Factors Associated with Unsafe Induced Abortion among Women who attended Fitcha Hospital, Oromia, Ethiopia: Cross-sectional study

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Abstract

Background Unsafe induced abortion is one of the most medical and public health problems in developing countries including Ethiopia. Ethiopia has permitted abortion in specific legal circumstances when the conception of the fetus is caused by rape, incest, when continuation of pregnancy endangers the mother's life. The aim of this study is to assess the magnitude and associated risk factors of unsafe induced abortion among women who received post abortion care service in Fitcha Hospital. **Methods** Institutional based cross-sectional study was carried out among women who received post abortion care service at Fitcha hospital from November 30, 2017 up to May 30, 2018. The data was collected using pre tested questionnaire and entered to EpiData version 3.1 software and analyzed using SPSS version 24. Descriptive statistics, multivariate logistic regression analysis and chi-square test were conducted. **Results** Three hundred and eight respondents (100% response rate) with mean age of 30 ± 9 years were participated in this study. From respondents, 45% had history of unsafe induced abortion and 27% of them reported the abortion was performed in house by traditional birth attendant. Single women were more likely practice unsafe induced abortion than widowed women [OR: 9.71; 95%CI (1.30 – 72.42)]. Women who had low monthly income [OR: 6.72; 95%CI (2.15 - 20.97)] and house wives [OR: 12.29; 95%CI (1.70 - 88.63)] were more likely practice unsafe induced abortion than counterparts. Failure of contraceptive methods, place of interference, method used for interference, a person who induced the abortion, a condition after procedure, and reasons to induce abortion were identified as association factors of unsafe induced abortion at $P < 0.001$. **Conclusion** The study assessed the magnitude and reported a significant association between unsafe induced abortion and socio-demographic factors, contraceptive practice, and abortion related items. These findings are positive enough to warrant a large-scale study to better understand the unsafe abortion vulnerability factors in Ethiopia.

Background

The World Health Organization (WHO) defines unsafe abortion as “a procedure for terminating an unintended pregnancy carried out either by persons lacking the necessary skills or in an environment that does not conform to minimal medical standards, or both”. [1] According to the WHO estimation, there were about 55.7 million abortions worldwide each year from 2010-14 and about 45% of them were unsafe abortion. This indicates about 25 million abortions occurred each year between 2010 and 2014 were unsafe, and about 97% of them occurred in developing countries. [2]

Unsafe induced abortion is a major public health problem that affects not only mother's life but also the people around her. Abortion related complication such as anemia, genital tract infection, shock, peritonitis, incomplete evacuation, renal failure accounts for increased maternal morbidity and mortality. [3] Women who had unsafe induced abortion should have to get post abortion care to prevent severity of complications. Post-abortion care is treatment given to women who present at hospital or health center with complications due to an incomplete abortion or miscarriage. Ethiopian women are suffering from increased risk of abortion related complication, due to various reasons such as unmet contraceptive need, rape, early sexual practice etc. [4, 5] The top three causes of maternal deaths are post-abortion

complication (29%), eclampsia (21%) and ruptured uterus (16%).[6] Women who had experience of unsafe induced abortion may suffer from emotional side effects like regret, feeling of guilty, and shame. [7] In addition, unsafe induced abortion has negative impact on maternity service and subsequent pregnancy.[8]

To reduce unsafe induced abortion, Ethiopia has permitted abortion in specific legal circumstances when the conception of the fetus is caused by rape, incest, when continuation of pregnancy endanger the mother's life, if the fetus has incurable deformity or if the mother doesn't fit to give birth mentally or physically.[9, 10]

According to reports by different literature; socio-economic, educational level, lack of contraceptive methods, and contraceptive failure are mainly associated to unsafe induced abortion.[1, 11-14] Women who have low income are more likely to experience unsafe abortion than women who are financially stable.[12-16]

Nowadays, availability and accessibility of modern contraceptives are increasing in many countries including Ethiopia, although it varies according to the types of contraceptives. For instance, in Ghana the availability of male condom and combination of oral contraceptive were high in health facilities. [17] However, people use inappropriately due to different factors such as insufficient awareness, community's sociocultural, and fear of side effect.[18-20] In appropriate use of contraceptives lead to unintended pregnancy which result in unsafe abortion.[21] Unintended pregnancies are pregnancies that are mistimed, unplanned or unwanted at the time of conception.

Even if, there is an increasing modern contraceptive use, Ethiopian women still have unmet contraceptive need especially in unmarried and young women.[4] Contraceptive methods failure and low access for contraceptives was the main reason for unintended pregnancy in Ethiopia. [4, 5, 22] Unsafe abortion is one of the major causes of maternal mortality in Ethiopia. [23] Ethiopia has the 5th largest maternal mortality, where unsafe abortion accounts for 32% of it. [24]

Nowadays, unsafe abortion is increasing in developing countries. However, there are not plenty of data on unsafe induced abortion and related issues in Ethiopia. The aim of this study was to describe the determinants of unsafe induced abortions in the study area that enables to deal with unwanted pregnancy, contributes bases for reduction of maternal mortality, and clarifies how much unsafe induced abortion is prevalent in the study area. It can be used as a base line to the public health organizations and other organizations to explore the way to reduce risks of unsafe induced abortion.

Methods

Study Design and Sampling Technique

Institutional based cross-sectional interview questionnaire survey was conducted. This study was conducted among all women who received post abortion care service in Fitcha hospital from November

30, 2017 up to May 30, 2018. Proportion of people presenting for post-abortion care approximately 1100 per year. Fitcha Hospital is located at Fitcha town which is the capital town of North shoa administrative zone. The town is located at a distance of 112km from Addis Ababa to the North part of Ethiopia along the way to Gojam main asphalt road.

The required sample size was estimated using a single population proportion formula with 95% CI, 5% margin of error, and 50% population proportion was taken to increase sample size. Though this true for larger population, the minimum sample size required was determined by using the correctional formula. Five percent was also added to account for non-response rate. Accordingly, the required sample size calculated was 308 and the data was collected using systematic random sampling technique.

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Inclusion and exclusion criteria

Inclusion criteria

All women who received post abortion care service in Fitcha hospital during the study period were included.

Exclusion criteria

Women who were seriously ill and unable to talk, and women who had mental problem were not included in this survey. This is because it was not possible to collect data and get an appropriate response from this group of patients.

Data collection procedures

The data were collected using structured questions which was adopted from study done in Guaraghe zone, Ethiopia in 2014.[4] The questionnaire had three parts: Socio-demographic characteristics, contraceptive practice, and abortion related questions. An interview questionnaire was used after explaining the aim of the study to the participant. The data collector was given a proper training about the study on the prior week. All information regarding socio-demographic characteristics was acquired from the direct information of participant response.

Data quality control

A questionnaire was prepared in English and translated into Amharic and back to English in order to avoid any language barrier (information bias). To keep the quality of data completeness, each questionnaire was checked for completeness. After checking the data for completeness, the questionnaire was coded and the data entered to a computer. The coded questionnaire was rechecked to avoid any error during coding and entrance. Finally, the response of each participant was entered based on the coded questionnaire.

Data analysis and processing

The completed data were entered into EpiData 3.1 and analyzed using statistical package for social sciences (SPSS) version 24. Descriptive statistics were done to determine the socio-demographic characteristics of respondents and their practice toward unsafe induced abortion. Results were presented in the form of figures, tables, and text. [Multivariate logistic regression analysis was conducted. The odds ratio \(OR\), 95% confidence intervals and chi-square test](#) were computed to assess the magnitude and association between predictors (socio-demographic, [contraceptive practice, and abortion related questions](#)) and outcome (unsafe induced abortion). P- value of < 0.05 was used as a cut off value to detect statistical significance.

Results

Socio demographic characteristics

[Three hundred eight respondents \(100% response rate\) with mean age of \$30 \pm 9\$ years were participated in this study](#) from which 65% respondents were aged between 15-34 years. From women participated in the study, 19% unable to read and write whereas 81% able to read and write, and had different level of education. According to this study, most of the participants (48%) were married and 46% of the respondents had monthly income < 1500 ETB as shown in Table 1.

Contraceptive knowledge, practice, and history of its failure

Respondents were asked whether they know about different contraceptive methods such as condom, OCP, injectable, calendar rhythm, implant, and IUCD. About 75% of respondents had mentioned that they had history of using one or more contraceptive methods to prevent pregnancy. From the total

respondents, 14% had history of contraceptive failure, of which 46% reported OCP failure and 24% reported calendar rhythm contraceptive failure (Table 2).

Place of abortion, method used and its complication

Among respondents, 46% reported they had induced abortion, of which 45% of the induced abortion was unsafe. Regarding place of induced abortion, 27% of women reported that abortion was performed at traditional birth attendants' house, while 18% of respondents reported that abortion was performed in patients' house. About 66% of respondents reported that abortion was initiated by medication, and more than 46% induced abortion performed without health professional. It was induced by traditional birth attendants (27%) and patients themselves (18%). Among respondents, 55% knew the complication of induced abortion and 63% of the respondents have reported feeling of unwellness after the procedure as shown in table 3.

Figure 1 illustrates the common reasons of induced abortion. Socio-economic problem was mentioned as the most common cause of induced abortion and followed by health problems, contraceptive failure, school/class, rape, and peer pressure.

Figure 2 illustrates the complication of unsafe induced abortion reported by respondents. Fever and heavy bleeding were the most common complications of unsafe induced abortion and followed by sweating, chilling, and foul vaginal discharge.

Associations between unsafe induced abortion and its predictors

Logistic regression analysis identified significantly associated factors of unsafe induced abortion. According to logistic regression analysis result, single women were more likely practice unsafe induced abortion than widowed women [OR: 9.71; 95%CI (1.30 – 72.42)]. Women who had monthly income less than 1500ETB were more likely practice unsafe abortion than counterparts [OR: 6.72; 95%CI (2.15 - 20.97)]. Regarding occupation, house wife women were more likely practice unsafe induced abortion than counterparts [OR: 12.29; 95%CI (1.70 - 88.63)]. Age of women, education level, religion, number of pregnancies, and number of children were not identified as significant associated factors with unsafe induced abortion in our study as shown in table 4.

According to Chi-square test, failure of contraceptive methods (χ^2 : 38.95; $P < 0.001$), place of interference (χ^2 : 85.61; $P < 0.001$), method used to interference (χ^2 : 48.17; $P < 0.001$), a person who induced the abortion (χ^2 : 38.95; $P < 0.001$), knowledge about complication of induced abortion (χ^2 : 11.20; $P < 0.001$), condition after procedure (χ^2 : 42.49; $P < 0.001$), and reasons to induce abortion (χ^2 : 29.08; $P < 0.001$) were identified as association factors of unsafe induced abortion as shown in table 5.

Discussion

This study has identified the magnitude and associated factors of unsafe induced abortion among women in reproductive age (15-49). The finding of this study shows that 45% of induced abortion were unsafe. This finding is approximately in line with study done in Zambia (39%).[14] However, it is lower than the finding of study conducted in Ghana (64.1%) and higher than the finding of study conducted in Mexico (16.5%). [12, 25] The difference might be due to the economic inequality, educational level of women, and abortion policies of these countries. Moreover, knowledge of the women regarding proper use of contraceptive and complication associated with abortion might be the cause of a difference.

In addition to prevalence, this survey has identified determinants of unsafe induced abortion. Marital status was identified as statistically significant associated factor of unsafe induced abortion. In this study, single women were more vulnerable to unsafe induced abortion than their counter parts. The possible reasons might be social values and norms of country. In Ethiopia, pregnant single women have low acceptance and respect among families and society. Therefore, single pregnant women seek more for unsafe induced abortion than others. Previous studies conducted in Brazil, Sri Lanka and Ghana also reported single marital status as associated factor of unsafe abortion.[25-27]

Income status was also identified as associated factors of unsafe induced abortion in this study. Women who earn low monthly income were more likely to practice unsafe induced abortion as compared with women who earn enough monthly income. Study conducted by Tiziana Leone also reported that poor women are more likely to practice unsafe abortion.[14] Study conducted in Mexico also revealed that socio-economic gradients have a significant association with practicing unsafe abortion, which means poorer women are more likely to have unsafe induced abortion than wealthy women.[12] So, women's economy level play important role in the health and outcomes of pregnancy.[13]

In addition to marital and income status, occupational status also significantly associated with unsafe practice of induced abortion. Accordingly, being a house wife was significantly associated with unsafe practice of induced abortion as compared with women who were students and employee. This difference might be due to knowledge gap and independence; educated women might have awareness of complication following unsafe abortion than uneducated women and women who have their own job are more likely to be independent and financially better than house wives.

In this study, contraceptive failure was significantly associated to unsafe induced abortion. Inappropriate use of contraceptive methods decreases its effectivity and cause failure. Contraceptive failure could increase incidence of unintended pregnancy which leads to unsafe abortion.[1, 11]

Factors such as place of abortion, method used to induce, who induced the abortion, knowledge about complication of induced abortion, and condition after procedure were identified as association factors of unsafe induced abortion. Majority of unsafe abortion was induced by a people lacking the necessary skills to induce safely. It is also performed in an environment lacking minimal medical standards such as traditional birth attendants' house, patient house or in clinic which have no all necessary instruments.[1] Other factors associated with unsafe induce abortion were [socio-economic problems](#), [health problems](#),

rape and peer pressure, at $p < 0.05$. The prevalence of unintended pregnancies was found to be high in this study. This might be due to unsafe sexual practice, rape, and incest.

There are some limitations to this study. Due to small sample size this study has limitation to generalize, because of reduced statistical power. Another limitation of this study is reporting bias. This bias may occur due to respondents' interpretation or due to the desire for their emotions in certain ways. The cross-sectional design investigates prevalence and associations rather than causality. Thus, future research needs to replicate these findings using a longitudinal study design.

Conclusions

There was high practice of unsafe induced abortion in this survey. The most common causes of unsafe induced abortion were low socio-economic status, health problems and contraceptive failure. Single marital status, low monthly income, and occupational status were significantly associated with unsafe practice of induced abortion. The findings of this study will provide information for program coordinators, policy maker, key stakeholders for better planning and implementing of maternal health care services; which could lead to reduced morbidity and mortality in the study area. Finally, the study will also provide information for other researchers who have an interest to conduct further studies in the study area.

Abbreviations

CI= Confidence interval

ETB= Ethiopian birr

IUCD= Intrauterine contraceptive devise

MC=Multiple choice

OCP = Oral contraceptive pills

WHO=World health organization

Declarations

Ethics approval and consent to participate

The Institutional Review Board of the College of Health Science, Salale University, approved the study proposal prior to initiation of the study. Verbal consent was obtained from participants and for participants under 16 years old, consent was obtained from parents. This consent also approved by ethics committee.

Consent for publication

“Not applicable” in this section.

Availability of data and material

The datasets used and/or analyzed during the current study are available from the corresponding author on reasonable request.

Competing interests

The authors declare that they have no competing interests in this section.

Funding

Not applicable.

Authors' contributions

AFA has made substantial contributions to the design of the work; reviewed the relevant literature, analyzed the data, and interpreted the results. DGA contributed to developing the conception of the statistical methodology, and supervised. AAB drafted the manuscript, and revised the paper. All authors agreed with the results and approved the final manuscript.

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Tables

Table 1: Socio demographic characteristics among women who attended post abortion care at Fitcha hospital, North shoa zone, Oromia regional state, Ethiopia.

Variable	Category	n (%)
Age	15-34	199 (64.6)
	≥35	109 (35.4)
Religion	Orthodox Christian	165 (53.6)
	Muslim	24 (7.8)
	Catholic	7 (2.3)
	Protestant	77 (25.0)
	Other	35 (11.4)
Marital status	Single	101(32.8)
	Married	149 (48.4)
	Divorced	41 (13.3)
	Widow	17 (5.5)
Occupation	House wife	85 (27.6)
	Employee	103 (33.4)
	Daily worker	52 (16.9)
	Student	68 (22.1)
Level of education	Unable to read and write	58 (18.8)
	Able to read and write	250 (81.2)
Income (ETB)	<1500	143 (46.4)
	≥1500	165 (53.6)
Number of pregnancies*	<5	252 (81.8)
	≥5	56 (18.2)
Number of children	<4	268 (87.0)
	≥4	40 (13.0)

*Current pregnancy is included

ETB= Ethiopian birr (1\$ = 29.0766 ETB)

Table 2: Contraceptive practice among women who attended post abortion care at Fitcha hospital, North shoa zone, Oromia regional state, Ethiopia.

Variable	Category	n (%)
Contraceptive known by participant	Calendar rhythm	Yes 104 (33.8)
No	204 (66.2)	
OCP	Yes	267 (86.7)
No	41 (13.3)	
Condom	Yes	268 (87.0)
No	40 9 (13)	
Injectable	Yes	245 (79.5)
No	63 (20.5)	
Implant	Yes	196 (63.6)
No	112 (36.4)	
IUCD	Yes	196 (63.6)
No	112 (36.4)	
Ever use of contraceptive	Yes	232 (75.3)
No	76 (24.7)	
Method used recently (n=232)	Calendar rhythm	15 (6.5)
OCP	75 (32.3)	
Condom	16 (6.9)	
Injectable	53 (22.8)	
Implantation	48 (20.7)	
IUCD	25 (10.8)	
For how many years use contraceptive (n=232)	<year	23 (9.9)
1-5	128 (55.2)	
6-10	51 (22.0)	
11-15	20 (8.6)	

>15	10 (4.3)	
Did contraceptive methods fail (n=232)	Yes	33 (14.2)
No	199 (85.8)	
Type of method failed (n=33)	Calendar rhythm	8 (24.2)
OCP	15 (45.5)	
Condom	4 (12.1)	
Injectable	6 (18.2)	
Implantation	0	
IUCD	0	

IUCD= Intrauterine contraceptive device, OCP = oral
contraceptive pills

Table 3: Place of abortion, method used and its complication mentioned by women who attended at Fitch hospital, North shoa zone, Oromia regional state, Ethiopia.

Variables	Category	n (%)
Was the abortion induced	Yes	143 (46.4)
No	165 (53.6)	
Was the induced abortion safe? (n=143)	Safe	79 (55.2)
Unsafe	64 (44.8)	
Was the pregnancy wanted	Yes	46 (32.2)
No	97 (67.8)	
Place of interference	Health institution	79 (55.2)
Traditional birth attendants' house	39 (27.3)	
Patients house	25 (17.5)	
Method used to interference	Medication	95 (66.4)
Herb	31 (21.7)	
Plastics	17 (11.9)	
A person who induced abortion	Health professional	79 (55.2)
Self	25 (17.5)	
Traditional birth attendant	39 (27.3)	
Knowledge about abortion related complication	Yes	78 (54.5)
No	65 (45.5)	
Condition after procedure	Feeling good	53 (37.1)
Feeling ill	90 (62.9)	

Table 4. Association between unsafe induced abortion and socio-demographic characteristics; logistic regression analysis. $R^2 = 0.49$ (Cox & Snell), 0.65 (Nagelkerke). Model chi-squared value = 94.99 (df = 15).

Variable	Induced abortion			
		OR (95%CI)		
Safe n (%)	Unsafe n (%)			
Age	15-34	56 (60.9)	36(39.1)	0.64 (0.18 - 2.29)
>35	23 (45.1)	28 (54.9)	1.00	
Marital status	Single	8 (15.1)	45 (84.9)	9.71 (1.30 - 72.42) *
Married	51 (89.5)	6 (10.5)	0.167 (0.02 - 1.22)	
Divorced	16 (61.5)	10 (38.5)	1.03 (0.14 - 7.79)	
Widowed	4 (57.1)	3 (42.9)	1.00	
Religion	Orthodox Christian	50 (53.8)	43 (46.2)	0.31 (0.05 - 1.94)
Muslim	6 (75.0)	2 (25.0)	0.07 (0.00 - 1.40)	
Catholic	1 (33.3)	2 (66.7)	0.34 (0.01 - 12.41)	
Protestant	16 (66.7)	8 (33.3)	0.15 (0.01 - 1.53)	
Other	6 (40.0)	9 (60.0)	1.00	
Education	Unable to read and write	17 (47.2)	19 (52.8)	0.65 (0.14 - 2.99)
Able to read and write	62 (57.9)	45 (42.1)	1.00	
Monthly income (ETB)	<1500	23 (34.3)	44 (65.7)	6.72 (2.15 - 20.97) **
≥1500	56 (73.7)	20 (26.3)	1.00	
Occupation	House wife	22 (47.8)	24 (52.2)	12.29 (1.70 - 88.63) *
Employee	20 (43.5)	26 (56.5)	4.31 (0.74 - 25.08)	
Daily worker	16 (61.5)	10 (38.5)	6.38 (0.86 - 47.58)	
Student	21 (84.0)	4 (16.0)	1.00	
				0.54 (0.11 - 2.78)

No. of pregnancy	<5	62 (54.9)	51 (45.1)	
≥5	17 (56.7)	13 (43.3)	1.00	
No. of children	<4	71 (55.5)	57 (44.5)	1.87 (0.27 - 13.01)
≥4	8 (53.3)	7 (46.7)	1.00	

** = Significant at P < 0.001

*= Significant at P < 0.05

Table 5. Association between induced abortion, contraceptive practice, and other risk factors; chi- square analysis.

Variable	Induced abortion	χ^2	P-value		
Safe n (%)	Unsafe n (%)				
Ever use of contraceptive	Yes	57 (57.6)	42 (42.4)	0.707	.400
No	22 (50.0)	22 (50.0)			
Did contraceptive methods fail	Yes	3 (13.6)	19 (86.4)	38.95	.000
No	55 (70.5)	23 (29.5)			
Place of interference	Health institution	71 (89.9)	8 (10.1)	85.61	.000
Traditional birth attendant house	5 (12.8)	34 (87.2)			
Patients house	3 (12.0)	22 (88.0)			
Method used to interference	Medication	62 (65.3)	33 (34.7)	48.17	.000
Herb	1 (3.2)	30 (96.8)			
Plastics	16 (94.1)	1 (5.9)			
A person induced the abortion	Health professional	71 (89.9)	8 (10.1)	85.61	.000
Self	3 (12.0)	22 (88.0)			
Traditional birth attendant	5 (12.8)	34 (87.2)			
Knowledge about abortion related complication	Yes	53 (67.9)	25 (32.1)	11.20	.001
No	26 (40.0)	39 (60.0)			
Condition after procedure	Good	48 (90.6)	5 (9.4)	42.49	.000
III	31 (34.4)	59 (65.6)			

Reasons to induce abortion	Socio-economic related problems	26 (63.4)	15 (36.6)	29.08	.000
Health problems	18 (78.3)	5 (21.7)			
Contraceptive failure	6 (27.3)	16 (72.7)			
Rape	13 (68.4)	6 (31.6)			
Peer pressure	12 (75.0)	4 (25.0)			
School	4 (18.2)	18 (81.8)			

Figures

Figure 1

Reason of induced abortion among women who attended post abortion care.

Figure 2

Complication of unsafe induced abortion mentioned by women who attended post abortion care (Multiple response).

Supplementary Files

This is a list of supplementary files associated with this preprint. Click to download.

- [STROBEchecklistcrosssectional.doc](#)