

ORIGINAL RESEARCH ARTICLE

Abortion and Unwanted Pregnancy in Adigrat Zonal Hospital, Tigray, North Ethiopia

Amanuel Gessesew

Mekele Hospital, P.O. Box 22, Mekele, Tigray, Ethiopia.

*For correspondence: Amanuel Gessesew. *E mail:* kalkidus@yahoo.com.

Abstract

Unwanted pregnancy is associated with increased risk of maternal mortality and morbidity. This study was done to determine the causes of unwanted pregnancy and its impact on maternal health. A cross sectional study (February 1, 2002-January 31, 2004) was conducted on 907 patients with diagnosis of abortion and admitted to the gynecological ward of Adigrat zonal hospital, Tigray Region, Ethiopia. This accounts to 12.6% of all hospital and 60.6% of gynecological admissions. The majority of these women (69.8%) had unwanted pregnancy. Modern contraception methods were not in use in 76.2% of unwanted and 57.7% of wanted pregnancies ($P = 0.008$). Interference was reported in 81.4% of unwanted pregnancy. High incidence of complication was reported in patients with unwanted pregnancy. In this study it is found that unwanted pregnancy is associated with increased risk of maternal morbidity and mortality. The development and prompt implementation of a strategy that enables women to safely manage unwanted pregnancy is recommended (*Afr. J. Reprod. Health* 2010; 14[3]: 183-188).

Résumé

Avortement et la grossesse non voulue dans l'hôpital zonal d'Adigrat, Tigray, Ethiopie. La grossesse non voulue est liée au risque accru de la mortalité et la morbidité maternelles. On a mené cette étude afin de déterminer les causes de la grossesse non voulue et son impact sur la santé maternelle. Nous avons mené une étude transversale (1^{er} février 2002-31 janvier 2004) auprès de 907 patientes dont le diagnostic était l'avortement et qui ont été admises dans la salle gynécologique de l'hôpital zonal d'Adigrat, dans la région de Tigray, en Ethiopie. Ceci représente 12% de toutes les admissions hospitalières et 60% des admissions gynécologiques. La majorité des ces femmes (59,8%) ont eu des grossesses non voulues. On ne se servait pas de méthodes de la contraception moderne dans 76, 2% des grossesses non voulues et dans 57,7% des grossesses voulues ($P=0,008$). On a signalé des interférences dans 81,4% des grossesses non voulues. Dans cette étude, on a découvert que la grossesse non voulue est liée au risque accru de la morbidité et mortalité maternelles. Nous préconisons l'élaboration et la mise en application d'une stratégie qui permet aux femmes de gérer la grossesse non voulue d'une manière sans danger (*Afr. J. Reprod. Health* 2010; 14[3]: 183-188).

Key words: unwanted pregnancy, unsafe abortion, modern methods of contraception.

Introduction

There are an estimated of seventy six million pregnancies that occur each year in developing countries that are unwanted¹. An estimated of 42 million pregnancies were induced in 2003 world-wide out of which 48% were unsafe². The vast majority of unsafe abortion (97%) was in developing countries. Unsafe abortion accounts for 14% of all maternal deaths in sub-Saharan Africa where half of the maternal deaths occur³.

The association of maternal health problems with unwanted pregnancy and unsafe abortion was documented in previous studies⁴⁻¹⁰. Based on these reports unsafe termination of pregnancy contributes

up to 60% of maternal death in the Africa. There are also long term health problems associated with unsafe abortion such as chronic pelvic pain, dyspareunia and infertility.

In developing countries, many women are at risk for unwanted pregnancies because contraception is not used for various reasons¹¹⁻¹⁴. In Ethiopia, the use of modern methods of contraception to prevent unwanted pregnancy has been advocated for the last 50 years. However, recent reports¹⁵ show that the contraceptive prevalence rate is 23% in this country, which is one of the lowest in the world. When women are able to access modern methods of contraception, pregnancy can occur after failure of the contraceptive method^{4,5}. In addi-

tion, other reports^{5,14} show that forced sexual intercourse also contributes to a significant number of unwanted pregnancies. Hence, unwanted pregnancy continues to be very common and poses a great challenge to maternal health.

Previous reports from Ethiopia revealed that unsafe abortion is one of the major causes of maternal death. However, efforts to reduce the incidence of unwanted pregnancy were not successful. There is a need of further study to understand the causes of unwanted pregnancy and its impact on maternal health which may help to develop new strategies to deal with unwanted pregnancies.

Methods

This study was conducted in Adigrat Zonal Hospital in Tigray which is the north most Region of Ethiopia. This hospital is located in Adigrat, the Administrative Town of Eastern Zone (One of the Five Zones of the Region). The population of the Zone is 800,000 (20% of the population of the Region), among which 120,000 people live in the town. This town is Located about 1,000 km from the capital city, Addis Ababa, and 35 km from the boarder between Ethiopia and Eritrea.

Adigrat Zonal Hospital has a bed capacity of 110, out of which 37 of them belong to obstetric and gynecological patients. A structured questionnaire was used to collect information from all patients who were admitted with a diagnosis of abortion to the gynecological ward of the hospital from February 1, 2002 to January 31, 2004. Questions included socio-demographic status, use of contraception, gravidity and parity, sexual history, type of abortion, whether pregnancy is wanted or not, maternal complications, duration of vaginal bleeding before admission, and length of hospital stay. Various registration books of the hospital were reviewed to reconcile them with the total number of admission to the gynecological ward, labor ward and other wards of the hospital. Classifications were made according to standard definitions. Pregnancy was classified as unwanted if it occurred without the intention of the woman. Pregnancy that occurred intentionally is classified as wanted (including patients that changed their mind after pregnancy has occurred). Abortion is defined as expulsion of the fetus before 28 weeks of gestation age from the last normal menstrual period. This study was done before revision of the abortion law and includes patients who were admitted for Post Abortion Care.

The questionnaires were filled out by three individuals who were regularly assigned to the hospital by the regional health bureau (two general practitioners and one health officer) after a short training on the contents of the questionnaire.

The study was conducted after gaining permission from the Tigray regional health bureau and ver-

bal consent from the patients. The data was entered, cleared and analyzed with EPI-INFO version 6 statistical packages. Further analysis was made using SPSS 11 for Windows. Descriptive statistics and logistic analysis were completed.

Results

During the study period there were a total of 7203 patients admitted to Adigrat Zonal Hospital. Among these, 1469 (20.4%) were gynecological patients. There were 907 cases of abortion accounting for 60.6% of gynecological admissions and 12.6% of all hospital admissions (leading cause of admission to the hospital). During the same period, 2141 mothers delivered in the hospital, making the rate of abortion 424 per 1000 deliveries.

Among the total of 907 patients admitted to the hospital with abortion and its complications, 902 of them responded whether pregnancy was wanted or unwanted. The majority (69.8%) had unwanted pregnancies. The mean age was 32.0 for women with unwanted pregnancies and 23.9 for wanted pregnancies.

Nulliparous patients accounted for 17.3%, 57.4% had one or two children and 25.4% had more than 2 children for those who had a wanted pregnancy. Conversely, the results for unwanted pregnancy were 65.2%, 26% and 8.7% respectively. The mean gestational age was 10.7 weeks for wanted and 10.8 weeks for unwanted pregnancy.

The mean age of the sexual initiation was 17.5 years in wanted pregnancies and 15.6 for unwanted ($P < 0.001$). Sexual initiation was consensual in 76.8% of wanted and 57.3% of unwanted pregnancies ($P < 0.001$). Regarding the current pregnancy, 19.7% of unwanted pregnancies were reported to be forced. However, only 18 of them (14.5%) were reported to the police and only 6 (4.8%) of the perpetrators were convicted.

The Hospital offers all contraceptive services including post abortion and emergency contraception. Modern methods of contraception were never used by 76.2% of women with unwanted pregnancies compared with non-use by 57.7% of patients with wanted pregnancies ($P = 0.008$). However, only 7.3% of those with unwanted pregnancies and 1.6% of women with wanted ones lacked the knowledge of modern types of contraception. Out of the total 902 patients, only 11 patients had the knowledge of emergency contraception (1.2%). In addition, only 3 patients were given emergency contraception after forced sexual intercourse (2.4%). Out of the total 630 unwanted pregnancies, 21 patients (3.3%) developed pregnancy while they were using contraception.

Unwanted pregnancy due to contraceptive failure with oral contraceptives was reported in 19 patients (3%) and with injectable contraceptives in 2

Table 1. Logistic regression analysis on the association of various factors with unwanted pregnancy (Adigrat Hospital, February 1, 2002- January 31, 2004).

Variables	Unwanted pregnancy		Wanted pregnancy		P value	OR (95%C.I)
	Freq	%	Freq	%		
Age (Yrs)						
<20	269	42.7%	19	7%	0.04	1.64 (1.01-1.76)
≥20	361	57.3%	253	93%		
Address						
Urban	590	93.7%	234	86%	P<0.001	23.90 (6.20-92.62)
Rural	40	6.3%	38	14%		
Occupation						
Students	396	62.9%	17	6.3%	P<0.001	14.20 (8.30-23.76)
Others	234	37.1%	255	93.7%		
Education						
Illiterate	127	20.2%	112	41.2%	NS	-
Literate	503	79.8%	160	58.8%		
Marital status						
Married	176	27.9%	255	93.8%	P<0.0001	26.70 (10.13-70.28)
Single	454	72.1%	17	6.2%		
Parity						
0	411	65.2%	47	17.3%	NS	-
≥1	219	34.8%	225	82.7%		
Use of contraceptive						
Yes	150	33.8%	115	42.3%	0.008	2.90 (1.32-6.28)
No	480	76.2%	157	57.7%		

patients (0.3%). The association of various factors with unwanted pregnancy is shown in Table 1.

The reasons for unwanted pregnancies included: being unmarried (49.2%), rape (19.7%), spacing (12.4%), economic reasons (17.8%) and in 1% gave no reason.

Eight patients with wanted pregnancy (2.9%) and 513 (81.4%) with unwanted pregnancy interfered with pregnancy unsafely (P<0.0001). On the other hand, 30.9% of wanted and 26.2% unwanted pregnancies had previous history of interference (P=0.168). Of 630 unwanted pregnancies, 18.6% of the women had a spontaneous abortion. These women were asked why pregnancy was not interfered with and the responses were: lack of money (47%), fear of complications (24.8%), fear of death (9.4%), lack of information as to where to terminate the pregnancy (15.4%) and did not know that she was pregnant (3.4%). Eight patients interfered with pregnancy in spite of the fact that it was initially wanted and the stated reasons were: disagreement with husband/partner and inconvenience by change of workplace. Even though 512 patients interfered with pregnancy, only one illegal abortionist was reported to be arrested by the police. No woman was reported to be arrested after unsafe abortion. The amount of money paid to illegal abortions to induce

abortion in 495 respondents ranged from 2.7-26.8 USD (mean 11.6 USD)

Antibiotics were given in 78.4% and 30.9% of unwanted and wanted pregnancies (P<0.001). Fifty-one percent of unwanted pregnancies and 25.7% of wanted received I.V fluid (P<0.001). Eighteen percent of unwanted pregnancy and 5.5% of wanted pregnancies received blood transfusions (P<0.001).

Among 272 respondents with wanted pregnancy, 95.9% reported to the hospital within three days of vaginal bleeding. However only 74.9% of patients with unwanted pregnancy arrived to the hospital within this period of time (P<0.001). Patients stayed in the hospital from 1-9 days. The mean length of stay was 1.42 days (wanted) and 2.06 (unwanted). Patients were discharged within one day in 77.6% of wanted pregnancy cases and 52.2% of unwanted cases (P<0.001). Seventy four patients with wanted pregnancy had complications (Sepsis and hypovolemic shock). On the other hand 367 patients with unwanted pregnancy had complication (Sepsis and hypovolemic shock being the main complication). Table 2 shows the various complications documented. There were three maternal deaths and the causes were renal failure in one patients and sepsis in two patients. Logistic regression analysis on factors related to the outcome of abortion can be

Table 2. Complications of Patients with abortion diagnosis (Adigrat Hospital, Feb.1, 2002-Jan.31, 2004).

Complications	Wanted pregnancy	Unwanted pregnancy
	n(%)	n(%)
Sepsis	38 (14.0%)	167 (26.5%)
Hypovolemic shock	36 (13.2%)	155 (24.6%)
Tubovarian abscess	-	12 (1.9%)
Generalized peritonitis	-	7 (1.1%)
Cervical Laceration	-	6 (1%)
Septic Shock	-	5 (0.8%)
Vaginal Laceration	-	4 (0.6%)
Perforation (uterine)	-	4 (0.6%)
Pelvic inflammatory disease	-	3 (0.5%)
Maternal death	-	3 (0.5%)
Renal failure	-	2 (0.3%)

Table 3. Logistic Regression Analysis on factors related to the outcome of abortion, (Adigrat Hospital, February 1, 2002-January 31, 2004).

Variables	Unwanted pregnancy		Wanted pregnancy		P value	OR(95%C.I)
	n	%	n	%		
Interference						
Yes	513	81.4%	8	2.9%	<0.0001	.005 (.002-.014)
No	117	18.6%	264	97.1%		
Duration of vaginal bleeding						
≤3 days	472	74.9%	261	95.9%	.021	7.960 (1.37-46.13)
> 3 days	158	25.1%	11	4.1%		
Complications						
Yes	367	57.5%	74	27.2%	NS	
No	263	42.5%	198	72.8%		
Gestational age						
≤ 12 weeks	535	84.9%	212	77.9%	NS	
> 12 weeks	95	15.1%	60	22.1%		

seen in Table 3.

Post-abortion contraception, which is regularly offered to patients after counseling, was given to 188 patients with wanted pregnancy (69.3%). All methods of modern contraception including permanent methods are available in the hospital. Injectable contraception was preferred by 56.9%, oral contraception by 41.5%, and implant by 1.6%. Conversely, 462 patients with unwanted pregnancy (73.3%) were given modern methods of contraception and the preferred methods were injectable by 79.2% and oral contraception by 20.8% of the women

Discussion

This study shows abortion to be the leading cause of admission and documents a very high abortion to delivery ratio in Adigrat Zonal Hospital. Previous reports from Ethiopia¹⁶ claimed that abortion was the

fifth leading cause of admission to hospitals and there was a lower abortion to delivery ratio (317.8 / 10000 deliveries). This variation can be either due to a difference in the utilization of health services by the community or actual difference in the incidence of abortion. Regardless, this data once again provides evidence that abortion still continues to be a major maternal health concern in the country.

Similar to previous reports^{5,14,16-18} the majority of patients admitted with abortion had unwanted pregnancy and its main reasons for being unwanted were forced sex, economical reasons, spacing of children and being unmarried. In addition, this report supports the association of young age, urban address, being a student, unmarried and the lack of use of contraception with unwanted pregnancy which was shown by previous study⁵. Ultimately, a preventive strategy needs to address these issues at a wide scale to decrease the incidence of unwanted pregnancy and its complications.

Rape is reported to be common in Ethiopia and associated with various health problems including unwanted pregnancy and unsafe abortion¹⁴. In this study 19.7% of women with unwanted pregnancy reported non consensual sexual intercourse resulting in the current pregnancy and many patients had forced sexual initiation. The majority of the victims never reported this incident to the police and only one third of the men who reported to the police by the women in this study were convicted. This indicates yet another difficulty in preventing unwanted pregnancy and the poor effort made to prosecute forced sex in this country.

Unwanted pregnancy is associated with increased risk of maternal complications and more utilization of hospital resources^{3,6,7}. Similarly, this report revealed the condition to be associated with higher incidence of maternal complications, more common use of antibiotics, I.V fluids, and blood transfusion and longer mean hospital stays. Logistic regression analysis shows that interference with pregnancy and delay in seeking treatment are independently associated with unwanted pregnancy and may explain the highest rate of complications and utilization of hospital resources. The stigma associated with unwanted pregnancy may be the reason for the delay in seeking treatment.

In obstetrics, when there is a disease that poses a danger to the life of the mother by continuation of pregnancy, termination of pregnancy is indicated without regard to the life of the fetus. Nevertheless, despite the fact that unwanted pregnancy is highly associated with maternal mortality and morbidity and some of the causes are beyond the control of the women (forced sex or contraceptive failure), termination of pregnancy is illegal in many African countries^{6,7}. This study shows only one illegal abortion and no patient arrests. However, patients paid an average of 11.6 USD to illegal abortionists and there was more utilization of hospital resources after unwanted pregnancy and unsafe abortion. This indicates women are not protected and illegal abortionists continue to make profit and avoid prosecution. The Ethiopian law for abortion was revised and liberalized in 2005 which allows termination of pregnancy in women under age of 18, forced sexual intercourse and incest (Stating one of these factors by a woman is enough to justify access to safe abortion service). However there is evidence that the abortion law is not implemented very well². Hence, there is a need of prompt implementation of the revised abortion law in this country, as well as increasing women's knowledge about safe abortion services.

A significant number of patients reported a previous history of induced abortion. The enormous health gain attained by post abortion contraceptive counseling is previously reported²²⁻²⁴. Desire to utilize post-abortion contraceptives was high in this

study with no significant difference between women with wanted and unwanted pregnancies. The preference of injectable contraceptives to other methods by patients with unwanted pregnancies could be due to the advantage of privacy afforded by this method.

In conclusion, this study shows unwanted pregnancy continues to be common in Ethiopia and poses a challenge to maternal health. This data also shows utilization of emergency contraception is very low, even though forced sex was one of the major reasons for unwanted pregnancy. Moreover, it has shown that little effort is being made to prevent forced sex. Prompt implementation of the revised abortion law may have a significant role in the improvement of maternal health and may reduce the burden on the utilization of health services. Increasing the awareness of women to emergency contraception may significantly reduce the incidence of unwanted pregnancy.

Acknowledgement

The author would like to thank Dr Gebreab Barnabas, Head of the Tigray Regional Health Bureau, for his continuous encouragement and support and Dr Ndola Prata for her invaluable comments in writing up the manuscript.

References

1. World Health Organization. Unsafe abortion: Global and regional estimate of the estimate of unsafe abortion and associated mortality in 2003, 5th Edition, Geneva, Switzerland: WHO, 2007.
2. Gilda S, Stanley H, Susheela S, Elisabeth A, Iqbal HS. Induced abortion: estimated rates and trends worldwide. *Lancet* 2007; 37: 1338-45.
3. Yirgu G, Tippawan L. Trends of abortion complications in a transition of abortion law revision in Ethiopia. *J. Pub. Health* 2008; 31(1): 81-87.
4. Kabir SM. Causes and Consequence of Unwanted Pregnancy from Asian Women's Perspective. *Intl. J. Obstet.* 1989; 3(Supp):9-14.
5. Alan Guttmacher Institute. Unwanted Pregnancy and Induced Abortion in Nigeria; Causes and Consequence. New York, 2006.
6. World Health Organization. Unsafe Abortion; global and regional Estimates of Incidence of Unsafe Abortion and Associated Mortality in 2000. Geneva, 2004
7. World Health Organization. Safe Abortion Technical and Policy Guidance for Health Systems. Geneva, 2003.
8. Ali Y. Analysis of Maternal deaths in Jimma Hospital South Western Ethiopia. *Ethiopian Med. J.* 1994; 32: 125-29
9. Kwast BE, Bekele M., Yoseph S, Gossa A. Confidential Enquiries into Maternal Deaths in Addis Ababa, Ethiopia. *J. Obst. Gyn East Cent Afr.* 1989; 8:75-82.

10. Yoseph S, Kifle Getahun. A Six Year review of maternal mortality in a teaching Hospital, Addis Ababa. *Ethiopian Med. J.* 1988;26:115-20.
11. Fantahun M, Chala F, Loha H. Knowledge, Attitude and Practice of Family Planning Among Senior High School Students in North Gondar. *Ethiopian Med. J.* 1995; 33(1):21-29.
12. Ismael S, Damene H. Family Planning Survey in North Gondar, Ethiopia. *Ethiopian Med. J.* 1996; 34(3):173-182.
13. Versnel M, Berhane Y, Yohannes F. Sexuality and Contraception among Never Married High School Students in Butajura, Ethiopia. *Ethiopian Med. J.* 2002; 40(3):41-51.
14. Gessesew A, Mesfin M. Rape and Related Health Problems in Adigrat Zonal Hospital, Tigray, Ethiopia. *Ethiopian J. Health Devt.* 2004;18(3):140-14.
15. Health and Health Related Indicators. Federal Democratic Republic of Ethiopia. Ministry of Health 2004; 1-60.
16. Ethiopian Society of Obstetricians and Gynecologists. A data base on Abortion Literature Review. Addis Ababa, 2000.
17. Mellanby AR, Pearson VAH, Tropp JH. Preventing Teenage Pregnancy. *Arch. Dis. Child.* 1997; 77:459-462.
18. Shiferaw M., Gebrehiwot S. Socio Demographic factors influencing the use of modern contraception in an Urban Population in South Western Ethiopia. *Ethiopian J. Health Devt.* 1993;7(1):1-7.
19. Elbertson C., Winikoff B., Armstrong E., et al. Expanding Access to Emergency Contraception in Developing Countries. *Stud. Fam. Plann.* 1995; 26(5): 251-63.
20. Westerly E. Emergency Contraception: A Global Overview. *J. Am. Med. Women's Assoc.* 1998; 3(5); 215-8.
21. Kebede Y. Emergency Contraception: Knowledge and Practice of Gonder University Students, Northwest Ethiopia. *Ethiopian Med. J.* 2006;44(3):221-230.
22. Margolis A. Contraception after Abortion. *Family Planning Perspectives* 1974; 6:56.
23. Kero A, Lalos A. Increased contraceptive use one year post Abortion. *Hum. Reprod.* 2005; 20(11):3085-3090.
24. Lema VM. Mpagna VM. Post abortion contraception availability in Blantyre, Malawi. *East Afr. Med. J.* 2000; 77(9):488-93.