

Unintended Pregnancy and Associated Factors among Ethiopian Women

Akberet Lemlem^{1*}, Sintayehu Abate Temesgen¹, Ibrahim Kedir¹, Alemnesh Petros¹, Tesfaye Hailu² and Letekirstos GebreEgziabher²

¹Ethiopian Public Health Institute,

²Mekelle University College of Health Sciences

Corresponding author: merrryaku2010@yahoo.com

Abstract

Background: Unintended pregnancy is a pregnancy that is either mistimed or unwanted at the time of conception. From 210 million pregnancies that occur each year globally, 80 million are unintended which 42 million results in induced abortions.

Objective: To determine the magnitude and identify associated factors of unintended pregnancy among 15-49 years Ethiopian women who had a live birth within five years preceding the survey.

Method: Ethiopia Demographic and Health Survey 2011 data was used. A total of 7759 women were included in the analysis. Association between unintended pregnancy and the categorical independent variables was assessed using Bivariate and Multivariable logistic regression analysis at 95% confidence level by STATA ver.11.0 statistical software.

Result: Approximately one fourth of the women had unintended pregnancy. Women in the age group of 15-24 (AOR=2.18; 95%CI: 1.737, 2.732), never in union (AOR=6.85; 95%CI: (3.758, 12.507), having more than 4 children AOR=2.25; 95%CI: 1.832, 2.769) and who know modern contraception method (AOR=2.37; 95%CI: 1.588, 3.525) were more likely to have had unintended pregnancy.

Conclusion: Unintended pregnancy is still a public health problem in Ethiopia that can lead to unsafe abortion and higher child and maternal mortality. Education should be given on outcomes of unintended pregnancy and on the availability, access and use of family planning.

Introduction

Unintended pregnancy is a pregnancy that is either mistimed or unwanted at the time of conception (Amyo et al. 2010; Santelli et al. 2007). It remains a common public health problem worldwide. Globally, about 80 million unintended pregnancies are estimated from 210 million pregnancies which occur each year; 22 million of these are unsafe abortion and 18.5 million of these cases occur in developing countries (WHO 2008; WHO 2011; UNDP 2012).

Approximately 14 million unintended pregnancies occur every year in sub-Saharan Africa (Hubacher et al. 2008). In Ethiopia, an estimated 42% of all pregnancies were unintended. The outcome of this unintended pregnancy was 14% mistimed birth, 12% unwanted birth, 10% ending in induced abortion (Guttmacher 2010). According to Ethiopian Demographic Health Survey (EDHS) 2005, thirty five percent of the pregnancies were unintended (CSA 2006). Unintended pregnancy is the root cause of abortion and also causes to numerous maternal and child health problems like low birth weight, infant mortality, childhood mental and physically health problems. Not using contraception, inconsistent or incorrect use of contraception, contraceptive failure, nonconsensual sex, socio-economic and socio-demographic factors are reported to affect the prevalence of unintended pregnancy (Guttmacher

2013; Hoodraych 2012; Maria 2013; Seged et al. 2007). Even though facility and community based studies related to unintended pregnancy were done in in different areas of the country, contributing factors for this were not identified well. Therefore, this study was aimed to identify the major factors associated with unintended pregnancy in Ethiopia.

Materials and Methods

The data for the study was obtained from the third EDHS 2011 which was conducted by (CSA). It was a cross-sectional and nationwide sample survey which was designed to collect information by interviewing reproductive age women regarding to their fertility desire and family planning. Stratified sampling procedure was achieved by separating the urban and rural areas of each region. A total of 624 EAs, 187 urban and 437 rural areas were designated and from each EA 30 households were selected (www.infoplease.com/country/Ethiopia). Household, women's, and men's questionnaires were used to collect information and individual EDHS data set record found in the MEASURE DHS website was used. Variables with greater than 5% missing values/not applicable were excluded; categorization and re-categorization for continuous and categorical variables were applied. Socio-demographic characteristics were described in descriptive statistics. Bivariate and Multivariable logistic regression was

used to show the magnitude and direction of association. P-value less than 0.05 were considered for statistical significance. Variance Inflation Factor (VIF) with value less than 10 considered as no Multicollinearity between variables (Hosmer and Lemeshow 2000). Then model goodness of fit and model prediction power was checked by Hosmer-Lemeshow statistic and Receiver Operating Characteristics (ROC) Curve respectively. Confounders and interaction effect was checked by deviance statistics using likelihood ratio test. Finally the model specification was checked by link test. STATA ver.11 statistical software was used for all kinds of analysis. Ethical clearance and permission to use the EDHS 2011 data were obtained from the Ethical Review Committees of Mekelle University and Measure DHS project online respectively.

Results

From a total 7759 women's who had a live birth, 1999 (25.76%) of them had unintended pregnancy, 6247(80.51%) were live in rural areas, 7041 (90.75%) were currently in union, 3796(48.92%) were found within the age group between 25-35years, 3358(43.30%) were Muslim and 3187(41.08%) women had 0-2 children were (Table1). The highest percentage of women was none educated 5180 (66.76%) and not employed 5306 (68.47%). Majority of women 7307(94.17%) knew modern contraceptive method and above half 4625 (59.61%) of the women have never used any contraceptive method. Women who had big problem of reaching the health facility were 5559(71.71%). More than half of women 4288(55.26%) had no ANC visit during their pregnancy (Table 2).

Table 1. Socio-demographic characteristics of women aged 15-49, EDHS 2011

Variables	Categories	Frequency	Percentage
Place of residence (7759)	Urban	1512	19.49
	Rural	6247	80.51
Region (7759)	Tigray	847	10.92
	Afar	713	9.19
	Amhara	965	12.44
	Oromia	1100	14.18
	Somalia	559	7.20
	Benshangul-Gumuz	673	8.67
	SNNP	1052	13.56
	Gambela	607	7.82
	Harari	440	5.67
	Dire-Dawa	456	5.88
	Addis-Ababa	347	4.47
Women age (7759)	15-24	2012	25.93
	25-34	3796	48.92
	35-49	1951	25.15
Husband age (7015)	<=30	2396	34.16
	31-40	2741	39.07
	>=41	1878	26.77
Number of living children (7759)	0-2	3187	41.08
	3-4	2306	29.72
	>4	2266	29.20
Religion (7755)	Muslim	3358	43.30
	Orthodox	2693	34.73
	Protestant	1478	19.06
	Others	226	2.91
Marital status 7759	currently In union	7041	90.75
	Formerly in union	652	8.40
	Never in union	66	0.85
Husband desire for children 7015	Both wants the same	2967	42.30
	Wants different	2254	32.13
	Don't know	1794	25.57

Due to excluding of missed value or not applicable variables, some columns do not added up to 7759.

Table 2: Socio-economic characteristics and health related information of women aged 15-49, EDHS 2011

Variables	Categories	Frequency	Percentage
Wealth index (7759)	Poor	3631	46.80
	Middle	1239	15.97
	Rich	2889	37.23
Currently employed (7749)	No	5306	68.47
	Yes	2443	31.53
Women education (7759)	No education	5180	66.76
	Primary	2094	26.99
	Sec/higher	485	6.25
Unmet need (77490)	No	3150	40.65
	Yes	2010	25.94
	Using contraceptive	1892	24.42
	Others	697	8.99
Knowledge of any contraceptive method (7759)	Knows no method	420	5.41
	Knows only traditional	32	0.42
	Knows modern	7307	94.17
Ever used any contraceptive method (7759)	No	4625	59.61
	Yes	3134	40.39
Exposure to Radio/TV (7759)	No	5935	76.49
	Yes	1824	23.51
Distance to health facility (7752)	Big problem	5559	71.71
	Not big problem	2193	28.29
ANC visit (7759)	No	4288	55.26
	Yes	3471	44.74

Associated factors of unintended pregnancy: The factors associated with unintended pregnancy were number of living children, age, employment, marital status, and women educational level, ever used any contraceptive method, knowledge of any contraceptive method, and unmet need. Women in the age group of 15-24 were 2.18 times more likely (AOR=2.18, 95%CI; 1.737, 2.732) to have unintended pregnancy compared to those found in the age group of 35-49. Having more than 4 children was 2.25 times (AOR=2.25, 95%CI; 1.832, 2.769) more likely to have had unintended pregnancy compared to having 0-2 children. Women's who were never in union were 6.85 times (AOR=6.85, 95%CI; 3.758, 12.507) more likely to have had unintended pregnancy than those currently in union. Uneducated women 39% (AOR=1.39, 95%CI; 1.073, 1.824) and primary 39% (AOR=1.39, 95%CI; 1.071, 1.797) were more likely to have had unintended pregnancy compared to those have secondary/higher education. Regarding to the contraceptives use, those who ever used any contraceptive method were 35% more likely to have had unintended pregnancy compared to never used any contraceptive method (AOR=1.35, 95%CI; 1.132, 1.620). Women's who had knowledge of modern contraceptive were 2.37 times more likely to have had

unintended pregnancy than those who knew no method (AOR=2.37, 95%CI; 1.588, 3.525). Women who had met need were 97% (AOR=0.03, 95%CI; 0.028, 0.044) less likely to had unintended pregnancy compared to those had unmet need.

Final fitting model information

Model prediction power

The prediction power of the model was (ROC=82.41%), which indicate model with these variables have very high power to predict unintended pregnancy.

Model Goodness of fit

The Hosmer-Lemeshow test shows insignificant (p-value=0.1524)

Multicollinearity

Multi-collinearity test statistics result shows no multi-collinearity (VIF=1.33).

Model specification

link test result of -hat square is non significant (P-value=0.117)

Confounder and interaction

Age and number of living children was confounded to each other and age was included in the final model. There were found no interacted variables.

Table 3: Factors associated with unintended pregnancy in 15-49 years age women, EDHS 2011

Variables		COR	95%CI	AOR	95%CI
Place of residence	Rural	1			
	Urban	1.18	1.045,1.343**	-	-
Region	Addis-Ababa	1		1	
	Tigray	0.51	0.384,0.677***	0.59	0.426,0.817**
Pv<0.001	Afar	0.17	0.119,0.244***	0.39	0.260,0.592***
	Amhara	1.09	0.838,1.416	1.17	0.864,1.599
	Oromia	1.28	0.989,1.651	1.33	0.987,1.793
	Somalia	0.15	0.104,0.231***	0.23	0.150,0.369***
	Benshangul-Gumuz	0.80	0.603,1.060	0.97	0.695,1.350
	SNNP	0.78	0.601,1.018	0.84	0.619,1.146
	Gambela	0.70	0.521,0.933*	1.03	0.737,1.448
	Harari	1.10	0.815,1.483	1.10	0.786,1.536
	Dire-Dawa	0.81	0.598,1.101	0.89	0.634,1.260
Number of living children	0-2	1		1	
	3-4	1.03	0.913,1.173	1.51	1.271,1.798***
	>4	1.37	1.211,1.544***	2.25	1.832,2.769***
Age	35-49	1		1	
	15-24	0.99	0.859,1.136	2.18	1.737,2.732***
	25-34	0.84	0.748,0.959**	1.24	1.057,1.474**
Religion	Muslim	1			
	Orthodox	1.70	1.510,1.905***	-	-
	Protestant	1.32	1.145,1.523***	-	-
	Others	1.41	1.042,1.913*	-	-
	Currently in union	1		1	
Marital status	Formerly in union	1.52	1.284,1.811***	1.39	1.025,1.897*
	Never in union	7.56	4.428, 12.924***	6.85	3.758,12.507***
Women education	Sec/higher	1		1	
	No education	0.99	0.801,1.239	1.39	1.073,1.824*
	Primary	1.42	1.132,1.787**	1.39	1.071,1.797*
Husband desire for children	Both wants same	1			
	Wants different	0.98	0.866, 1.114	-	-
	Don't know	0.82	0.720,0.950**	-	-
Wealth index	Poor	1		1	
	Middle	1.58	1.362,1.826***	1.05	0.883,1.252
	Rich	1.68	1.505,1.886***	1.19	1.024,1.390*
Currently employed	No	1		1	
	Yes	1.55	1.394,1.725***	1.22	1.074,1.384**
Knowledge of any contraceptive	Knows no method	1			
	Knows traditional	1.07	0.311, 3.684	1.51	0.335,6.824
	Knows modern	3.79	2.695, 5.334***	2.37	1.588,3.525***
Ever used any contraceptive	No	1		1	
	Yes	1.92	1.734,2.133***	1.35	1.132,1.620***
Unmet need	Yes	1		1	
	Using contraceptive	0.55	0.481,0.623***	0.38	0.315,0.461***
	No	0.03	0.025,0.039***	0.03	0.028,0.044***
	Others	0.50	0.412,0.592***	0.37	0.267,0.505***
Distance to health facility	Big problem	1			
	Not a big problem	1.14	1.028,1.284*	-	-

COR- crude odds ratio, AOR-adjusted odds ratio, CI-confidence interval, 1-reference

*P-value<0.05, ** P-value<0.01, *** P-value<0.001, Pv-the overall significance- a variable with different significance categories, overall significance was calculated.

Discussion

In this study, 25.76% of Ethiopian women had unintended pregnancy which is similar with studies done in Kenya (24%) and Eastern Ethiopia (27.9%) (Lawrence et al. 2013; Kassa et al. 2012). Study in

Harari (33.3%) and Jimma (39%) showed higher prevalence than this study (Solomon and Mesganaw 2006; Dibaba 2010). This could be underestimated because the respondent may change their intention to their previous pregnancy after they have given birth or

may be not interested to report having unintended pregnancy in the current study.

Number of living children, marital status, age and education were significantly associated factors which contribute to had unintended pregnancy according to the current study. The more children the women had; the more likely to have unintended pregnancy. This is similar with findings in Ecuador and Jimma (Miguel and Isabel 2010; Dibaba 2010). Never-in-union women were more likely to have unintended pregnancy which is in line with studies from New Zealand, Ecuador and Harari Ethiopia that showed being single women were more likely than married to have an unintended pregnancy (Amin et al. 2009, Miguel and Isabel 2011; and Solomon and Mesganaw 2006). Moreover, similar finding was found in Kenya, in which currently married and formerly married were less likely to experience unintended pregnancy compared to never-in-union (Lawrwnce et al. 2013). Women within 15-24 years age group were report their pregnancy as unintended which was consistent with findings in Kenya and Harari in which teenagers were more likely to had unintended pregnancy (Lawrwnce et al. 2013; Solomon and Mesganaw 2006).

Women with no education and primary education level were more likely to have unintended pregnancy which is similar with the studies done in Ecuador (Miguel and Isabel 2011) and in Harari Ethiopia, in which unintended pregnancy decreases as education level increases (Solomon and Mesganaw 2006) but a study conducted in Bangladesh showed the insignificant effect of education for unintended pregnancy (Kemal and Islam 2011).

Women who had knowledge of modern contraceptive, unmet need and ever used any contraceptive method were also revealed as factors for unintended pregnancy. This finding is supported by Bangladesh in which women who ever used modern methods were more likely to have had unintended pregnancy (Kemal and Islam 2011) but opposite to a study conducted in Nepal which showed that women who had higher level of knowledge of FP method were less likely to have had unintended pregnancy (Adhikari et al. 2009). The difference could be due to use of different measurements to explain knowledge.

Conclusion and Recommendation

Approximately one fourth of the respondent had unintended pregnancy and this shows that unintended pregnancy is still a public health problem in Ethiopia that can lead to unsafe abortion and higher child and maternal mortality. Having more than four children, never in union, being in the age group of 15-24 years, being uneducated, ever used any contraceptive method, having knowledge of modern contraceptive

methods and unmet need for contraception were the most risk groups to have had unintended pregnancy. Incessant education should be provided on the use of family planning and outcomes of unintended pregnancy.

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