-5.31)	0.008*	8.42(5.87-14.39)	0.00*
Medium	1.86(1.98-3.17)	0.07	4.16(3.86-7.09)	0.027*
Rich	1		1	
Education status				
Illiterate	1.9(1.47 -2.75)	0.001*	2.3(0.022 – 4.93)	0.015*
Literate	1		1	
Alcohol Use				
Yes	2.77(1.01 - 1.42)	0.082	1.45 (0.31 - 3.67)	0.005*
No	1		1	
Smoking				
Yes	1.29(1.54 - 1.81)	0.003*	1.52 (1.59 - 1.65)	0.018*
No	1		1	
Chat chewing				
Yes	1.50 (0.82 - 2.72)	0.17	1.66 (1.18 - 2.33)	0.026*
No	1		1	
Occupation				
Employed	1.73 (0.7 - 3.9)	0.16	4.97(1.31 - 12.38)	0.037*
Unemployed	1		1	
Use contraceptive				
Yes	1		1	
No	2.83(1.54 - 5.81)	0.008*	1.7(0.14 - 1.87)	0.000*
	Hosmer and Lemeshow test			0.834**

Note: * represents significant at 5%; ** represents the model has a good fit at 5%; COR: Cured Odds Ratio, AOR: Adjusted Odds Ratio

due to Tanzania is more developed country than Ethiopia with accessible maternal health service including family planning.

In current study marital status is another most important variable which is significantly associated with unplanned pregnancy. That is single mothers were more likely to report having an unplanned pregnancy as compared to married mothers. This finding is similar to studies done in Ethiopia [32, 33] and the study done in Kenya.[16] The reason behind this are, single women have higher probability in participating of sexual activities and culture also cause a single women on use of contraceptive because of sex is not recommended before the women is married.

Religion is also another important variable which significantly associated with unplanned pregnancy. In this study, Muslim women were more likely to have unplanned pregnancy as compared to orthodox women. This finding is similar to studies done in Ethiopia.[34-36] This association might be contraceptive usage is strongly not encouraged in Muslim culture and Muslim women ended to have higher fertility and greater decision-making power over their wellbeing.

The other risk factor of unplanned pregnancy is age. In present study, younger aged women were more exposed for unplanned pregnancy (age <30 years) than older aged. This finding is in line with the study result of.[21] The most common reasons raised by women for exposed of unplanned pregnancy is: i) They are not considering themselves as fertile in the younger age time, ii) Existence of gaps in creating awareness of reproductive aged women, iii) Unaware of the proper use of modern methods of contraception.

The author noticed that unplanned pregnancy occurring among women in rural was higher than urban counterparts and this is consistent evidence with.[37, 38] One reason for the rural-urban differences of unplanned pregnancies is, in rural areas there is a low possibility of access to contraceptives as compared to urban areas. Even thought, there is access of contraceptives, constraints such as socio-cultural norms and poor spousal communication influence.

Similar to other study done in Ethiopia[39] and study in central India[40], women who did not intend to use contraception were more likely to experience unplanned pregnancy. The possible reason for this finding could be linked to the relationship between intention to use contraceptives and use of contraceptives. So that, having no intention to use contraception implies, women are less likely to use contraceptives and have higher chances of experiencing unplanned pregnancies.

The lowest proportion of unplanned pregnancy was observed from literate women and women with higher wealth status. Similar findings have been reported in Ethiopia[29, 32] and Japan[28]. Education is conceived as a powerful individual level predictor for human actions, which has the potential to raise women's consciousness about the implications of unplanned pregnancies and possible contraceptive methods which educated women are probably taking its advantage.

Moreover, the study finding provides strong evidence that women who drink alcohol and low level of income had high rate of an unplanned pregnancy which is similar to the finding of other studies.[29, 30, 31]

Conclusion

The high level of unplanned pregnancies is an indicator of the state of women's reproductive health services at national level. The findings suggest that certain groups of women are at

increased risk of unplanned pregnancy and would benefit from targeted family planning interventions.

Limitation of the Study

According to DHS in Ethiopia, data is collected in five years interval, it is doubtful if there are increasing or decreasing of unplanned pregnancy within the five-year and the second limitation was all pregnant women were not included in the study.

Availability of data

The data set used for this study is available from the EDHS website, http://www.dhsmeasure

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