

**Original Article****SURVEY OF UNSAFE ABORTION IN SELECTED HEALTH FACILITIES IN ETHIOPIA**

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**Abstract**

*In order to fill the gap in evidence based information, and help in programming for the reduction of maternal deaths due to unsafe abortion, a nationwide hospital based survey in 9 of the 11 administrative regions of Ethiopia was conducted from June to December 2000.*

*A total of 1075 women presenting with abortion to the 15 hospitals during the study period were consecutively enrolled . About 58 percent of the cases were in the age range of 20-29 years, 26.5 percent were illiterate, and 27.5 percent were with secondary education. Three-fourth of patients had spontaneous abortion and one fourth (25.6 percent) of them had induced abortion. The majority of women (87 percent) were aware of contraceptive methods, but only about half of them ever used a family planning method. Of those pregnancies that ended in abortion 60 percent were unplanned and 50 percent were unwanted. Method non-use was responsible for 78 percent of pregnancies that occurred. Among those with induced abortion, the most common reason for termination of pregnancy was contraceptive need. Rape accounted only for 3 percent of all pregnancies that ended in abortion (i.e. 2.5 percent of all reasons for termination of pregnancies). Fifty eight percent of women who induced abortion terminated the current pregnancy either by seeking the help of untrained personnel or by themselves with no assistance. The most frequent reason for hospital visit was vaginal bleeding and abdominal pain. Evacuation and curettage (E & C) was the commonest method (83.6 percent) of evacuating the contents of the uterus. The major categories of complications identified were infection (28 percent), genital tract injuries (12 percent), foreign bodies in the genital tract (1.6 percent) and organ failure (13.1 percent). There were 13 deaths, which made an overall procedure related deaths of 1,209 per 100,000 abortions. Using a modified Delphi technique, and taking the six months study period, it was found out that the total cost to treat incomplete abortion by health facilities under this survey was Birr 332,259.9. In conclusion, there is a need for a strong family planning program for the country, to prevent unwanted and unplanned pregnancies. There is a also an urgent need for improvement of providers knowledge and skills, provision of safe abortion services, and liberalization of the abortion law. (Ethiop. J. Reproductive Health May 2007, 1(1), 28-43)*

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## Introduction

Unsafe abortion is a preventable tragedy and is one of the neglected problems of health care in developing countries including Ethiopia. Annually, an estimated 25,000 women die of pregnancy and delivery complications in Ethiopia (1) and the maternal mortality ratio (MMR) was estimated to be 871 per100, 000 live births (2). Unsafe abortion has a significant contribution to this high MMR.

A community-based study conducted in Addis Ababa in 1985 revealed that unsafe abortion was the commonest cause of maternal death (3). Furthermore, subsequent hospital-based studies in Addis Ababa, reported that abortion accounted for 22.2% and 52.2% of all maternal deaths (4,5). A report from the Ministry of Health also showed that abortion was the leading cause of hospital admission for women in 1994/95, and it was the second most frequent cause of death next to tuberculosis in the same year (6). These findings indicated that illegal and unsafe abortion was a serious public health problem.

Although after the International Conference on Population and Development (ICPD) (7), the abortion issue received a lot of attention mainly because of its serious health

consequences. However, lack of reliable information or shortage of necessary data on this problem has hampered a number of activities that would have helped in ameliorating the situation. The objective of the study was to describe the magnitude of abortion, the socio-demographic characteristics of women with unsafe abortion and the complications and outcome of abortion in a representative sample of health facilities. Moreover, identifying the factors and reasons associated with unsafe abortion as well as conducting cost analysis using the modified Delphi technique was also the focus of this study.

## Subjects and Methods

This is a cross-sectional study, which was conducted from July to December 2000 in 15 hospitals in 9 regions of the country on the magnitude and complications of abortion. Hospitals from two regions (Benshangul-Gumuz and Harari) were invited to participate but latter failed to do so. However, the population under study constituted over 98 percent of the population of the country (7).

A pre-tested questionnaire with major socio-demographic characteristics, reproductive health history, contraceptive knowledge, attitude and use, reasons and conditions for

induced abortion, history of present illness, complications and outcome of abortion was administered. A checklist was also prepared on physical examination, laboratory and other investigations, drugs, and procedures undertaken and costs for the care of the patient. Trained obstetricians and gynecologists working in the selected hospitals administered the questionnaire and checklist after receiving consent from study subjects. In hospitals where there are no specialists, general medical practitioners were identified to carry out the survey.

For cost analysis, the modified Delphi technique was adopted for this particular survey as there were no standard payments for services, and costs for medications/drugs vary from institution to institution in the public and private sectors. A panel of experts was established to develop models of resource-use addressing three clinical conditions of unsafe abortion (mild, moderate and severe) detailed in Table 1.

Members of the panel comprised of obstetricians/gynecologists, general medical practitioners, midwives and nurse anesthetists at federal and regional levels.

By applying this consensus building qualitative method, it was possible to estimate the direct medical cost that has

been incurred by facilities surveyed. The application of the modified Delphi technique required identified experts to be communicated more than once (not more than three times) on this issue. Moderators collected and compiled information from the panel and communicated back results for consensus. Communication was pursued through mail or hand delivery in order to maintain anonymity of members of the panel to avoid peer pressure and senior staff influence on the group.

All institutions which participated in the study were included in the study after a written institutions consent to participate was secured after which the Ethiopian Science and Technology Commission provided the ethical clearance for the study

## Results

A total of 1075 cases of abortion were included in the study. Table 2 shows the socio-demographic characteristics of the patients who presented with incomplete abortion in health facilities. Women in the age group 20-29 accounted for 58.3 percent of all cases. Fifty three percent were housewives; sixty percent were married, while the rest were single. Students accounted for 14.6 percent of all cases. Although the majority of Ethiopian women

are illiterate, a high proportion of the patients had educational status of primary school or higher. The majority are Orthodox Christians. Amhara and Oromo accounted for 48 percent and 20 percent of all cases, respectively. The distribution of patients by region shows that the majority were from Amhara (27.6 %), Addis Ababa (25 %), Tigray (15.9 %), and Oromiya (13.2 %).

The leading institutions that reported the highest number of abortion cases were Gondar (16.8 %), Mekele (15.7 %), Ghandi Memorial (12.8 %), and Yekatit 12 (10.1 %) Hospitals.

The reproductive characteristics of the study population are detailed in Table 3. One third of the respondents had no previous pregnancy and delivery experiences. Three fourth had no previous history of abortion and ninety percent had no history of induced abortion. The distribution of women by type of abortion revealed that 800 women (74.4%) had spontaneous abortion and 275 (25.6%) had induced abortion.

Looking at the contraceptive knowledge and use profile of the women, one could note the wide discrepancy in the knowledge and use rate of modern methods of contraception. Eighty six percent revealed knowledge of contraception whereas 46.3 % expressed use and 24.7 % revealed use of a method of

contraception prior to the current abortion. Further, more than 50% of all the pregnancies were either unwanted and/or unplanned.

Three hundred seventy seven (35.3%) were unplanned, and 525 (49.1%) were unwanted. Non-use of method was responsible for 78% of pregnancies; 19% women reported that unwanted pregnancy occurred due to contraceptive failure, which has important implications for the provision of appropriate family planning services.

Partner decision alone as a reason for termination accounted for 9.3% of all cases, and rape accounted only for 3% of all pregnancies that ended in unsafe abortion, which was 2.5% of all the reasons for interfering with pregnancies (Table 4).

Fifty eight percent of all cases terminated the current pregnancy either by seeking the help of untrained personnel or themselves with no assistance. Of those women with induced abortion, two hundred fifty nine patients identified the person who initiated the abortion.

Many categories of health workers were involved in providing termination service of which health assistants rank first and pharmacists rank last. Five hundred and forty (65%) of all the interviewees and 181

(70%) of women with induced abortion were aware that abortion was associated with such grave complications like death, bleeding, genital tract injury, infertility and HIV infection as possible risks.

The reasons for hospital visits are shown in Table 5. A patient may present with more than one symptom. The most frequent reason for hospital visit was vaginal bleeding (89.3%, n=960), abdominal pain (43.7%, n= 470), abortion (17.9%, n=192), fever (12.3%, n=132), vaginal discharge (10.6%, n=114), and others (4.5%, n=49). The most common method of evacuation was evacuation and curettage (83.6%) and MVA was employed to a much lesser extent (11%).

The distributions of complications of induced abortion are depicted in Table 6. The major categories of complications identified were infection, genital tract injuries and foreign bodies in the genital tract, which accounted for 28.4%, 12%, 1.6%, respectively. A total of 13 deaths were reported, which makes the overall procedure related death of 1,209 per 100,000 abortions. Comparison of cases with induced abortion with the spontaneous group showed that women who presented with induced abortion were younger than those who presented with spontaneous abortion. The

mean age of women with induced abortion was  $22.9 \pm 5$  years whereas the mean age of women with spontaneous abortion was  $26.3 \pm 6$  years. The difference was statistically significant ( $p < 0.00001$ ). The mean parity of women with induced abortion was  $0.8 \pm 1$ , and that of women who presented with spontaneous abortion  $2.0 \pm 2$ . The difference was statistically significant ( $p < 0.00001$ ).

The odds of dying from induced abortion are more than four times higher in the induced group compared to the spontaneous group (Table 6). The same Table indicated that more women with induced abortion were from urban areas than from rural areas. There was no statistically significant difference between induced and spontaneous group in the incidence of rape.

The panel of experts after considering the different clinical scenarios presented to it by the moderators, and taking into account the resources used to treat incomplete abortion by category of severity (Table 7) came up with reasonable and more accurate resource expenditure in the management of incomplete abortions. It was found out that for 450 mild cases of incomplete abortion, the cost of treatment was Birr 55,813.50. The highest resource expenditure was for 610 moderate cases, which resulted in Birr 261,332.85 for treatment.

As the number of severe cases was few who underwent laparotomy (15 patients), the cost of treatment was only Birr 15,113.55. However, the total cost for the treatment of incomplete abortion incurred by health facilities under this survey was Birr 332,259.90. The average cost therefore, for the treatment of incomplete abortion per woman in government health facilities was estimated at Birr 309.08. This cost estimate showed the direct medical cost incurred without taking into account depreciation costs of facilities, and medical equipment. Other opportunity costs like absence from work, school, and time lost in providing household care, etc. were difficult to either measure or estimate.

When the average cost of treatment was disaggregated by severity of illness, it was found out that the direct medical cost showed a progressive increment with the severity of illness. Accordingly, the cost for mild abortion was Birr 124.03, for moderate Birr 428.11, and for severe abortion was Birr 1007.54. This showed that the cost for moderate and severe abortion was more than three-fold and 8-fold, respectively when compared to the mild abortion cases.

**Table 1: Categories of Severity of unsafe abortion used for the modified Delphi technique**

<b>Category</b>	<b>Procedure</b>	<b>Treatment</b>
Mild	E & C for incomplete abortion without complications	E & C, antibiotics, uterotonics
Moderate	E & C for incomplete abortion with anemia, infection, hemorrhagic/septic shock	E & C, antibiotics, uterotonics, IV fluid, blood
Severe	Laparotomy for perforated uterus, pelvic abscess, and/or generalized peritonitis	Laparotomy, antibiotics, uterotonics, IV fluid, blood

**Table 2: Distribution of women who presented with abortion in selected health institutions in Ethiopia by socio-demographic characteristics**

Variables	Number	Percent
Age in years		
<20	173	16.2
20-24	312	29.2
25-29	311	29.1
30-34	154	14.4
35-39	88	8.2
40-45	31	2.9
Occupation		
House wife	569	53.2
Student	156	14.6
Govt. employee	111	10.4
Unemployed	90	8.4
Others	145	13
Marital status		
Married	708	66.1
Single	286	26.7
Divorced	28	2.8
Widowed	15	1.4
Separated	4	0.4
Education		
Illiterate	284	26.5
Read and write	108	10.1
Primary school	182	17
Junior secondary	164	15.3
Secondary school	294	27.5
University/college	38	3.6
Religion		
Orthodox	514	47.9
Muslim	218	20.4
Protestant	191	17.8
Catholic	66	6.2
Others	82	7.6

**Table 3: Distribution of women who presented with incomplete abortion in selected health institutions by their reproductive performance**

Characteristic	Number	Percent
Gravidity		
1	371	34.6
2-4	488	45.6
5-13	213	19.8
Parity		
0	371	34.6
1	298	27.8
2-4	289	26.9
5-11	113	10.5
Previous Abortion		
0	848	78.8
1	159	14.8
2	41	3.8
3	10	0.9
4	6	0.5
5-12	8	0.7
Previous Induced Abortion		
0	993	92.3
1	66	6.1
2	9	0.8
3	5	0.4
4	1	0.1
5	1	0.1

**Table 4: Distribution of women who presented with induced abortion in selected health facilities by reasons for terminating pregnancies (n=399)\***

Reasons	Number	Percent
Need for spacing or not wanting a child	270	67.7
Partner decision	37	9.3
Societies disapproval	37	9.3
Medical reasons	11	2.7
Rape	11	2.7
Others	33	8.3

\*A woman can give more than one reason

**Table 5: Complications identified in women who presented with abortion to selected health facilities.**

<b>Type of complication (N=1075)</b>	<b>Frequency</b>	<b>Percent</b>
Infection	306	28.4
Endometritis	125	
Sepsis	69	
Pelvic peritonitis	29	
Septic Shock	27	
Salpingitis	18	
Generalized Peritonitis	9	
Pelvic Abscess	7	
Tetanus	4	
Other	18	
Gential Tract Injury	129	12
Cervical Tear	90	
Vaginal Laceration	28	
Uterine Perforation	8	
Other Traumas	3	
Foreign Body	17	1.6
Cervix	7	
Uterus	7	
Vagina	3	
Organ Failure	4	
Congestive Heart Failure	15	
Shock	9	
DIC	5	
Renal Failure	5	
Other	13	
Death	13	1,209*

**Table 6: Comparison of cases with induced and spontaneous abortion by selected Characteristics**

Categories	Induced Abortion	Spontaneous Abortion	COR* (95%CI)
Place of Residence Urban Rural	250 25	619 179	2.8 (1.8-4.6)
Days of presentation Non working days Working days	94 154	216 513	1.45 (1.06-1.98)
Knowledge of contraception No Yes	22 253	122 678	2.06(1.2 - 3.5)
Rape Yes No	11 202	8 342	2.33 (0.85-6.46)
Outcome Dead	8	5	4.7 (1.39-16.79)

\* COR = Crude Odds Ratio

**Table 7: Hospital costs of unsafe abortion by category of severity.**

Category	Hospital Stay	Procedure	Drugs & Supplies	Total
Mild	2,137.50	33,750	19,926	55,813.50
Moderate	12,361.75	75,000	173,971.10	261,332.85
Severe	712.5	1,350	13,051.05	15,113.55
<b>Total</b>	<b>15,211.75</b>	<b>110,100</b>	<b>206,948.15</b>	<b>332,259.90</b>

## Discussion

This survey clearly showed the serious problem of unsafe abortion in Ethiopia. The huge unmet need in family planning coupled with poor knowledge and skills of services providers in MVA techniques to avail the necessary services, lack of safe abortion services due to the failure to recognize unsafe abortion as a serious public health problem has led the situation to deteriorate further.

Among induced abortion cases the most common reason for termination of pregnancy could be attributed to contraceptive needs. Either the women decided to space or did not want a child at the time of abortion. This may point to certain important facts including the unmet need for contraception and possible use of abortion as a family planning method. In this survey, about two thirds of the respondents tried to terminate pregnancy for contraceptive reasons at the time abortion, as they had decided to space or have no more children. The recent Demographic health survey (DHS) (2) underscored the very low contraceptive prevalence rate (CPR) (6% )for modern methods and 8% for all methods combined, and the unmet need

for contraception, which was 40% among married women (2).

It is important to note that the proportion of women with induced abortion is higher in women with adequate knowledge of contraceptives. Therefore, looking at the contraceptive knowledge and use profile of the women, one could observe the wide discrepancy in the knowledge and use rate of modern methods of contraception. Most women in this study who resorted to unsafe abortion did not use a method even when the pregnancy was unwanted and unplanned.

The fact that 58% of the pregnancy terminations were initiated by the pregnant women themselves or by untrained personnel like friends, relatives or other acquaintances of the woman showed how much desperation or determination there were in the women with unwanted or unplanned pregnancy to get rid of the pregnancy.

In addition, the majority of health professionals reported to have conducted the procedure included those who were not formally trained (health assistants, nurses and pharmacists), and are highly likely to lack the necessary skills to safely undertake such procedures. This state of affairs very

much increases the procedure related complications.

The case fatality rate (CFR) for abortion in this study is very high even by African standard where procedure related deaths are reported to be 600 deaths per 100,000 procedures. The procedure related deaths for developed countries is about 30 deaths per 100,000 procedures (8).

Comparison of deaths between spontaneous and induced abortion cases showed that women with induced abortion had more than four times chance of dying from abortion. This is expected, as women with induced abortion are likely to have infection, bleeding, perforation and other complications.

Hospital costs for incomplete abortions are very high. Using a combination of primary data generated from this study and secondary data from national figures, it was found out that abortion accounted for 7% (hospital data) of all deliveries. However, the abortion rate can reach as high as 15% of all deliveries. This survey revealed that the mean cost of medical care for abortion treatment is Birr 309, and death secondary to unsafe abortion (the case fatality rate) was 1209 deaths per 100,000 abortions.

On the other hand, taking the national crude birth rate at 40 births per 1000 population,

and the health service coverage at 50% (2) as secondary data, one could get an estimated 3 million births per annum with an estimated 212,000 abortion cases in the country. Taking the above CFR, there will be an estimated 2,571 deaths from abortion complications alone. This shows the gravity of the abortion situation in the country. Moreover, with the above estimated abortion cases, the total medical cost incurred for the treatment of these cases will be close to Birr 65 million. Taking the health service coverage into consideration, and the availability of existing services, at least 50% of the estimated cost, which is over Birr 32 million, could be incurred by patients or the health service or both.

**Conclusion**

Although most respondents 86.6% were aware of family planning methods only 24% had used the services prior to the current abortion. This calls for further study to assess why women are not using contraceptives when they know more about them and yet resort to dangerous abortion procedures. It is of paramount importance to strengthen the national family planning program with effective coordination of the efforts of all stakeholders to enable women have access to quality information, counseling and services in order to minimize unwanted and unplanned pregnancy and the resort to unsafe abortion.

Over 45% of all abortions occurred in adolescents and the younger age group that are more likely to have irregular, unplanned, hurried and clandestine sexual behavior.

Under such circumstances, use of emergency contraception can prevent a lot of unwanted pregnancies and hence reduce unsafe abortion. Therefore, introduction and promotion of EC in the country would greatly reduce the rate of unwanted pregnancy and thereby decrease the high maternal deaths associated with unsafe abortion. Majority of service providers (81%) resorted to sharp metallic curettage as opposed to MVA (11%), which is currently considered a safe method. Furthermore,

mid-level health workers initiated 27.8% of all abortions, which is an important role in abortion care provision. Although this activity is not formally recognized by the public sector, there is an urgent need to recognize this role, and organize trainings on post abortion care (PAC) at all levels. Therefore, there is a need for initiating and strengthening a national training and services program on PAC.

Contraceptive method failure was responsible for 18% of all pregnancies that resulted in unsafe abortion, and was the second commonest reason for occurrence of unwanted and unplanned pregnancies. Rape also contributed 3% of abortion cases. Until safe abortion services are available on demand, it is a high time that those women who become pregnant subsequent to method failure and rape be provided with safe abortion services.

Unsafe abortion should get the necessary recognition as a major public health problem in the country. This recognition is expected to lead for the liberalization of the abortion law in the country. In this regard, conducting an advocacy work among policy makers by utilizing information generated from this study and from within the country would help to bring about a change in the abortion law.

The above cost projections that were calculated clearly demonstrate the fact that abortion is not only a public health problem of national significance in terms of morbidity and mortality, but it has also got an economical dimension, which should not be underestimated. It is necessary therefore

to conduct the necessary advocacy work at federal and regional levels particularly on the cost issue. It is understood that the available meager resources of the country should not be consumed for the treatment of abortion.

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