

Determinants of Abortion among Youth Seeking Reproductive Health Care in Selected Health Facilities, in Addis Ababa, Ethiopia



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Abstract

Background: Globally an estimated 80 million unintended pregnancies, both mistimed and unwanted, occur each year. Unintended pregnancy and births have grave consequences to the mother and family and are global social and health burdens. In Ethiopia, hundreds die in health facilities each year from abortion-related complications, but many more suffer from injuries or illness related to unsafe procedures. Cognizant of these facts and with the intent to reduce maternal death due to unsafe abortion, the Ethiopian government had revised the abortion law in 2005. The national data in Ethiopia showed that about 42% of pregnancies were unintended and the annual abortion rate was 23 per 1,000 women aged 15-44 years in 2008. Thus, it is important to assess the risk factors that predisposes youths to induced abortion in order to design a sound health program for reducing unintended pregnancy and for betterment of maternal health.

Objective: To identify the main determinants of abortion in women of age 15-24 attending Sexual and Reproductive Health clinics in Addis Ababa.

Methods: Descriptive unmatched case-control study was conducted in selected health facilities in Addis Ababa. Cases were women of age 15-24 seeking an induced abortion service and controls were women of age 15-24 that seek ANC service in the clinics. A total of 330 women (110 cases and 220 controls) were studied. Chi-square test and logistic regression analysis were conducted to determine association using SPSS Version 20 after entering data using Epi Info Version 7.1

Result: This study showed that married young women are at lower risk of seeking abortion service than single young women (never married, divorced, widowed) AOR 0.04 (95%CI 0.015-0.13) P <0.001. Use of at least one method of modern contraceptive is also found to be protective factor for young women from having an induced abortion. Young women not using any method have four times higher odds of seeking induced abortion than those using at least one method (AOR 4.3 CI 1.05-17.7 p=0.043). Unintended pregnancy is a determinant that predisposes young women for seeking an abortion service (AOR 33.1 CI 12.5-87.5) p<0.001). It is concluded that young single women who are not using at least one method of contraceptives and those young women exposed to unwanted pregnancy are highly likely to resort to abortion regardless of their faith, belief and attitude towards abortion.

Background

In recent years, the reduction of maternal mortality and morbidity has been a major topic in many international symposia and summits. Consequently, several countries committed themselves towards the achievement of the Millennium Development Goal 5, which aimed at reducing maternal mortality by three-quarters by 2015. Although improvements have been reported in mothers' survival, the World Health Organization still estimated that many women (287,000 in 2010) continue to die worldwide from various causes related to pregnancy and childbirth [1].

Each year, an estimated 210 million women throughout the world become pregnant and about one in five of them resort to abortion. Out of 46 million abortions performed annually, 19 million are estimated to be unsafe [2]. Further lowering rates of adolescent pregnancy will be central to reducing maternal mortality and to improving child survival, since the younger the mother, the higher the mortality rate among newborns. This has been one of the important achievements in adolescent health of the past two decades- significant reductions in adolescent pregnancy rates in a number of countries [1].

Pregnancy has to be really very unwanted to lead a woman to undergo an abortion. No woman takes pleasure in having an abortion. For some women abortion may cause little stress, but for the majority of women it is very disturbing experiences that they would much prefer to avoid. In fact, many women who were interviewed following a voluntary termination of pregnancy commented that they had opposed abortion before they found themselves facing the choice to abort. Studies show that many reasons for deciding to terminate pregnancy are fairly constant worldwide, although the prevalence of one reason or another may vary from one society to another [3].

Adolescent maternal mortality and morbidity represent a substantial public health problem at the global level. Adolescents who are 15-19 years of age are twice as likely to die during pregnancy or child birth compared to women over 20 years of age. An estimated 2.0-4.4 million adolescents in developing countries undergo unsafe abortions each year. Additionally, adolescent mothers are more likely to have low birth weight babies who are at risk of malnourishment and poor development [4]. WHO report in Algeria, Bangladesh, Ethiopia, Indonesia and Nigeria showed that the risk of dying from complications related to pregnancy or childbirth is two times higher for those aged 15-19 than for women in their mid-twenties [4].

Studies of abortion incidence for the different regions in Ethiopia have shown that the incidence in the capital city, Addis Ababa, is high which is consistent with its extremely low TFR (1.4 in 2005), and desired family size 1.2 (in 2005). Women in Addis Ababa and other urban areas are delaying marriage into their 20s, probably in response to adverse economic conditions. This delay in marriage may result in increased sexual activity among unmarried young women, raising their risk of unintended pregnancy as well as abortion, given that childbearing outside of marriage is highly stigmatized. It is also indicated that on a nationally representative survey conducted in Ethiopia in 2008 it was revealed that an estimated 382,000 induced abortions were performed and 52,600 women were treated for complications of abortion. The annual abortion rate was 23 per 1,000 women aged 15-44 years and the abortion ratio was 13 per 100 live births, about 42% of pregnancies were unintended, and the unintended pregnancy rate was 101 per 1,000 women [5].

The aim of this paper is therefore, to present the findings on the determinants of abortion among young women of 15-24 age groups on selected health facilities in Addis Ababa. The study had revealed factors contributing to abortion among youth of age between 15-24 that are clients seeking services in selected SRH clinics in Addis Ababa. The knowledge obtained on the determinants of abortions can add on the existing body of knowledge to policy makers and to health care workers. Thus, the findings of this study could help to outline specific priorities aimed at eliciting local evidence-based solutions geared towards prevention of unwanted pregnancies, and induced abortion in adolescents and young women of age 15-24.

Methods

Study setting

The study is conducted in Addis Ababa, the largest city in Ethiopia and the seat of the Federal Government that lies on the central plateau, 90 north of the Equator. The city is located at the heart of the country, at an altitude ranging from 2,100 meters at Akaki in the south to 3,000 meters at Entoto Hill in the north [6]. Based on the 2014 figures from the Central Statistical Agency (CSA) of Ethiopia, Addis Ababa has an estimated total population of 3,194,000 consisting of 1,679,000 men and 1,515,000 women. According to the EMDHS 2014, the national proportion of youth women population of age 15-24 consists 27.1% of the total women of age 15-49. And 5% of women 15-49 age lives in Addis Ababa. The current total fertility rate in Addis Ababa (TFR) is 1.7% and life expectancy 69.1 years for female [7,8]

Study design and period

This is a quantitative, unmatched, facility based case-control study that has been carried out in selected SRH facilities in Addis Ababa, Ethiopia. Data was collected using an interviewer-administered closed-ended questionnaire. Cases were women of age 15-24, that are seeking comprehensive abortion care (CAC) service and controls were women that are 15-24 age and seeking Antenatal Care (ANC) services. The study was done from May to June 2015.

Study population

The study population comprises of two groups of women (cases and controls) who were seeking health care at the MSI clinics in Addis Ababa and are all women of age 15-24 who are receiving reproductive health services at MSI SRH clinics and who fulfill the inclusion criteria. The inclusion criteria for cases: Women of age 15-24 coming to the facility for induced abortion services from the start date of the study have been recruited for the study prospectively as cases. Inclusion for Controls: All women of age 15-24 that came to the health facility for ANC services from the start date of the study and who had volunteered for the study and who are less or equal to 28th week of gestational age LNMP were recruited as controls.

The exclusion criteria for cases: women attending the selected sexual and reproductive health clinics with Spontaneous abortion were excluded and if the women are: very sick, mentally handicapped and refusals have also been excluded from the study.

The exclusion for controls: women attending the selected sexual and reproductive health clinics were excluded when they are: very sick patient, and also women whose gestational age was above 28 week LMP, mental handicapped and refusals, were excluded from the study.

Sampling

Sample size was determined using Open-Epi version 3 online sample size calculators, the result of the sample

size calculation for unmatched Case- Control study with the following assumptions: two- sided confidence level (1-alpha), and 80% power, and a 1:2 case to control ratio was considered. The hypothetical proportion of controls to the main exposure variable was 26% and the hypothetical proportion of cases to the exposure was 42%.Accordingly, the calculated sample size for cases is 110 and the size for the controls is 220, hence the total number for the sample size become 330 total.

Data Collection Tool & Quality Control

The modified structured questionnaires were administered during a face to face interview. Three registered midwife nurses (2 females, 1 male) with prior data collection experience were recruited and given one-day training. Cases were identified as consecutive women fulfilling the inclusion criteria from the starting day of the study (May, 2015) in the selected health facilities and the next women that seek ANC services were selected after she has received the ANC service as a control. Verbal consent of the women was asked first by the data collector also the interviewer explained more on the purpose of the study. The data were collected during all the working days of the health facilities. The data collection tool was pre-tested in adjacent non selected health facilities on 20 (6%) women (10 cases and 10 controls) and appropriate modification were incorporated based on the result of the pre-test.

During Data Entry

Data was checked whether they are correctly entered by data clerk by an independent person and checked for agreement with computer verification. Data was entered using Epi-info Ver.6

After data entry

Data has been checked for completeness, accuracy and consistency on every day basis by assigned supervisor, and the data were also checked for no missing, impossible or anomalous values by performing statistical summaries. Moreover, outliers were checked by graphical representation such as normal probability plots and scatter plots.

Data processing and analysis

Data Analysis: The data analysis was conducted using Statistical Package for Social Science software (SPSS) version 20. The analysis began with data exploration to see missing values, to check impossible or implausible data and outliers. Descriptive analysis was performed to assess the status of core indicators socio-economic status, knowledge, attitude and belief. Also a bivariate analysis was performed to see the presence and strength of association of variables using binary logistic regression, odds ratio was used as measure of association (name of the variables are stated). When the binary-logistic regression was run to investigate the effect of each of these variables on the odds of induced abortion those variables that emerged with a P-value of 0.1 or less were included in the multiple logistic regression model. Multivariable analysis using SPSS had then been performed to see if there was any interaction between variables

and also to determine the strength and statistical significance of the association between the determinant variables. In as much as possible the data analysis was disaggregated by determinant variables to see the association.

Ethical considerations

As the issue of abortion is very sensitive, careful ethical considerations was employed by the research team and as such all the key ethical principles such as respect, informed consent, beneficence, non-maleficance, veracity and justice was adhered. Ethical approval was obtained from Jima University, ethical review board.

Further ethical approval was also granted from Marries tops International Ethiopia, MSI management. Verbal consent was received from each study participant after a standard consent form was read for each Table 1.

Table 1: Socio demographic characteristics of cases and controls of induced abortion in women of age 15-24 in Addis Ababa.

Characteristic	Frequency (%)		
	Cases (%)	Controls (%)	P-value
Age Years	(n=110)	(n=220)	
15-19	16(14.5)	14(6.36)	
20-24	94(85.5)	206(93.64)	0.018
Ethnicity			
Amhara	33(30.0)	79(35.9)	
Tigray	19(17.3)	46(20.9)	
Oromo	35(31.8)	61(27.7)	0.335
SNNP	22(20.0)	34(15.5)	
Religion			
Orthodox	85(77.3)	110(50.0)	
Catholic	3(2.7)	20(9.1)	
Protestant	9(8.2)	49(22.3)	0.99
Muslim	13(11.8)	35(15.9)	
others	0	6(2.7)	
Employed	76(69.1)	166(75.5)	
unemployed	7(6.4)	30(13.6)	<0.001
Attending school	14(12.7)	2(0.9)	
House wife	6(5.5)	16(7.3)	
others	7(6.4)	6(2.7)	
Education Level			
No formal education	4(3.64)	5(2.27)	
Primary education	20(18.18)	8(3.64)	0.15

Secondary education	41(37.27)	110(50.0)	
above secondary	45(40.31)	97(44.1)	
Residence			
A.A City Admin	105(95.5)	220(100.0)	
Outside of A.A	5(4.5)	0	

Results

Socio demographic characteristics

A total of 330 female youths aged 15-24 years have participated in the study. The socio demographic characteristics

of the respondents are presented in Table 2. The age of study participants ranges from 17-24 years and the mean age of overall respondents were 22.45±1.77 years, the mean age of the cases was 21.85±1.94 years, and the mean age of controls was 22.75±1.6 years. More than three fourth (85.5%) of the cases were aged 20-24 years, and only 16 (14.5 %) were in their late teens. Likewise, the majority (93.6%) of the control subjects were between 20-24 years. The age profile indicated that induced abortion peaked among women in their early twenties and tapered off in the teens. The mean age for the first sexual intercourse was 18.74 years SD+1.92 (19.12+2.06 for cases and 18.55+1.8 for controls) the minimum age for sexual debut for both the cases and controls was found to be 14 years.

Table 2: Predisposing factors for induced abortion in women of age 15-24 in Addis Ababa.

Characteristics	Cases & Controls				Pearson's Chi square P-Value	
			Cases (n=110)	Controls (n=220)		
		Count	%	Count		%
Do you want the current pregnancy	Yes	15	(13.6)	174	(80.2)	<0.001
	No/not this time	95	(86.4)	43	(19.8)	
	Total	110	100	217	100	
Age at first sexual intercourse	14-19	67	(60.9)	143	(65.0)	0.467
	20-24	43	(39.1)	77	(35.0)	
	Total	110	100	220	100	
Parity (having at least one child)	Yes	29	(26.4)	126	(57.3)	<0.001
	No	81	(73.6)	94	(42.7)	
	Total	110	100.0%	220	100.0%	
Marital Status	Single Mothers	72	(66.5)	14	(6.4)	<0.001
	Married	38	(34.50)	206	(93.6)	
	Total	110	100	220	100	
Knowledge on modern cc	Yes	92	(83.6)	216	(98.2)	<0.001
	No	18	(16.4)	4	(1.8)	
	Total	110	100.0%	220	100.0%	
Use of at least one method cc before the current pregnancy	Yes	80	(72.7)	208	(94.5)	<0.001
	No	30	(27.3)	12	(5.5)	
	Total	110	100.0%	220	100.0%	
Multiple sexual partner	Yes	14	(12.7)	11	(5.0)	0.016
	No	96	(87.3)	209	(95.0)	
	Total	110	100.0%	220	100.0%	

The majority of female youth had secondary and above education (77.58%) for the cases and (94.1%) for the controls. The proportion of young women that has college and university education is slightly higher (44.1%) in the controls than the cases (40.3%), whereas the proportion of primary education level is higher in the cases (18.2) than the controls (3.64%). Among the cases, only 4(3.64%) did not have formal education which was similar proportion when compared with 5(2.27%) of the controls.

With regards to employment status majority of the respondents, more than two third in each group, are employed 76 (69.1 %) in cases and 166(75.5%) in control group, whereas the unemployed women proportion has been found to be higher in the control groups with only 7(6.4%) in cases and with 30(13.6%) women are unemployed in control group. In addition to this, 12.7% of women in the cases were attending school whereas only 0.9% of the control groups were found as women attending school.

Predisposing factors

When respondents are asked their intention of the current pregnancy, there is significant difference between the two groups. The proportion of young women having intended pregnancy are higher in the control group (80.2%) than the cases (13.6%) which was statistically significant (p-value <0.001). The rate of

unintended pregnancy in the antenatal care in youths of age 15-24 has also been observed in the study as 19.8% see Table 3. Of the total respondents almost three fourth 244(73.9%) were married. The proportion of married respondents is significantly higher in the control group 206 (93.6 %) than the proportion in the cases 38 (34.5%) P< 0.001.

Table 3: Reinforcing factors for induced abortion in women of age 15-24 in Addis Ababa.

Characteristics		Frequency %				P-Value
		Cases n=110	%	Controls n=220	%	
Obtained Support to go to RH Clinic	mother	1	0.9%	10	4.5%	<0.001
	father	0	0.0%	9	4.1%	
	Aunt/Uncle	1	0.9%	4	1.8%	
	brother/sister	2	1.8%	11	5.0%	
	friend (girl)	49	45.0%	74	33.6%	
	husband	14	12.8%	73	33.2%	
	boy friend	16	14.7%	1	0.5%	
	myself	22	20.0%	35	15.9%	
	others	5	4.6%	3	1.4%	
	Total	110	100.0%	220	100.0%	
Currently living with	Parents/relatives	46	42.6	15	6.8	<0.001
	Husband/partner	42	38.9	203	92.7	
	Girlfriend/alone	20	18.5	1	0.5	
	Total	108	100	219	100	
Service satisfaction	Satisfied	104	94.5	213	96.8	0.317
	Dissatisfied	6	5.5	7	3.2	
	Total	110	100	220	100	
Previous History of abortion	Yes	28	25.7	104	47.3	<0.001
	No	81	74.3	114	51.8	
	Total	109	100	218	100	

When the relationship between age at first sexual debut and induced abortion is analyzed by the bivariate regression it showed there is no relation between the two variables p-value 0.467. When young women were asked about their having multiple sexual partner in the past twelve months, the proportion of women who have answered “yes” in the case were higher than the control group (12.7% and 5.7% respectively) which was found to be significantly higher, p-value=0.016. When the parity of both groups is compared, significant proportion of the controls (57.3%) have at least one living child compared to the cases (26.4%) P-value < 0.001.

In the study it was also observed that although the majority of both groups have knowledge on modern contraceptive methods there was significant difference between the cases (83.6%) and the control groups (98.2%). It was also revealed that use of at least one method of contraceptive method has a relationship with induced abortion, as seen in Table 3 below, statistically significant difference is observed between the use of contraceptive among cases (72.7%) and controls (94.5%) p-value <0.0001 Table 4.

Table 4: Enabling factors for induced abortion in women of age 15-24 in Addis Ababa.

Characteristics		Frequency %				P-Value
		Cases n=110	%	Controls n=220	%	
Access to HF	yes	82	74.5	205	94.0	<0.001
	no	28	25.5	12	5.5	
	NR	0	0	1	0.5	
	Total	110	100.0	218	100.0	
If Price is affordable	Disagree/Strongly DA	29	26.6	27	12.3	0.002
	Agree/Strongly A	80	73.4	192	87.7	
	Total	109	100.0	219	100.0	
Price is not a big problem for my RH	Disagree/Strongly DA	13	11.9	7	3.2	0.003
	Agree/Strongly A	96	88.1	211	96.8	
	Total	109	100	218	100.0	

Predisposing factors

When respondents are asked their intention of the current pregnancy, there is significant difference between the two groups. The proportion of young women having intended pregnancy are higher in the control group (80.2%) than the cases (13.6%) which was statistically significant (p-value <0.001). The rate of unintended pregnancy in the antenatal care in youths of age 15-24 has also been observed in the study as 19.8% see Table 3. Of the total respondents almost three fourth 244(73.9%) were married. The proportion of married respondents is significantly higher in the control group 206 (93.6 %) than the proportion in the cases 38(34.5%) P< 0.001.

When the relationship between age at first sexual debut and induced abortion is analyzed by the bivariate regression it showed there is no relation between the two variables p-value 0.467. When young women were asked about their having multiple sexual partner in the past twelve months, the proportion of women who have answered “yes” in the case were higher than the control group (12.7% and 5.7% respectively) which was found to be significantly higher, p-value=0.016. When the parity of both groups is compared, significant proportion of the controls (57.3%) have at least one living child compared to the cases (26.4%) P-value < 0.001.

Table 5: Environmental and Educational factors for induced abortion in women of age 15-24 in Addis Ababa.

Variables		Frequency (%)		P-Value
		Cases (n=110)	Controls (n=220)	
Decision autonomy	Autonomy Yes	97(88.2)	210(95.5)	0.018
	No	13(11.8)	10(4.5)	
	Total	110	220	

In the study it was also observed that although the majority of both groups have knowledge on modern contraceptive methods there was significant difference between the cases (83.6%) and the control groups (98.2%). It was also revealed that use of at least one method of contraceptive method has a relationship with induced abortion, as seen in Table 3 below, statistically significant difference is observed between the use of contraceptive among cases (72.7%) and controls (94.5%) p-value <0.0001 Table 5.

Reinforcing factors

In order to be able to measure some of reinforcing factors for abortion service women were asked who provided the support to obtain the RH service and nearly half of the women in the cases 49(45%) have responded that they obtained support from their peer or girlfriends and only 14 (12.8%) of them have responded that they got support from their husbands. Whereas two third of the control subgroups have obtained support from their girlfriend or from their husband which showed that the proportion of women that get support from their girlfriend were 74 (33.6%), and 73(33.2%) from their husband (Table 5).

Level of independence (Decision making ability on health care)	Yes	102(92.7)	217(98.6)	0.023
	NO	7(6.4)	3(1.4)	
	Total	109(100)	220(100)	
Access to media	Yes	101(91.8)	215(97.7)	0.019
	No	9 (8.2)	5 (2.3)	
	Total	110(100)	220(100)	
Do you know the legal indication for abortion in the country?	yes	42(38.5)	170(78.0)	<0.001
	No	67(61.5)	48(22.0)	
	Total	109	218	
Awareness of complication of abortion	yes	86(78.2)	180(81.8)	0.462
	no	24(21.8)	40(18.2)	
	Total	110	220	

In this study it was observed that, young women living with parents and relatives have high risk of resorting to induced abortion compared to those living with husband or partner (OR 14.82 95% CI 7.58 -28.99 p-value <0.0001). However, there is no observed significant difference between young women living with parent and those living with a girlfriend or alone. Regarding to being satisfied with the service received in the clinics both subgroups have almost indicated that they are satisfied with service at the clinic with no statistical difference between the cases and controls (94.5% of cases and 96.8% of controls responded with satisfaction remark).

Also it was revealed in the study that previous history of abortion was found significantly high in the control groups (47.3%) compared to the cases (25.7%) P-value< 0.0001.

Enabling factors

As shown in Table 6 below, majority of both subgroups have responded that they have access to SRH clinics (74.5% of the cases and 94.0% of the controls) however, women in the control group have higher proportion than the cases in terms of having a better access to clinic and this difference was observed to be statistically significant (P-value <0.001). Price to RH service was also one issue that could make woman be able to receive the service. Thus, when asked about service fee, majority of the respondents in both groups have answered as they agree with the issue that when one wants to get a quality SRH service then price will not be an issue for them (88.1% of the cases and 96.8% of controls p=0.003).

Table 6: Belief and attitude towards abortion in women of age 15-24 in Addis Ababa.

Characteristics		Frequency, %			
		Cases n=110	%	Controls n=220	%
Woman seeking abortion as promiscuity	yes	56	51.4%	166	75.8%
	no	45	41.3%	46	21.0%
	DK	7	6.4%	6	2.7%
	Total	109	100.0%	219	100.0%
Abortion as committing sin	yes	98	89.9%	189	86.7%
	no	8	7.3%	26	11.9%
	DK	3	2.8%	3	1.4%
	Total	109	100.0%	218	100.0%

Community's belief on abortion as reported by participants	Totally unacceptable	57	52.3%	141	64.1%
	acceptable if the GA is <3Months	10	9.2%	19	8.6%
	acceptable if not married	12	11.0%	18	8.2%
	Sometimes acceptable sometimes not	25	22.9%	40	18.2%
	DK	5	4.6%	2	0.9%
	Total	109	100.0%	220	100.0%

Environmental & educational factors

Those women who have an autonomy on household expenses have three times higher odds of seeking an induced abortion than those who don't have OR 2.81 95% CI 1.19-6.64 with p-value 0.018. Similarly, study participants who have decision making autonomy for their health care and young women who have access to mass media have five times (OR 4.92 95% CI 1.25-19.40) and nearly four times (OR 3.83 95% CI 1.25-11.73) higher odds of seeking an abortion service respectively, with p-value 0.023 for decision making autonomy, and P-value 0.019 for access to media (Table 5).

Among the environmental and educational factors that could have an association to seeking an induced abortion is knowledge of the legal indication for abortion in the country. In this regard this study showed that the proportion of young women who have responded as having the knowledge on the legal framework for safe induced abortion in the country in the cases was 38.5% and in the control group was 78.0% and the difference was found to be statistically significant (p-value <0.001). Regarding awareness of at least one complication of abortion the majority of respondents know at least one health complication in both groups 78.2 % in cases and 81.8% in the control group and the difference was observed to be not significant p-value 0.462. Regarding belief and attitude on abortion women were asked different questions; Table 6 describes the response obtained from the study. In both subcategories majority of women believed that women with unwanted pregnancy is believed to be due to the woman's irresponsible sexual behavior (51.4% of cases and 75.8% of controls).

With regard to the attitude on abortion, women were also asked whether having an abortion is committing a sinful act; majority in both groups had considered getting an abortion service as sinful act (89.9% in cases and 86.7% in the control group). When women are also asked about their community's belief regarding abortion; more than half of the respondents have responded that abortion is totally unacceptable 57 (52.3%) cases and 141 (64.1%) in control groups. However, close to one tenth of the respondents in each subcategory have replied that abortion in their community is believed to be acceptable if the gestational age is below three months (9.2% in Cases, 8.6% in Controls) and if the women is not married (9.2% in cases and 8.2% of controls).

Determinants of induced abortion

Multivariate logistic regression was used to assess the possible association between induced abortion and the independent variables while controlling for other factors. In this study factors that are associated with induced abortion on bivariate analysis at a level of p-value of 0.1 and less were fit into multivariate logistic regression model. Accordingly, variables such as age of women, having at least one child, history of previous abortion, intention of current pregnancy, marital status, employment status, use of modern contraceptive prior to current pregnancy, knowledge on legal indication for abortion and multiple sexual partner were considered to fit into the multivariate logistic regression analysis model. Multi collinearity test was done to all the variables and the test has not detected any collinearity among the variables (with VIF variance inflation factors result below 2). Then, pregnancy intention, marital status, and use of modern contraceptive were found to be statistically significant predictors of induced abortion.

Therefore, by adjusting for other factors the study showed that pregnancy intention has strong association with abortion and it has been revealed that having unintended pregnancy was found to be a risk factor to induced abortion (AOR 33.06 95% CI 12.49-87.50) as the strength of the association is explained with AOR and the confidence interval with p-value of <0.001. The multivariate analysis has also indicated marital status as key determinant to induced abortion with strong negative association that married young women are less likely to seek abortion than single women (never married, divorced, and widowed women) (AOR 0.04 95% CI 0.015-0.126), p-value <0.001) this indicate that only 4% of women who are married and in the 15-24 age group will resort to induced abortion. This also indicates that getting married in this age group is a protective factor for an induced abortion.

In this study ever use of at least one method of modern contraceptives was found to be negatively associated with induced abortion and hence it could be considered as protective factor for induced abortion. The study showed that those who were not using modern contraceptive methods prior to their recent pregnancy were found four times likely to seek abortion service than those who were using at least one method of contraceptives before their recent pregnancy, AOR 4.3 (95% CI 1.05-17.7, p-value <0.043) Table 7.

Table 7: Risk factors for induced abortion in women of age 15-24 in Addis Ababa.

Variables	Induced abortion		OR (95%CI)		P-Value
	Cases (%) N=110	Controls (%) N=220	COR(CI)	AOR(CI)	
Predisposing Factors					
Age group 15-19	16(14.5%)	14 (6.36)	0.34(0.19-0.85)	0.8(0.17-3.7)	0.781
20-24	94(85.3)	206(93.64)			
Parity (having at least one child)	29(26.4)	126 (57.3)	0.23(0.16-0.44)	0.74(0.32-1.7)	0.49
Marital Status (Married)					
Single (never, divorced, widowed)	38 (34.5)	206 (93.6)	0.036(0.02-0.7)	0.04(0.015-0.13)	<0.001*
	72(65.5)	14(6.4)			
Use of modern cc (Yes)	80(72.7)	208 (94.5)	6.5(3.2-13.3)	4.3(1.05-17.7)	0.043*
NO	30 (27.3)	12 (5.5)			
Multiple sexual partner (Yes)	14 (12.7)	11 (5.0)	0.36(0.16-0.82)	1.09(0.22-5.3)	0.92
Pregnancy intention (Yes)	15(13.6)	174(80.2)	25.6(13.5-48.5)	33.06(12.49-87.5)	<0.001*
(NO)	95 (86.4)	43 (19.8)			
Reinforcing					
Previous history of abortion (Yes)	28 (25.7)	104 (47.3)	0.34(0.23-0.63)	0.000	1.000
Currently living with (Parents/relative)	46 (42.6)	15 (6.8)	14.8(7.6-28.9)	9.04(0.39-206.9)	0.168
Employment status (employed)	76(69.1)	166(75.5)	0.74(0.59-0.89)	0.97(0.255-3.6)	0.970
Enabling					
Access to HF (yes)	82 (74.5)	205 (94.0)	0.17(0	3.17(0.87-11.59)	0.081
Prefer cheap price (Agree)	80 (73.4)	192 (87.7)	08-0.35)		
Environmental & Educational					
Decision autonomy (Yes) (self-reported)	97 (88.2)	210 (95.5)	2.8(1.19-6.6)	0.95(0.08-11.19)	0.969
Level of independence	102 (92.7)	217 (98.6)	4.9(1.2-19.4)	2.43(0.075-78.7)	0.617
Knowledge of legal indication (No)	67 (61.5)	48 (22.0)	5.6(3.4-9.3)	2.16(0.93-5.1)	0.073

Discussion

With an estimated annual rate ranging from 23-31 abortions per 1000 women of age 15-44, about half a million pregnancies are estimated to end in abortion each year in Ethiopia. The annual rate nationally was estimated to be 23 per 1000 in 2008, and the abortion rate in Addis Ababa was found to be twice the national level (49 per 1000 women aged 15-44). This is an indication to the need for comprehensive abortion care, and safe abortion

service is provided as the law permits following the revision of the family law in 2005. [6,9,10].

This study was carried in three Marriestops EthiopiaSRH clinics in Addis Ababa to assess the key determinants of induced abortion in youths of age 15-24 years. In this study it was found that there is a strong association between marital status, use of modern contraceptives and pregnancy intention, with induced abortion. According to this study, marital status has a

strong negative association with the outcome variable induced abortion, where single women (never married, widowed and divorced) have higher chance of having an induced abortion than married women AOR 0.04 (95% CI 0.015-0.126 p-value <0.001). This result was found to be similar to a study done by Patrick G.C et al in Ouagadougou where being married was found to be protective against induced abortion, indicating that married women have 83% lower chance of having induced abortion [11] also similar finding was observed on a study done by Ellen ET et al. in Ghana where over three quarters of the women who sought induced abortion were unmarried [12]. This could be possibly due to the fact that the cities have similar metropolitan nature in that if young women are in marital relationship the chance of getting exposed to unwanted pregnancy will be minimum.

This study has also showed that use of at least one method of contraceptives before the current pregnancy could be considered as a protective factor to induced abortion. The proportion of women that were using modern methods of contraceptives is significantly higher in the control group than the cases 94.5%, 72.7% respectively, AOR 4.3 (95%CI 1.05 - 17.7) with p-value=0.043. This has indicated that those women who are not using modern methods of contraceptives have four times higher chance of seeking abortion services than those using at least one method of contraceptive. This finding was found to be similar to a study done in Hungary by Kozinszky Z et al. and also in a study done in northwestern part of Ethiopia where in both cases the proportion of women that were using modern contraceptive method have been found to have lower risk in seeking abortion service than their counter part (non CC users) [13,14].

The study showed that pregnancy intention to be strongly associated with seeking induced abortion service where those women with unintended pregnancy have greater odds of having an abortion than those with intended pregnancy AOR 33.06 (95% CI 12.49-87.5) with p-value <0.001. This finding was also similarly reported on a study in Ouagadougou by Patrick. Among the predisposing constructs, it was expected that age at first sexual intercourse to have an association with the outcome variable, that is induced abortion, however the result in this study showed that there is no significant difference between the two categories regarding induced abortion (p value 0.467). Also having multiple sexual partners in the past 12 months was expected to be a determinant factor for induced abortion. Although this construct showed a significant association at bivariate level (p-value 0.016) it was observed that the factor to be not determinant for induced abortion when regression analysis is done at multivariate level (p-value 0.92). Alcohol and substance use were among the factors that could predispose youth for unwanted pregnancy, however, contrary to a study done in Ghana by Asamoah B et al. [12] in that this study showed that there is no significant association between alcohol consumption and substance abuse and the outcome variable (induced abortion) p-values 0.67, and 0.58 for alcohol consumption and substance use respectively.

With regard to previous history of abortion, the construct was expected to show a positive association to the outcome variable, however, the study showed a result that the proportion of women having previous abortion history are significantly higher in the control group than the cases. This could possibly be explained as the existing of good post abortion family planning counseling for young women not to be exposed for unplanned and unwanted pregnancy such that the women will be empowered to use one method of modern contraceptive to plan their pregnancy to be wanted.

The study had revealed that majority of young women believed that act of abortion is sinful and do consider as committing sin or doing against God's will (89.9% of the cases and 86.7% of the controls), this finding has been similarly reported on the study done in Bahir-Dar (Northwestern part of Ethiopia) magnitude and determinates of unwanted pregnancy among ANC [15]. This shows that the belief of the society in different part of the country found to be similar, and could be due to the fact that the religious background and belief of the society. Similarly, the community's belief on abortion indicated that majority participants have a community where abortion is totally unacceptable (52.3% of the cases and 64.1% of controls).

This indicated that the issue of abortion is still a taboo which is not being discussed among families and members of a community. If the issue of abortion is considered as sin and stigmatized, as observed in this study, which showed young women living with their parents or relatives have higher chance of seeking induced abortion (OR 14.8295% CI 7.58-28.99 p-value <0.001), then young women who faced with unwanted pregnancy while living with their parents or relatives could face a challenge and they could resort to unsafe practice and could possibly risk their life. Regarding the magnitude of unwanted pregnancy among women following ANC, this study had revealed that 43 (19.8%) of the control group had responded as their recent pregnancy was unintended. The finding on magnitude of unintended pregnancy among ANC following women in B/Dar (North western Ethiopia) was found 26.0% [15]. The difference observed between the two studies could be, this study was done on ANC women of age 15-24 years as controls and whereas the study done in FelegeHiwot hospital was done on women of reproductive age [16-42].

Among the environmental and educational factors considered in this study was knowledge of the legal indications for abortion service in the country. It was expected that those who have the better knowledge to the provision of the law and legal conditions would come for induced abortion, but the study showed a vice versa result in that the proportion of women who have the knowledge on the legal condition in the control group were higher than the cases (78.0%, and 38.5% respectively) which was found statistically significant p-value <0.001. This could be attributed to their previous exposure to unwanted pregnancy and get the information about the legal provision

then also be counseled to use modern contraceptive methods to avoid unwanted pregnancy. The study signifies that young woman's death and morbidity due to unwanted and unplanned pregnancy could be averted if health programs are designed to address the use of contraceptive and increased knowledge of the youth on SRH issues.

Strengths and Limitation

The study is the first of its kind to be done on women of age 15-24 in Addis Ababa, and it had utilized a primary data by directly interviewing study participants hence, could be a reference for further research or could be a document to design and implement a health program on youth and adolescents. However, as some of the exposure variables require remembering past behaviors and past history there could possibly be a recall bias in the study. The study has also assumed that all the controls will continue their pregnancies till term after the interview.

Conclusion

This study shed light on the factors that contribute to seeking abortion service among youth of age 15-24 in Addis Ababa. The study found that unwanted pregnancy, marital status and none use of contraceptive methods have strong association with induced abortion. On this study it was observed that married young women are less likely to seek induced abortion than the single counterparts. The study had also illustrated that alcohol, and substance use like Khat, and addictive drugs were not found to be major predisposing factors for young women to seek induced abortion service in Addis Ababa.

It was also found that pregnancy intention is a factor that was observed to have a strong negative association with induced abortion and to be a protective factor for induced abortion service. This illustrates that when young women are facing a burden of unintended pregnancy, they are highly likely to resort to induced abortion regardless of their faith, belief and attitude to abortion. The study had found that young women who were using at least one method of modern contraceptive are less likely to be exposed to unwanted pregnancy and resort to abortion than those young women who are not using any method. The study had explained and helped to better understand the key predisposing factors and the attitude and belief of young women on abortion in Addis Ababa.

Recommendation

Induced abortion constitutes a health problem among young women of age 15-24, and the high contraceptive knowledge should be interpreted to an increased use so that it will reduce unintended pregnancy. Therefore, policymakers, non-governmental organization health authorities should design a health program to ensure sustainable behavioral changes among youths for use of contraceptives. This is because an increased contraceptive use will reduce the prevalence of unwanted

pregnancy which will in turn reduce induced abortion. Young age is the ideal time to approach young women through educational opportunities such as school-based sexual health inquiries. Sexual and Reproductive Health must be a vital component in the school system curriculum; this may help improve the cultural barriers in discussing reproductive health and abortion topics at family level. There is also a need for qualitative research on youths to understand better the key risk factors for induced abortion to help plan more specific interventions aimed at reducing abortion-related health risks and improving maternal health.

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