

Outcomes of Second Trimester Abortion in Amhara Region, North Ethiopia: A cross sectional study

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Abstract: Background: Worldwide, about 42 million unintended pregnancies are terminated each year, an estimated 20 million of which are unsafe. WHO claims that unsafe abortions kill 68,000 women, which accounts for 13% of all pregnancy-related deaths. Two-thirds of major abortion related complications and half of abortion related maternal mortality occurs in pregnancies terminated after 13 weeks of gestation. The risk of complications increases with operator inexperience and gestational age and depends on the method chosen. **Objective:** The main aim of the present study is to assess the outcome of second trimester abortion in terms of effectiveness, and complication and side effects in five hospitals of Amhara Region. **Methods:** Prospective cross-sectional study was conducted on patients seeking termination of pregnancy between 13 and 28 weeks of gestational age attended in five hospitals in Amhara region from July 01 to September 10, 2011. The data was collected using interviewer led questionnaire from all consecutive pregnant women who come to terminate their second trimester pregnancy in those hospitals. Ethical clearance was obtained from the concerned body. The data was coded, entered and analyzed using SPSS (16th version). **Results:** A total of 231 pregnant women participated in this study with mean (\pm SD) age of 24.96 ± 5.843 years. Out of them 132 (57%) were urban in their residence, 141 (61%) of them had unplanned pregnancy, 181 (78.2%) second trimester abortion was done by Misoprostol alone / with mifepristone. Completeness of abortion was found to have statistically significant association ($X^2=25.589$, $P<0.002$) with gestational age. With in medical method vomiting (9.3%), Nausea (14.9%) and Fever (11.5) was observed. Both abdominal pain and Pelvic infection was statistically significant with methods ($P<0.05$). **Conclusion:** The majority of the clients were urban in residence, students in occupation, and secondary school and above on their educational status. Medical methods were the commonly methods of termination of second trimester pregnancy. Financial problems, fear of other people, rape, incest and problems related to their partners were the main reasons of the clients for termination of pregnancy. Most of the pregnancies were unplanned and abortion was started induced.

BACKGROUND

Unsafe abortion is a procedure for terminating unwanted pregnancy performed or treated by either persons lacking the necessary skills or in an environment lacking the minimal medical standards, or both [1].

World Health Organization (WHO) defines abortion as the termination of pregnancy before the foetus is viable or capable of living outside of the uterus. The common legal definition of abortion that found in many countries (includes Ethiopia) is that the loss of foetus before the 28th week of gestation after last menstrual period (LMP) [2]. There are two types of abortion; Spontaneous abortions, generally referred to as miscarriages, occur when an embryo or fetus is lost due to natural causes and induced abortion is termination of pregnancy intentionally. An induced abortion could be elective (based on a woman's personal choice) or therapeutic (to preserve the health or save the life of a pregnant woman) [3]. The optimal method of second trimester abortion continues to be debated because of the disproportionate amount of abortion-related morbidity and mortality [2,4].

Worldwide, about 21.6 million unsafe abortions took place in 2008, which was mostly occurred (99%) in developing countries mainly in sub-Saharan Africa and South Asia [5,6]. Six countries such as Afghanistan, Bangladesh, Democratic Republic of Congo, Ethiopia, India and Nigeria, account for over half of maternal deaths worldwide [6]. Termination of pregnancy is estimated to be the outcome of around one in four pregnancies [7]. One woman dies every eight minutes due to the complications of an unsafe abortion [8].

The WHO estimated that every year, nearly 5.5 million African women have an unsafe abortion; as many as 36,000 of these women die due to the procedure, while millions more experience short- or long-term morbidity [9]. In Africa, about one-third of all unintended pregnancies end in abortion¹³ and one in seven maternal deaths result from unsafe abortion [9].

In Ethiopia, about 42% of all pregnancies were unintended in 2008 [10] and almost 58,000 women sought post-abortion care and more than 13,000 had hospital stays of 24 hours or longer for abortion complications that required valuable bed space and scarce human and financial resources [11].

In 2005, the Criminal Code of the FDRE was amended to permit abortion under a much broader set of circumstances: in the case of rape, incest or fetal impairment, if pregnancy continuation or birth would endanger the health or life of the woman or fetus, if the woman has physical or mental disabilities; and if the woman is a minor who is physically or mentally unprepared for childbirth. In most cases, a woman's statement is sufficient to establish the legal indication for and allow her to obtain the abortion [11].

The present study is intended to contribute to bridging the information gaps on the outcomes of second trimester abortion. Data on the outcomes of second trimester abortion helps for health service providers to design improved post-abortion care services, effective health education programs to educate women's and couples about legal provision of second trimester abortion. Information on the level of mid trimester abortion related complications also helpful for health professionals to take appropriate interventional measures. The present study is fresh in the area and it will open a room for similar studies and may useful as baseline information.

CLIENTS AND METHODS

Study Area and Period

This study was conducted from July 01 to September 10, 2011 in five hospitals of Amhara Region, North Ethiopia. Gonder University Hospital, FelegeHiwot Referral Hospital and Aflagat General Hospital, Debremarkos Referral Hospital and Dessie Referral Hospital. The Region is divided into eleven zones and according to the 2007 population and housing census of Ethiopia, the projected total population of the region in 2010 was 17,214,056 (Male = 8,636,875 and Female = 8,577,181) [12].

Study design and population

Cross-sectional study was conducted on pregnant women who need termination of pregnancy between 13 and 28 weeks of gestational period attending five hospitals in Amhara region. All pregnant women who attended the hospitals during the study period for termination of second trimester pregnancy were study population of the present study.

Sample size determination and Sampling technique

All consecutive pregnant women who were terminated their second trimester pregnancy in those five hospitals and who were fulfill the criteria and consented to participate in this study during the study period were included.

Study Variables

Independent variables are Socio-demographic characteristics (such as Age, Residence of the women, Monthly income of the women, Educational Status), Methods of abortion, Service providers, Reasons of abortion, Gestational age. Dependent variables are Outcomes of abortion; Such as Completion of abortion, and Side effects and complications.

Data processing and analysis

All variables in the survey were coded and entered in to computer using SPSS (16th version). The data were cleaned, edited and organized thoroughly at this stage by the investigator and then data processed and analyzed. Frequencies & percentages for categorical data while mean \pm SD, and range calculated for continuous data. The presence of significant associations between dependent & independent variables were examined using appropriate statistical methods; X^2 , COR, at 95% CI, P-value of less than 0.05 considered as significant. The data summarized using tables and figures in the presentation.

RESULTS

Socio- demographic characteristics of the study participants

A total of 231 pregnant women were participated in this study. Out of the total respondents 132 (57%) were urban in their residence. The mean (\pm SD) age of the respondents was 24.96 ± 5.843 years. Ninety (39.0%) of the participants were unmarried. The majority of respondents 211 (91.3%) were Amhara by ethnicity and orthodox Christian; 148(64.8%). Large proportion, 106 (45.9%) of respondents completed secondary school education and above. Eighty seven (37.7%) were student in occupation and 150 (64.9%) of participants had unspecified or unknown monthly income.

Gynecological information of the pregnant women

Among pregnant; 152(65.8) had pregnancy 13-16 weeks of gestational age. Majority (49%) of the respondents were pregnant for the first time and 141 (61%) of them had unplanned pregnancy. According to the respondents; majority 142(61.5%) of reason for termination of pregnancy were rape, incant, fear of others people and financial problems. Out of the total study subjects 163(70.6%) had induced abortion. Seventy eight of second trimester abortion was done by Misoprostol alone / with mifepristone and forty two percents abortion services were provided by specialized physicians. Health professionals who are working in service providing institution indicated that materials needed for terminations of pregnancy are sufficient, 121(52.4%).

Table 1: Distribution of Socio-demographic characteristics of Pregnant in Five Hospitals in Amhara Region, North Ethiopia, 2011.

Characteristics	Category	Number	percent
Number of pregnancy	Gravida 1	115	49.8%
	Gravida 2	58	25.1%
	Gravida 3	39	16.9%
	Gravida 4 and above	19	8.2%

Pregnancy planned	Yes	90	39%
	No	141	61%
Abortion started	Spontaneous	68	29.4%
	Induced	163	70.6%
History of abortion	Yes	32	13.9%
	No	199	86.1%
Gestational age	13-16	152	65.8%
	17-20	52	22.5%
	21-24	16	6.9%
	25-28	11	4.8%
Methods of abortion	Misoprostol alone/with mifepristone	181	78.3%
	Evacuation and Curettage	50	21.7%
Service providers	General physician	51	22.1%
	Specialized physician	96	41.6%
	Midwife nurse/Nurse	84	36.4%
Availability of materials	Very enough	110	47.6%
	Enough	121	52.4%

Gestational age with Complication and Completeness of abortion

The results of present study have shown that 13.1% of participants had headache at 13-20 weeks of gestation. Gestational age was not statistically significant in relation to headache ($P=0.171$). Sixty one percents of pregnant women who had 21-28 weeks of gestation shown abdominal pain. Gestational age was statistically significant with abdominal pain ($P=0.009$).

Diarrhea was observed on 95.9% study participants among 21-28 weeks of gestational period. Diarrhea was statistically significant. Most of pregnancies 212(93.4%) between 13-20 weeks of gestational age were completely terminated (as shown table 3). Seventy five percent of pregnant women who have 21-28 weeks of gestation did not terminate their pregnancy completely. Completeness of abortion was found to have statistically significant association ($X^2=25.589$, $P<0.002$) with gestational age(as shown table 2).

Table 2: Distribution of Gestational age and Completeness of Abortion among Respondents in Five Hospitals of Amhara Region, North Ethiopia, 2011

Gestational age	Abortion completed		χ^2	P-value
	yes	No		
13-20 weeks	212 (93.4%)	1(25%)	25.589	0.002
21-28 weeks	15 (6.6%)	3(75%)		

Table 3: The association between gestational age and complications and side effects among pregnant in five hospitals of Amhara region, 2011

Side effects and Complications	Category	Gestational age		χ^2	P-value	COR	95% CI
		13-20weeks	21-28weeks				
Headache	Yes	28(13.1%)	3(16.7%)	0.177	0.717	0.757	[0.206,2.782]
	No	185(86.9%)	15(83.3%)				
Abdominal pain	Yes	66(31%)	11(61.1%)	6.778	0.009	0.286	[0.106,0.770]
	No	147(69.0%)	7(38.9%)				
Pelvic infection	Yes	9(4.3%)	1(5.6%)	0.071	0.563	0.750	[0.090,6.276]
	No	204(95.7%)	17(94.4%)				
Diarrhea	Yes	23(96.6%)	190(95.9%)	27.153	0.000	0.97	0.035,0.270]
	No	10(3.3%)	8(4.1%)				
Fever	Yes	33(15.4%)	13(72.2%)	33.493	0.000	0.071	[0.021,0.211]
	No	180(84.6%)	5(17.8%)				

Methods of abortion with completeness of abortion, side effects and complications

The present study shown that, the rate of incomplete abortion between misoprostol alone/with mifepristone and Evacuation and curettage was 2(1.2%) and 2(0.4%) respectively. Effectiveness was not statistically significant with methods of abortion ($\chi^2 = 1.930$, $P < 0.205$).

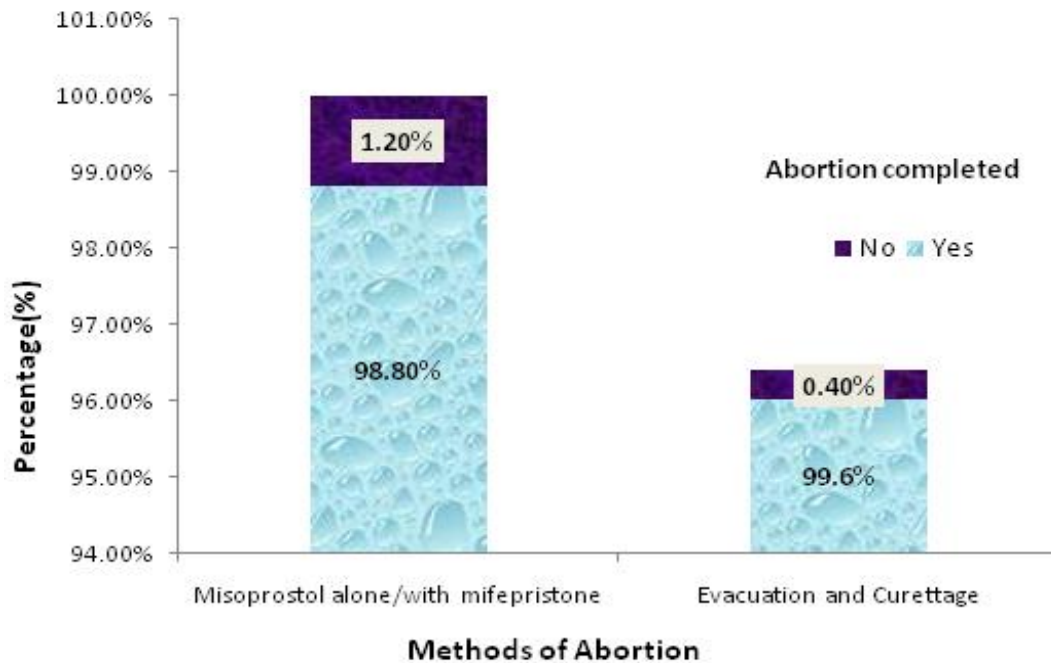


Figure .1: Distribution of Methods of Abortion and Completeness of Abortion among Respondents in Five Hospitals of Amhara Region, 2011.

The result indicated that headache was observed on pregnant using Misoprostol alone/with mifepristone (12.8%) and Evacuation and Curettage (16.0%) methods for termination of pregnancy. The method of abortion was not statistically significant with Headache ($P=0.545$). Ten percents of the respondents used Evacuation and Curettage have shown Pelvic infection. The results of the study indicated that 22.7% of the clients terminate pregnancy were developed abdominal pain. Both abdominal pain and Pelvic infection was statistically significant with methods ($P<0.05$). With in medical method vomiting (9.3%), nausea (14.9%) and fever (11.5%) were observed and on surgical method vomiting accounts (6.5%), nausea (8.5%) and fever (7%) were observed.

The distribution of Side effects and Complications observed on both methods

As shown below (fig.2) the most common maternal side effects and complications found in the present study was abdominal pain (17%) followed by Nausea (13.1%) and bleeding (11.7%) in both methods of abortion.

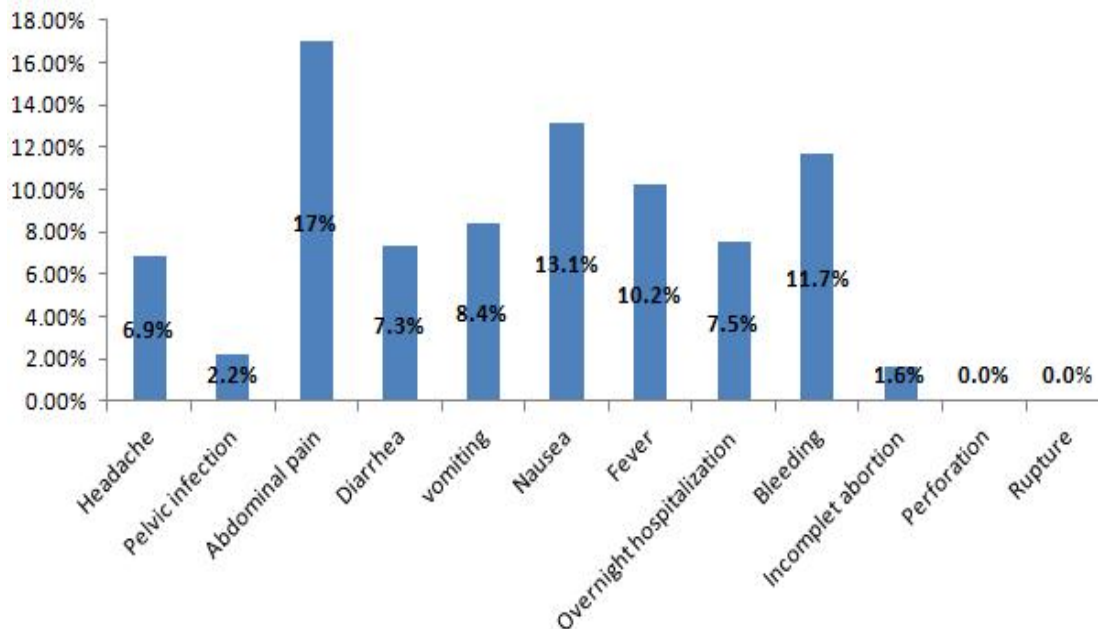


Figure .2: The frequency distribution of complications and side effects among pregnant in five hospitals, Amhara Region, 2011.

DISCUSSION

In the present study majority, 57.1% and 37.7% of the clients were urban in residence and students in occupation respectively. This study revealed that, majority (45.8%) of respondents educational status was secondary school and above. Interestingly, in countries with high rates of unsafe abortion there is a positively associated with increasing education. The least educated women in rural areas being less likely to pursue induced abortion [13].

Effective contraception can reduce but never eliminate the need for termination of pregnancy. In countries with good uptake of contraception, there are still unintended pregnancies requiring termination of pregnancy [14]. The result of this study confirmed that, 61% of the respondent pregnancy was not planned. The result of the present study was higher than Gebreselassie H. et al report (42%) in Ethiopia [15]. Out of these, 58.8% and 26.6% unplanned pregnancy occurred due to rape and incest, and failure/unused of contraceptive methods. A qualitative study of Nigerian adolescents indicated that many seeking abortion had not been motivated to use contraception [16].

The present study revealed that thirty four percent terminate the pregnancy due to failure to recognize the pregnancy earlier. The possible explanation might be women fail to recognize the pregnancy earlier because of irregular, infrequent periods, failed contraception (particularly with methods that can cause amenorrhea or irregular bleeding).

According to Finer LB. et al studies indicated that factors causing women to delay abortions until the second trimester includes:- cost and access barriers, late detection of pregnancy, and difficulty deciding whether to

continue the pregnancy [17]. The results of present study supported this; personal problems like finance, unable to decide...(43.3%), failed to recognize the pregnancy earlier (32.9%) and difficulty in accessing (19.9%) was reasons of delaying abortion.

The result of the present study shown that, 29.4% of abortion was spontaneous. The result was higher than study conducted in Africa by Rogo KO [18]. Sixty five and 22% of pregnant women were terminates their pregnancy between 13-16 and 17-20 weeks of gestational age respectively. Other similar finding done by Ashok P.W, 75% and 25% women were between 13 and 16 weeks and 17 and 21 weeks gestation, respectively [19].

The study done in America indicated that the risk of complications increases with inexperience personnel and gestational age and depends on the method chosen [20]. The results of present study supported this; headache 13.1% occurred among 13-20 weeks and 16.7% observed between 21-28 weeks of gestation (not statistically significant). Abdominal pain (31%) was observed among 13-20 weeks and 61.1% among 21-28 weeks ($P=0.009$). From the study participants, Pelvic infection (4.3%) was observed among 13-20 weeks and 5.6% among 21-28 weeks of gestational age. Even though this is not statistically significant the possible reason might be infection is most associated with retained products of conception in the uterus if the age of the uterus increases or the cervix may be damaged through the use of inappropriate instrument or over forceful dilation. if any internal injury, if not readily diagnosed and treated can lead to serious bleeding, infection, abdominal pain,.. Abortion-related morbidity and mortality increase significantly as pregnancy advances, and a sharp rise in the rate of severe complications is associated with induced abortion after 12 weeks of pregnancy [20].

The present study shown that the rate of abortion completeness was statistically significant associated with gestational age ($P<0.002$). These might be due to use of different methods of abortion or it might be required skilled health professionals.

The complication for which there is a highly significant difference in prevalence between second trimester medical and surgical abortion is incomplete abortion [21]. Our findings demonstrate that rate of incomplete abortion among Misoprostol alone / with mifepristone and Evacuation and Curettage user was 1.2% and 0.4% respectively. Completion of abortion was not statistically significant ($P<0.205$) with methods of abortion in this study.

Other finding in the case series of medical induction with mifepristone–misoprostol, incomplete abortion was noted in 8% of women [22]. Similar study also shown that, where misoprostol alone or other medical induction methods were used, 19% of women had a failed medical induction [21]. These findings are consistent with other studies that have demonstrated that the combined mifepristone–misoprostol regimen results in significantly improved efficacy compared to misoprostol alone [23]. This difference might be due to study design.

In this finding socio-demographic characteristic of the pregnant women was not associated with completion of abortion. Similar to the present study woman's age, parity and history of previous spontaneous or induced abortions were not found to be risk factors in the Canadian study [24].

Based on our finding, nausea was highly occurred in medical methods of abortion these might be due to prostaglandin's stimulatory effect on the gastrointestinal tract. But in the surgical method abdominal pain (27.9%) was happened. No uterine rupture and perforation occurred in the present study. The present study shown the distribution of side effects and complications was higher in Misoprostol alone / with mifepristone than Evacuation and Curettage. Majority, 181(78.3%) of second trimester pregnancy was terminated by Misoprostol alone / with mifepristone in the selected study hospitals in Amhara Region. These might be due to its effectiveness and technically less demanding when compared to surgical methods.

CONCLUSIONS

Based on the findings of the study, the following conclusions are made:

-) The majority of the clients were urban in residence, students in occupation, and secondary school and above on their educational status.
-) Most of the pregnancies were unplanned and abortion was started induced.
-) Financial problems, fear of other people, rape, incest and problems related to their partners were the main reasons of the clients for termination of pregnancy.
-) Medical methods were the commonly methods of termination of second trimester pregnancy.
-) The number of side effects and complications were higher in Misoprostol alone / with mifepristone than Evacuation and Curettage but both methods were effective for termination of pregnancy.
-) Abortion-related complications and side effects were increase significantly as gestational age increases.

Lists of abbreviations

D&E: Dilation and Evacuation, DHS: Demographic and Health Surveys, FDRE: Federal Democratic Republic of Ethiopia, LMP: Last Menstrual Period, TOP: Termination of Pregnancy and WHO: World Health Organization

Competing interests

The authors declare that there are no competing interests

Authors' contributions

All Authors are involved in all the steps from the inception of the research idea to the preparation of the manuscript.

Acknowledgements

We acknowledge Dire Dawa University and Jimma University; College of Medicine and Health Sciences, for the financial support and the chance they gave us to conduct this research. . We are also grateful to IPAs Ethiopia for its support in funding this thesis work. Our appreciation also goes to Solomon Assefa and MuhammedBiza, for their respective comments for our research report. We are also indebted to the participants and those health institutions, for having allowed us to conduct the study.

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