ABORTION STATISTICS IN ZAMBIA: 'IMPLICATIONS FOR UNSAFE ABORTION, REPRODUCTIVE HEALTH PROGRAMMING, POLICY AND RESEARCH APPROCAHES'

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ABSTRACT

Zambia has a liberal abortion law for termination of pregnancy on medical and social grounds for over three decades. Yet, it still faces serious consequences of increased morbidity and mortality associated with unsafe abortion. The extent of its national incidence remains unknown. There are substantial differences evident between legal abortions and illegal (unsafe) abortions demonstrating gaps in under reporting of abortion incidence which may require further estimation. Compiling Zambian abortion statistics as "research in brief" was essentially needed to provide direction to national abortion incidence measurements in Zambia, more strengthening of reproductive health services, possible review of policies and seek opportunities for further research approaches for understanding the magnitude of abortion problem and the means to prevent unsafe abortion occurrences. Thus contributing to reduction in abortion related morbidity and mortality in the country.

An explorative descriptive survey was carried out in five (5) major hospitals to collect abortion statistics using a checklist tool for record review by the principal investigator with the assistance of five Ministry of Health professionals designated in these hospitals. Analysis employed aggregation compilation of annual abortion statistics collected from three (3) major tertiary hospitals and two (2) general hospitals for a period of nine years, 2000-2008 in five urban districts of four (4) provinces of Zambia. Analysis further involved application of descriptive statistics and significant tests, trend analysis and incidence rates

A total number of 115886 abortions collected from five major hospitals in four provinces of Zambia over a period of nine (9) years, 2000-2008, show a varied distribution of 616 (0.5 %) for safe induced abortion, legally terminated pregnancy cases and 66687 (57.5%) abortion admissions with complications. Out of this figure, 474885 cases received post abortion care involving manual vacuum aspiration procedure (MVA) translating to over 70 percent of abortion complications had MVAs which reflect the extent of unsafe abortion exposure to Zambian women. Abortion morbidity and consequences of mortality are high and increasing in trend giving six per thousand women die of abortion complications, most likely due to unsafe, induced abortion. Access to safe induced abortion in major hospitals is quite low, yet Zambia has a liberal law for a termination of pregnancy on health and social grounds.

IMPICATIONS: **A**bortion statistics show their relevancy for developing research priorities, policy review, reproductive health services to intensify abortion advocacy on its consequences, access to safe abortion care and contraception to prevent unwanted pregnancy.

KEY WORD (S): Abortion statistics/ unsafe abortion/ abortion complications/ mortality/ post abortion care/ legal abortion/law/Zambia

Introduction

Zambia as one of the countries with an explicit liberal abortion law in Africa[1,40-41], still faces challenges of persistent morbidity and mortality associated with unsafe abortion[2 - 6]. Unsafe abortion defined as 'a procedure for terminating an unintended pregnancy, either by persons lacking the necessary skills or in an environment lacking the minimal medical standards or both'[7] poses a serious risk consequence affecting many women in Zambia. However, gaps in the

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national abortion incidence measurement still exist in the most recent Zambia Demographic and Health Surveys[8–10]. Yet, unsafe abortion accounts for one of the major fifth causes of maternal mortality in the country[11]. Even though most of the abortion evidence has relied on limited studies devoted to mortality and qualitative estimates of explaining its causes and effects [2–3,5–6,12–13], its contributions to maternal mortality has a profound accounts to risk conditions on women . Substantial differences between safe legal abortions and unsafe illegal abortions evident have further directed to re-considering their differential measurements for determining the most prevalent risk condition of these accounts affecting women in the country. Variations in abortion mortality ranging from 4 percent [26], 15 percent[14] to 30 percent [3] noted in other studies provide conflicting explanations of the extent to which abortion increases maternal mortality. Even though, there is a recipient decline in maternal mortality, from 729 per 1000 to 591 per 1000 live births in the most recent ZDHS 2007[9–10], abortion as a risk factor to maternal deaths of many women should not be underestimated, if MDGs need to be met. Estimating national abortion incidence is therefore essentially important to seek possible strategies to reduce morbidity and mortality; provide direction to review and amend policies to improve sexual and reproductive health of women and men. The recent strategic needs assessment for reducing abortion morbidity and mortality in Zambia has provided explanations of unmet needs for abortion services, but lack information on its incidence measurements[6]. The need for further research approach application was required to provide better understanding of abortion consequences for developing strategic approaches to reduce abortion related morbidity and mortality in Zambia.

The purposes of the abortion statistics as "research in brief" have three main folds:

First, to estimate abortion incidence rate as basis for developing indicators for measuring abortion incidence occurrence in Zambia; Second, to better understand the magnitude of unsafe abortion and its contributions to maternal morbidity and mortality; and lastly, to develop further research approaches to strengthen reproductive health services to promote women's health in the country.

Background

Zambia has a legal framework on abortion which attaches international commitments where it has become a signatory to many international instruments[15–18].. The protocol to the African Charter on Human and Peoples' Rights on the Rights of Women in Africa is the only international human rights instrument that articulates women's sexual and reproductive rights to which Zambia is also committed[18]. The second legal commitment is the national or domestic legislation of the Laws of Zambia that articulates the legislative dimensions relating to safe abortion provision as, the Republican Constitution, the Penal Code, the Termination of Pregnancy Act and the Nurses and Midwives Act[1,20–21](See Box 1 below).

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Box 1: Termination of Pregnancy Act, Chapter 304 of the Laws of Zambia

The legislation provides an opportunity for legal abortion. The provision governing termination of pregnancy (TOP) is articulated in six (6) sections of the Act. Section 1 deals with authority granted to cite the Act as "Termination of Pregnancy Act." Section 2 relates to the procedural requirement of understanding terminology related to institution, the law itself and providers to procure abortion. In this section, the Act states that:

-"hospital" means any institution run as such by the government or any other institution approved in writing for this Act by the Permanent Secretary, Ministry of Health;"
-"the law relating to abortion" means sections 151-153 of the Penal Code, and includes any written law or rule of law relating to the procurement of abortion;
-"registered medical practitioners" means a medical practitioner registered as such under the provision of the Medical and Allied Professional Act.

Section 2 provides that a person shall not be guilty of an offence under the law relating to abortion when a pregnancy is terminated by a registered medical practitioner if he and two other registered medical practitioners, one of whom has specialized in the branch of medicine in which the patient is specifically required to be examined before a conclusion could be reached that the abortion should be recommended are of the opinion formed in good faith-

(a) that the continuation of pregnancy would involve (i) risk to the life of the pregnant woman; or (ii) risk of injury to the physical or mental health of the pregnant woman; or (iii) risk of injury to the physical or mental health of any existing children of the pregnant woman; greater than if the pregnancy were terminated; or
(b) that there is a substantial risk that if the child was born it would suffer from such physical or mental abnormalities as to be seriously handicapped

In determining paragraph (a) of subsection (i) account, it may consider the pregnant woman's actual and reasonably foreseeable environment or her age. The requirement for the opinions to the two medical practitioners does not apply to the termination of pregnancy (section 3 of subsection (1).

Source: Laws of Zambia,[1''21]

The Act has a general provision for access to legal medical induced abortion in Zambia. These provisions have made the Termination of Pregnancy Act in Zambia one of the most liberal abortion laws on the African continent allowing a woman to obtain an abortion beyond social conditions. In Section 5, the Act further has given powers to the Ministry of Health, through the Permanent Secretary, and the confidentiality in the provision of safe induced abortion. Despite this legal provision, access to safe legal abortion service has been limited to many women in Zambia, subjecting them to more unsafe abortion conditions.

Furthermore, the expansion of health providers in legal practice of safe abortion care has reduced the risk of abortion mortality in hospitals. The amendment of the Nurses and Midwives Act in 1997 has provision for the nurse midwives to provide a comprehensive pre and post abortion care (PAC) as new responsibilities to broaden the scope of nursing practice[13''2o]. In addition, there are several policies existing related to sexual and reproductive health. Among of them are national gender policy (2000), population policy developed in 1989 reviewed in 2008, education policy for a girl child (1997), national health policy (1995) and the reproductive health policy (1997). These policies act as instruments for enhancing access to quality sexual and reproductive health services including aspects of abortion services in the context of primary health care, through a decentralized system of delivery care[19–25]. However, very few of the professional and clientele paternity are aware of these laws and policies, hence consequences of illegal, unsafe induced abortion practices that result in risk of life threatening and unmet needs for contraception have persisted to affect many Zambian women. Lack of knowledge of the abortion law and policy guidelines has further attributed severely to barriers affecting access to safe abortion for most women in Zambia[6].

Methodology

The scope of research approach for this abortion statistics survey forms part of Guttmacher Institute support to Zambia in strengthening research approaches for developing strategic innovative reproductive health initiatives aimed at reducing abortion morbidity and mortality in the country. An explorative descriptive study design involving actual compilation of annual abortion statistics from five (5) major hospitals was applied. The hospitals were selected purposively based on their being tertiary referral hospitals, with highly population concentration, and providing post abortion care (PAC) initiative in public and government hospitals aimed at reducing morbidity and mortality[27]. These hospital sites were: University Teaching Hospital, a Central hospital in Lusaka Province; Kitwe Central Hospital in Copperbelt Province; Kabwe General Hospital in Central Province; Livingstone General Hospital in Southern Province; and Ndola Central Hospital in the Copperbelt Province. Limited funding further provided basis for additional criterion for selecting these fewer hospitals than expected.

A checklist for record review was used to collect annual abortion statistics by characteristics of abortion classified as legal (as legal termination of pregnancy- TOP); illegal abortion (induced abortion complications- unsafe abortion); and miscarriages (as spontaneous abortions) from 2000-2008 by the investigator with the assistance from Ministry of Health professionals designated in these hospitals. Analysis employed aggregated annual compilation of abortion statistics collected from all three (3) central hospitals and two (2) general hospitals giving a total of five hospitals from five urban districts of four (4) provinces in Zambia.

There were no ethical considerations anticipated in this study as no interaction with clients was made, event though there were some access to client's case records and medical admission registers which were overcome by seeking the authority from the Ministry of Health to gain access to case records and aggregated data from the hospitals that were sought.

Information collected on the hospital abortion statistics related to:
• *legal abortions* (termination of pregnancy cases) in a year, 2000-2008),
• *Abortion complications admissions* classified as: a) *'induced unsafe abortion'* and those as b) *miscarriage,* i.e. *spontaneous* abortion cases in the same period.
• *Manual vacuum aspiration (MVA) procedure* performed on women with abortion complications cases in a year for a period of nine years.
• *Abortion mortality* by proportion of women died due to abortion complications, and
• Incidence of abortion complications ratio to gynaecological admissions for women 15-49 years.

Data were analyzed in an aggregated format using SPSS version 14.0 statistical package to measure incidence rates, trend analysis and other measurements. Data were also supported by review of other secondary data sources from other studies in the country and in the region to provide explanations for the differences observed.

Limitations and Constraints

•Study is not for generalization, but provides a quick review of abortion incidence rates overtime in selected major hospitals for research priorities.

•There was no case review required which limited actual demographic characteristic of case inclusion in this brief review, but such data were covered by evidence from other recent studies.

•Missing data of some years due to poor record keeping affected comprehensive analysis of abortion statistics were found in all hospitals surveyed.

Findings

A total of 115,886 abortion cases were obtained from all five (5) major hospitals over a period of nine years, 2000-2008. Overall, the statistics show abortion incidence rate of 348 per 1000 population, giving a proportion of 34.8 percent of all major hospitals visited. The abortion statistics are therefore presented in the context of their description, incidence, mortality and trend analysis overtime from 2000- 2008.

Table 1: Characteristics of Abortions, Abortion Deaths, and Gynaecological Admissions in Major Hospitals

Health Facility	Abortion Characteristics				Abortion Cases Died	Abortion Complications(Adms)	All Aborts	Gynae Admissions
	TOP[4]	MVA[5]	Unsafe Abortion Complications	Miscarriages[6]				
	f %	f %	f %	f %	f %	f %	f %	
University Teaching Hosp.	614(99.6)	27039(57.0)	26,162(46.4)	1810(17.6)	92(23.8)	27972(42.0)	55625 (47.9	101669
Kitwe Central	*	10017(21.0)	19711[7](35.1)	*	250 (65.0)	19711(29.5)	29728 (25.6	36904
Ndola Central	*	7613(16.2)	6407 (11.4)	5856(56.8)	31 (8.0)	12263(18.4)	19876 (17.1	32116
Kabwe General	1 (0.2)	123 (0.2)	2476 (4.4)	1399 (13.6)	1 (0.3)	3875 (5.8)	4298 (3.7)	16331
L/Stone General	1 (0.2)	2693(5.6)	1533 (2.7)	1230 (12.0)	11 (2.9)	2866 (4.3)	5559 (4.8)	4599
Total	616 (100.0)	47485 (100.0	56289 (100.0)	10295(100.0	385(100.0	66687(100.0	115886 (100	191619

Generally, abortion statistics in Table 1 have shown a significant increase in morbidity and mortality among women in Zambia. More than 99 percent of legal abortion (Medical termination of pregnancy- TOP) occurs at the University teaching Hospital (UTH), compared with other hospitals with limited proportions of legal medical abortions. Kabwe and Livingstone show an equal proportion of 0.2 percent legal abortions where as there was no record or evidence of legal abortions shown in Kitwe and Ndola Central Hospitals. This disparity in the practice of legal abortions compared with those admitted with abortion complications depicts greater significant associations with more practice of unsafe abortion in Zambia. Similarly among the abortion complications, a highly proportion of 57 percent of these abortion admissions had MVA procedure conducted to women were found highly at UTH than in other hospitals. A significant lower proportions noted in other hospitals, range from 21 percent (Kitwe Central), to 16 percent (Ndola Central), and 5.6 percent for Livingstone General Hospital to the least 0.2 percent for Kabwe General Hospital. This shows that UTH conduct more MVAs for post abortion care of abortion complications than other hospitals. Furthermore, UTH depicts highest numbers of unsafe abortion complications with a proportion of 46.4 percent, while incidences of miscarriages or spontaneous abortions were highly more (56.8 percent) in Ndola Central Hospital than in other hospitals. Of all 191,619 gynae admissions, there were 66,687 abortion admissions with

[4] Termination of pregnancy following legal abortion procedure-some data missing for three years (2000-2002) for Lusaka UTH and no record for other hospitals.

[5] Manual evacuation aspiration procedure performed by doctors and nurse/midwives to women with incomplete abortion presenting with bleeding and pregnant in first trimester (12wks gestation) as post abortion care to reduce morbidity.

[6] Abortions due to natural causes or opportunistic infections (miscarriages), as " inevitable", 'threatened", "missed abortion"or "spontaneous',

[7] All classified as 'abortion complications' include unsafe abortions

complications, giving a proportion of 34.8 percent. Of all 47485 MVAs performed on women presenting with incomplete abortion complications gives a proportion of 41.5 percent of all abortion complications in the periods, 2000-2008. However, the numbers of abortion complications could have been higher than expected, but the figures are limited on account of missing data due to poor record keeping observed in other years that affected all hospitals surveyed. Among the number of abortion complications, 56,289 were recorded unsafe abortion complications, giving a proportion of 84.4 percent, while 10,295 (15.4 percent) as a result of spontaneous abortions or miscarriages. Some missing data on spontaneous abortions that occurred in Kitwe are on account of applying a general term of abortion with no classification used, and no information of legal induced abortion (medical termination of pregnancy-TOP) cases were found. It was difficult in this situation to distinguish spontaneous abortions from those ruled out as safe legal induced abortion and unsafe illegal abortion ones. The aggregated number of 19711 induced abortions were justified by the accounts of case records with varied methods used identified as self induced, cytotec injection or suppositories by private surgeries or clinics, and traditional methods recorded at admissions, and evidence of more number of abortion cases dying (based also on discussions with health providers in health facilities and case record review).

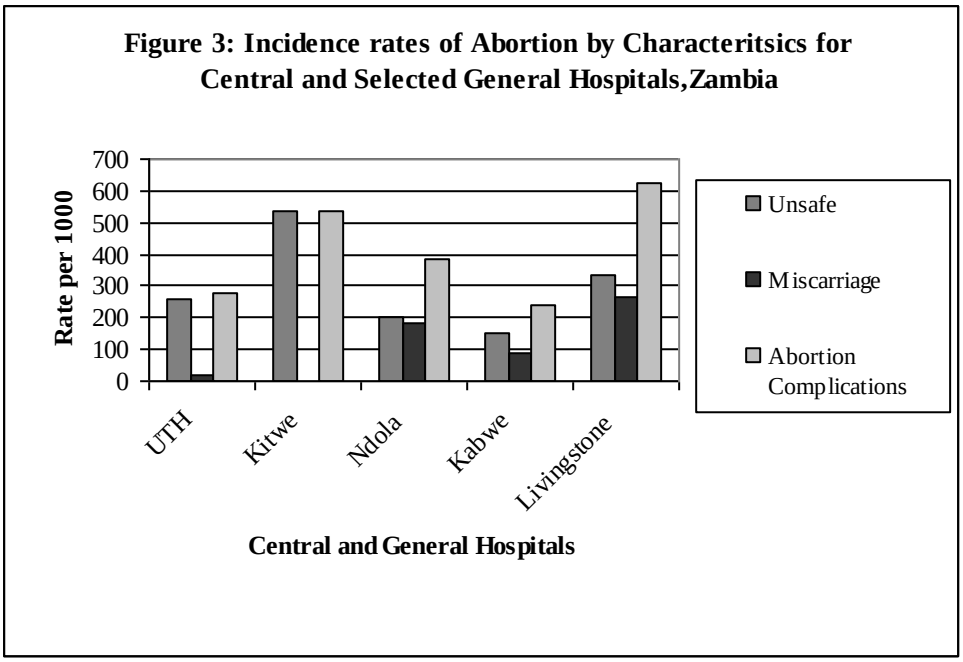
Incidence of Abortion

Incidence rate of abortion was estimated by dividing the number of abortion complications by number of gynae admissions, multiplying by 1000 women population 15-49 years gives incidence rate of 348 cases of abortions for every 1000 population. Table 2 presents a summary of incidence rate of abortion by characteristics and health facilities and also in graphic form (Figure3).

Table 2: Incidence rate of Abortion by Characteristics and Health Facility

Health Facility	Unsafe Abortion		Miscarriages		Abortion Complication		Total
	Rate ('000')	%	Rate ('000')	%	Rate ('000")	%	Gynae Admissions
U.T.H	257.3	25.7	17.8	1.7	275.1	27.5	101669
Kitwe Central Hospital	534.1	53.4	*	*	534.1	54.4	36904
Ndola Central Hospital	199.4	19.9	182.0	18.2	381.8	38.1	32116
Kabwe General	151.6	15.1	85.6	8.5	237.2	23.7	16331
Livingstone General	333.3	33.3	267.0	26.7	623.1	62.3	4599
Total Average	293.7	29.3	66.5	6.6	348.0	34.8	191619

* No data available



Statistics show also variation in incidence rate of abortion in health facilities (Table 2, Figure 3). Livingstone General Hospital has a higher abortion rate of 623 per 1000 followed by Kitwe Central with 534 per 1000 than in other health facilities indicating 381 per 1000 (Ndola Central), 275 per 1000 for UTH, and the least being 237 per 1000 for Kabwe General Hospital. It shows the severity of abortion morbidity in relation to the total gynae admissions in major hospitals, even though abortion incidence is more severe in Livingstone General Hospital and Kitwe Central hospital compared with other hospitals. More than half of women population presenting with complications of abortion are treated in Livingstone General Hospital and Kitwe Central Hospitals compared with other gynae conditions and in other hospitals. This demonstrates the severity of abortion complications in these hospitals.

Abortion Complications

Unsafe induced abortions described in the context of 'septic, incomplete induced abortion,' or 'criminal abortion' in other situations accounts for incidence rate of 293 per 1000, giving a proportion of 29.3 percent of all gynae admissions being reflected in the context of abortion complications. Incidence rate for miscarriages which relates to those occurring inevitably, or missed abortion due to opportunistic infections account for only 66 per 1000, giving a proportion of 6.6 percent of all gynae admissions for the overall hospitals surveyed (Table 2, Figure3). Of all hospitals, Kitwe Central Hospital has a highest incidence rate of unsafe abortion, with 534 per 1000, giving a proportion of 53.4 percent of all gynaecological admissions, followed by Livingstone General Hospital with 333 per 1000 population and a proportion of 33.3 percent than in other hospitals. The incidence rates of unsafe abortion for other hospitals show 257 per 1000 for UTH, 199 per 1000 for Ndola Central Hospital and 151 per 1000 for Kabwe General Hospital, respectively. High incidence rate of unsafe abortion has further reflected the extent to which abortion mortality is depicted in these hospitals. The need for a national estimate is required.

A description of statistics in Table 1 shows that there are many cases of abortion admissions (27,972) presenting with complications at Lusaka University Teaching Hospital compared with

other central and general hospitals. This gives a proportion of 42 percent of all abortion admissions with complications for all hospitals. Kitwe Central hospital had 19,711, representing 29.5 percent, while Ndola Central hospital had a figure of 12,263 cases (18.4 percent), Kabwe general hospital 3,875 cases (5.8 percent) and the least cases in Livingstone general hospital with 4.3 percent (Table5, Figure 5).

Table 3: Proportion of Abortion Complications to Total Gynae Admissions

Health Facility	Abortion Complications (Admissions) (%) of all Abortions	Abortion Complications proportion (%) to Gynae Admissions	Total Gynae Admissions
University Teaching Hospital	42.0	27.5	101669
Kitwe Central Hospital	29.6	53.4	36904
Ndola Central Hospital	18.4	38.1	32116
Kabwe General Hospital	5.8	23.8	16331
Livingstone General Hospital	4.2	62.3	4599
Total	100.0	35.8	175288

In the classification of abortion admissions with complications are unsafe abortions presented as induced abortion complications and miscarriages. A total number of induced abortions presenting with complications were 26,162 in the University Teaching Hospital (UTH) in Lusaka presenting a higher figure than those in other health facilities and even for miscarriages. These varied statistics in the occurrence of unsafe abortion demonstrate common practice of abortion under unskilled environments increasing health risk to women in Lusaka more than other provinces. The evidence has further demonstrated unmet needs for safe abortion services and family planning that may account for increase in unwanted pregnancy. More women die from abortion complications at Kitwe Central followed by UTH and Ndola Central Hospital.

University Teaching Hospital (UTH) has a higher proportion (42 percent) of women treated with abortion complications. This translates to 27.5 percent of all gynaecological admissions accounting to abortion complications at UTH. Kitwe Central hospital show a proportion of 29.6 percent of all abortion, giving a highly proportion of more than half of women (53.4 percent) admitted at this hospital are treated with abortion complications of all gynaecological admissions (Table 3 above). Ndola Central hospital has lesser proportion of 18.4 percent of all abortion cases than other tertiary hospitals, while Kabwe and Livingstone General hospitals have the least lowest proportions of 5.8 & 4.2 percent. Despite variations in proportions of abortions treated at these hospitals, abortion complications constitute higher proportions of care, compared with other gynaecological admission conditions in these hospitals.

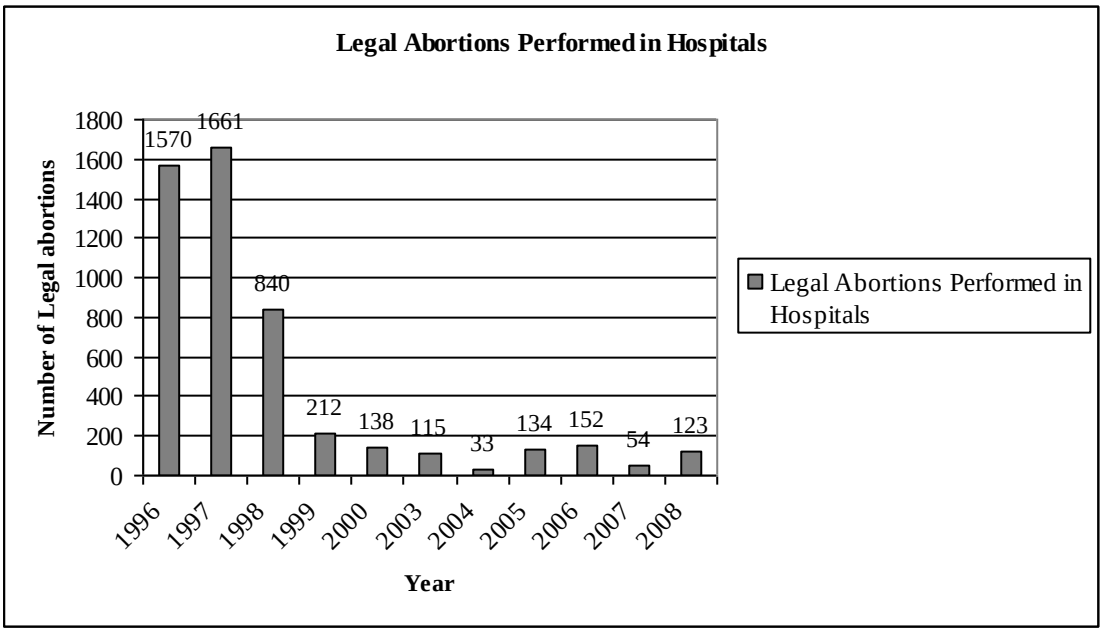
Figure 5: Number of Abortion Complications and Safe induced abortions, Zambia 2000-2008

Trend analysis of abortion complications over time, 2000-2008 show a highly significant increase in number of abortion complications that were admitted in hospitals, compared with those legally induced (Figure 5). The numbers of women treated with abortion complications increased from 3,390 (5%) in 2000 to10,689 (16 %) in 2008. These have included those with spontaneous abortion complications. The statistics may suggest that most of these abortions could be more associated with unsafe induced abortion complications. By contrast, there were fewer numbers of safe legal induced abortions than abortion complications rising in greater numbers.

Safe Legal Induced Abortion (Termination of Pregnancy)

Comparison made in the trend analysis of all abortion statistics for termination of pregnancy (TOPs) and abortion complications admitted in gynae wards shows a higher proportion (97.7 percent) admissions with abortion complications than a minimum percent for those seeking safe induced abortion (TOP) from 2000 to 2008 (Table 8). The majority of these abortion complications could be likely be associated with unsafe abortions increasing high risk morbidity and mortality among women in Zambia.

Figure 6: Legal Abortions performed In Hospitals over a Decade, 1996[8]-2008



When comparing data from other sources for1996-1999[9], figure 6 shows a remarkable rapid decline in number legal abortions performed as safe induced abortion from 1997 to 2008. However, there are fluctuations of gradual increases from 2000 to 2006 and during the period of 2008, even though numbers are very small.

Generally, the limited number of legal abortions and the increase in numbers of abortion complications, the statistics have confirmed their significant relevancy to the increase in maternal mortality ratio[10] attributed to abortion related complications treated in these major hospitals accounting to more deaths of women in the country.

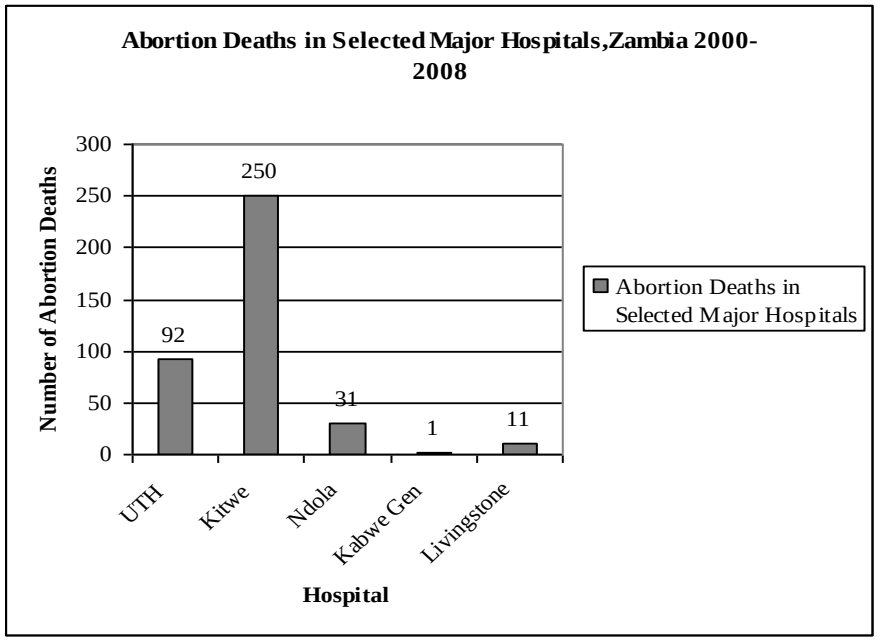
Abortion Mortality

Mortality due to unsafe abortion is presented in two forms. First, is the actual number of women dying as a result of abortion complications based on hospital data and estimation of abortion deaths for the periods 2000- 2008.

[8] Data from other sources[6]:

[9] Strategic assessment of policies and programmes, Lusaka, Zambia[6]

Figure 4: Number of Abortion Deaths in Selected Hospitals, Zambia 2000-2008



The findings in Table 3 show cumulative deaths of 385 that are unevenly distributed in hospitals. Kitwe has a highest number of 250 abortion deaths giving a proportion of 65 percent of all abortion deaths that occurred in these tertiary hospitals. Lusaka University Teaching Hospital has a proportion of 23.9 percent of all abortion deaths that occurred during the same period. For other hospitals, it shows 8.1 percent for Ndola, 2.8 percent (Livingstone) and 0.2 percent for Kabwe (see also Figure 4). These varied deaths account for unsafe abortion admissions in these hospitals.

Of all hospital abortion deaths that occurred gives the overall death rate of 2.2 per 1000 population. Kitwe has the highest abortion death rate of 6.7 per 1000 population of gynaecological admissions. The statistics have demonstrated the severity of unsafe abortion increasing risk of mortality in women in Zambia. This evidence may provide a justification to the persisted high maternal mortality ratio observed in the country[10]as will be discussed further in the following sections.

Discussion of Findings

Generally, the findings have demonstrated the magnitude of abortion complications over the years in Zambia when compared with only a minimum proportion of women seeking safe legal abortion care at referral Hospitals. Several issues arise for the discourse arguments.

In Zambia, because safe, legal abortion is inaccessible to many women, an unknown number of women each year resort to illegal abortion, many of which are performed under unsanitary and unsafe conditions [28]. The death toll from these procedures is likely high, and almost all such deaths could be avoided if access to safe abortion was improved and unintended pregnancies were prevented.

The Level of Abortion

In Eastern Africa as a whole, an estimated 14% of all pregnancies end in abortion, in 2003, there were an estimated 2.3 million induced abortions in the region (Table4 of page15)[29,39]. That

translates to 39 abortions per 1,000 women of reproductive age, or about 20 abortions per 100 live births. The majority of these abortions were illegal and likely performed under unsafe conditions.

No national data on abortion or even measures for monitoring abortion levels are available in Zambia [8–10], but hospital records offer some clues to the incidence of safe and unsafe abortion. Data from five major hospitals across Zambia obtained in this study provide a total of 616 (0.5%) women obtained safe induced legal abortion between 2003 and 2008 (see Figure 5, page 9). The limited numbers of medical legal induced abortions (TOPs) may suggest that TOPs are either not performed or performed under difficult circumstances not following the rightful procedures of legal practice, or only few women access safe abortion care at hospitals. In contrast, the number of women admitted to the hospitals with abortion-related complications (including complications of spontaneous abortions) found in this study, increased from about 5,600 in 2003 to more than 10,000 in 2008 over the six years (Figure 5). In other words, about 85 times as many women were treated for abortion complications, as underwent safe, legal abortion in these five key hospitals. At least half of reported complications were attributable to unsafe abortions. Increasing access to safe abortion would likely decrease the rate of complications and mortality attributable to abortion, a trend that has been noted in South Africa[30].

Post Abortion Care In Zambia: Manual Evaluation Aspiration (MVA)

MVA, as a pre-requite procedure for post abortion care (PAC) of women admitted with incomplete abortion care (including those arising from spontaneous abortion), is performed by physicians and nurse-midwives in public government hospitals to reduce morbidity and mortality on women. The criteria for this procedure are based on conditions that: i) abortion should be safe with no risk to women; ii) pregnancy is in 1st trimester, <12 weeks gestation. Above 12 weeks, MVA should not be performed, even if there is bleeding; iii) abortion has occurred as incomplete presenting bleeding due to either induced abortion interfered by self or other means, or a woman presenting with bleeding as a result of natural causes; and iv) ability of a woman to pay a fee of ZK5, 000 (US$1 as in case of UTH procedural guidelines), while a fee for termination of pregnancy (TOP) is ZK10,000 (US$2) (Provider's discussions 2008)[6]. This procedure seems to reduce a greater number of women from severe complications.

There is an increase in MVA procedure for incomplete abortion care. The statistics show a higher proportion of more than half (57 percent) of women with incomplete abortion complications who had MVA performed on them at UTH in Lusaka, compared with other hospitals indicating 21 percent (Kitwe), 16 percent (Ndola), Livingstone (5.6 percent) and the least most, 0.3 percent in Kabwe. It is therefore evident that abortion is a major risk factor to maternal morbidity and mortality among Zambian women, and more than half of these abortion complications could be attributed to unsafe abortion.

Why and How Zambian Women Obtain Abortion?

Several reviews of studies that supplemented evidence to this study show varied reasons attributable to abortion complications and for the limited number of safe legal induced abortions.

First, *health providers' attitudes toward abortion*- Ministry of health guidelines stipulate that health workers must treat women who have undergone induced abortion in a sensitive and humane manner and inform women about the possibility of legal abortion[13]. Yet a recent study found that many health care providers (including medical doctors) were not aware of the requirements for medical abortion [6]. When the law was explained, many thought that requiring

three doctors' consent was unacceptable considering the shortage of doctors in most parts of the country[6]; some expressed interest in being trained to provide legal induced abortions. However, some health providers are uncomfortable with the issues of abortion or hold judgmental attitudes toward abortion towards abortion patients[6,31]. Interviews with providers revealed that those with negative and discriminatory attitudes about women trying to terminate their pregnancies gave those women lower quality care[27]. Providers' negative attitudes toward abortion and other types of sexual and reproductive health care may affect adolescents disproportionately. In 2001, 94% of nurse-midwives in public and private health facilities in two districts felt that abortion should not be an option for adolescents with unintended pregnancies[31].

Second, *characteristics of women having abortions*- Information on women obtaining abortions in Zambia generally emanate from health facilities, leaving gaps in those that occur in communities. Women who induce abortion themselves or go to a lay provider and do not seek post abortion care at a hospital are therefore not included. A 1993-1994 study of four facilities found that the average patient seeking care for abortion complications was aged 24-26 and the mother of two children[3,5]. Another study showed that women presenting at University Teaching Hospital, Lusaka in 1990 with complications from unsafe abortion generally were 15-19 years old (60%), had some secondary education (55%), were unmarried (60%), had had no previous pregnancies (63%) and were students who wanted to continue with education (81%)[4]. That study further found that compared with women obtaining illegal abortion, women seeking legal induced abortion procedures were older (55% were aged 20-29 years) and a higher proportion were mothers (71% had children)[4].

Third, *behavioural motives and cultural norms or values*- Women's reasons for terminating a pregnancy vary widely, but small-scale studies of patients seeking post abortion care reveal certain patterns. Adolescents' primary motivations include feeling ashamed as a result of stigma attached to a pre-marital motherhood; desire to continue with education or schooling; denial and abandoned by their partners; feeling too young to be a mother and being unable to afford having a baby[32]. In a study of patients of all ages, participants wanted to avoid being expelled from school, avoid revealing a secret relationship, protect the health of their existing children and avoid revealing that they had violated cultural norms, such as post partum sexual abstinence and preserving virginity in some ethnic societies[33–34].

Fourth, s*ource of Provider, method used and cost*- Privacy, secrecy and economic concerns drive many women's decisions about what type of provider and method to use, and thus determines the risks they face[13,32–33]. Women in several studies reported that they, or people they knew, had attempted to self-induced abortion by ingesting the anti malarial drug chloroquine, herbal remedies, gasoline or detergents. Others had gone to traditional healers, who had given them herbs or inserted cassava sticks or roots into their cervix. A small minority has received abortion from medical professionals, who had IUDs or plastic cannulas to induce abortion. A recent study of unsafe abortion in Zambia found that one form of medication abortion, misoprostol, was widely available in pharmacies and prescribed by some doctors, but there were also reports of use without proper instruction (Ministry of Health 2008). The same study noted that traditional healers may charge as little as ZK5,000 for an unsafe abortion, whereas a safe induced abortion typically costs ZK10,000-20,000 (plus ZK50,000 if the woman does not have a referral) at a government public facility and even more at a private facility[6].

Consequences of Unsafe Abortion

The most severe consequence of unsafe abortion is death. In Eastern Africa, every 100,000 live births occurring in the region, an average of 160 women die from causes related to unsafe abortion – more than in the world [35,39]. Unsafe abortion in Zambia is attributable to one of the fifth causes of maternal mortality[42]. The maternal mortality ratio in Zambia now stands at 591per 100,000 live births, as of 2007[10]. Even if this figure seems to have declined from 750 per 100,000 live births to this current figure, a significant proportion of these deaths are likely due to abortion performed in unclean environment by unskilled professionals. Data from four districts in Western Province suggest that in 1994-1995, about 120 deaths occurred as a result of induced abortion for every 100,000 live births[33]. More than half of these deaths were among school girls. Another study estimated that in 1993, 15% of all maternal deaths in Lusaka were due to unsafe abortion[36].

For each woman dying as a result of unsafe abortion, many more experience complications[14,34]. In 2000-2008 period of this study, some 66,579 women were admitted to five major Zambian hospitals for abortion-related complications account for slightly more than one-third of all gynaecological admissions (Table 3 of page 7). However, seeking post abortion care from Zambia's under-resourced health care system is not a simple solution. As of 2004, there were only 1.3 physicians, 17.4 nurses and 2.7 midwives for every 10,000 Zambian[11]. Therefore, it is likely that a large proportion of women experiencing complications are unable to obtain professional care. Of the women who were able to obtain treatment in the 2000-2008 study, six in 1,000 nonetheless died as a result of their abortion complications (Figure 4 of page 10).

Unmet Need for Family Planning

The findings have demonstrated that in the vast majority of cases, women seek induced abortion as a result of being faced with an unintended pregnancy. In Zambia, 41% of births are unplanned, and the average women give birth to about one child more than she wants, indicating that unintended pregnancy is very common[10]. Many women and couples are at risk for unintended pregnancy as a result of an unmet need for contraception (See Table 4 below). That is, they want to delay or stop child bearing, but they are not practicing contraception. About one in four married women has an unmet need for contraception. Higher proportions of adolescent fertility have a significant implications for unmet need for contraception and sex education[10,38]. While this proportion decreases as education and economic status rise, nearly one in five women in the highest wealth quintile has an unmet need. However, progress is being made: levels of contraceptive use increased between 2001-2002 and 2007 among both married women (from 34 % to 41%), and sexually active unmarried women (from 33% to 48%). Yet demand for family planning keeps growing, causing the level of unmet need to remain relatively static[10,28].

Table 4: Abortions, Unplanned Births and Contraceptive use

Zambian Women experience high levels of unintended pregnancy	
Abortion:	
Estimated no. of induced abortion in Eastern Africa[29,39]	2,300,000
% of pregnancies ending in abortion in Eastern Africa	14
% of maternal deaths due to unsafe abortion	17
Maternal deaths per 100,000 live births in Zambia	449
Unplanned Births:	
Among women aged 15-49	
% births that were unplanned	41.4
Unwanted	15.8
Mistimed	25.6
Contraceptive use and unmet need	
Among women aged 15-49	
% of currently married women using contraceptives	40.8
Any modern method	32.7
Any Traditional method	8.1
% of currently married women with an unmet need for contraceptive use	26.5
% of sexually active unmarried women using contraceptive	47.6
Any modern method	43.5
Any traditional method	4.0
% of unmarried women with an unmet need for contraception	4.4

Sources: Zambia DHS 2007[10,29]

Conclusion and Implications

The evidence from the abortion statistics study and review of other studies have demonstrated their direct implications for unsafe abortion measurement, strengthening of reproductive health programme, policies' review and further research approaches that include:

Needed Evidence on Abortion

The following research objectives have great potential to support policy changes that would improve services for women and prevent maternal deaths in Zambia:

○*Measure abortion and its consequences*- A nationally representative study estimating abortion incidence and the severity of related complications would be useful for increasing awareness of the health consequences of unsafe abortion. It would also serve as a baseline for measuring the effectiveness implementation of new standard medical guidelines[37] aimed at increasing access to safe abortion provision to decrease abortion-related complications and death.

○*Examine ways of offering medication abortion*-Medication abortion is an extremely safe and relatively low cost form of early abortion, which is not widely available in Zambian Health facilities. Operations research on how to train providers and where to offer the procedure could result in safer abortion

The procedures safer and more accessible, unsafe abortions will still continue to pose a threat to the health women, unless steps are taken to prevent them. This can be achieved through:

○*Strengthening family planning service provision and demand*- providing family planning services and information – including ensuring the availability of contraceptive supplies and training providers to help educate women and men about methods, benefits of family planning and dangers of unsafe abortion- could reduce the incidence of both unsafe abortion and abortion complications by preventing unintended pregnancy, especially among the adolescents and people living in rural areas.

○*Improving availability of and access to safe, comprehensive abortion care, including post abortion care*- To ensure that safe abortion is available to the extent allowed by law, Zambia should consider the World Health Organization's recommendations for safe provision, which include training providers about safe and aseptic abortion practice, ensuring the availability of needed equipment and supplies, and promoting the use of the safest methods for first trimester, including the manual vacuum aspiration and medication abortion[28]. Progress in Zambia could be furthered by programmes to reduce the stigma surrounding abortion and by including training in safe abortion services.

○*Monitoring of abortion data*- Finally, there is a greater need to improve the management information system of abortion data in both hospitals and at community level. Modalities of introducing community-based information system at community level should be ensured and are pertinent to capture abortion data and other relevant reproductive health information to improve service delivery care for health of women.

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Acronyms:

CSO: Central Statistics Office

GRZ: Government of Republic of Zambia

UNFPA: United Nations Fund for Population Activities

WHO: World Health Organization