



THE UNIVERSITY OF ZAMBIA

SCHOOL OF MEDICINE

**THE PREVALENCE, DETERMINANTS AND OUTCOME OF
WOMEN WITH UNINTENDED PREGNANCIES DELIVERING
AT THE UNIVERSITY TEACHING HOSPITAL, LUSAKA**

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Submitted in Partial Fulfillment for the Award of the Degree of
Master of Medicine in Obstetrics and Gynecology

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DEDICATION

To my wife Marina Chilufya and our children, Esther, Mwaba and Takhondwa my source of strength and courage and the reason I keep going. To my late parents Alick and Esther Zgambo, my brothers and sisters. To Dr And Mrs. Mwandila for the faith you had in me.

To all the women who give so much giving life.

DECLARATION

I HEREBY DECLARE THAT THIS DISSERTATION HEREIN PRESENTED FOR THE DEGREE OF MASTER OF MEDICINE IN OBSTETRICS AND GYNAECOLOGY HAS NOT BEEN PREVIOUSLY SUBMITTED EITHER WHOLLY OR IN PART FOR ANY OTHER DEGREE AT THIS OR ANY OTHER UNIVERSITY NOR IS IT CURRENTLY SUBMITTED FOR ANY OTHER DEGREE.

SIGNED.....

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APPOVED BY

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STATEMENT

I HEREBY STATE THAT THIS DISSERTATION IS ENTIRELY THE RESULT OF MY OWN PERSONAL EFFORT. THE VARIOUS SOURCES TO WHICH I AM INDEBTED HAVE BEEN CLEARLY INDICATED IN THIS BIBLIOGRAPHY AND ACKNOWLEDGEMENTS

SIGNED

DR MUTUMBI ZYAMBO

APPROVAL

THIS DISSERTATION OF DR MUTUMBI ZYAMBO IS BEEN APPROVED AS PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE AWARD OF MASTER OF MEDICINE IN OBSTETRICS AND GYNAECOLOGY BY THE UNIVERSITY OF ZAMBIA.

SIGNATURES

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ABSTRACT

Background

Pregnancy intention at the time of conception has an impact on the wellbeing and health of the mother and newborn. A hospital-based study was conducted at the University Teaching Hospital in Lusaka to estimate the proportion of unplanned or unintended pregnancy among mothers who delivered at the referral hospital and to analyze their socio-demographic pattern and delivery outcomes. The study aimed to establish the prevalence, determinants and outcomes of women with unintended pregnancies.

Methods

Postpartum women (from delivery up to 48 hours) were systematically sampled and interviewed using a structured questionnaire. Mothers were asked whether the index pregnancy was unplanned or unintended or planned. The association between pregnancy intention and the determinants and outcomes of these pregnancies were analyzed using the SPSS version 11.

Results

A total of 290 were sampled. The prevalence of unintended pregnancies was 65% (n=290) of which 16.9% (n=49) were mistimed pregnancies and 47.9% (n=139) were unwanted. More of the women with unintended pregnancy were less than 19 years of age (34.2 vs. 9%), single (24.7 vs. 8%), and from high-density residential areas (72.1 vs. 53%). Of those with unintended pregnancies, 81.1% had not been on contraception. There was no significant difference in stillbirths, admission to neonatal intensive care or low birth weight.

Conclusion

Socio-demographic and economic status can influence a women's pregnancy intention. Though this study did not show it, unintended pregnancies can affect a women's health seeking behaviour and put her and her newborn child at increased risk of morbidity and mortality.

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LIST OF ABBREVIATIONS AND ACRONYMS

AIDS - Acquired Immune Deficiency Virus

CDC – Centers for Disease Control and Prevention

FSB - Fresh Stillbirth

HAART- High Active Anti Retroviral Therapy

HIV - Human Immune Deficiency Virus

PMTCT- Prevention of Mother to Child Transmission

UNFPA - United Nations Population Fund

UTH - University Teaching Hospital

WHO - World Health Organization

ZDHS - Zambia Demographic and Health Survey

INTRODUCTION

Worldwide, it is estimated that about 210 million women become pregnant every year and of these about 600 000 women end up with pregnancy related deaths and a greater number with varying degree of morbidity [The Alan Guttmacher institute 1999, WHO 2007]. Pregnancy is therefore considered a major cause of reproductive morbidity and mortality particularly in developing countries where fertility rates are high and resources are limited [Grimes et al 1994, Brown et al 1995].

Definition of unintended pregnancy

Pregnancy intention is a complex and usually an emotional event in a woman's reproductive life. It can be intended (planned) or unintended (unplanned) depending on a woman's desire at the time she realized she had conceived. An intended pregnancy is a pregnancy that was wanted at the time of conception as opposed to an unintended pregnancy which is one that was either unwanted (that is the woman did not desire to ever get pregnant) or mistimed (that is a woman got pregnant earlier than she desired) at the time of conception [Brown et al 1995, Shaheen et al 1999, Solomon et al 2006]. Unintended pregnancies might result from women not using family planning methods, from contraceptive failure or from sexual assault. The risks associated with having an unintended pregnancy are similar to those that might put a woman at high risk of morbidity or mortality. [Forrest 1994, Mbizvo et al 1997]

The pregnancy rate in Africa, regardless of the outcome of the pregnancy, was estimated at 222 per 1000 women age 15 to 44 years in 2008. Of these pregnancies 39%, or over a third, were unintended. This therefore puts the rates of unintended pregnancies in Africa at 86 per 1000 women aged 15 to 44 years. [Singh et al 2009]. These rates are not constant and vary from region to region within the continent. The region with the highest rate is Eastern Africa at 118 per 1000 women and the lowest is Northern Africa at 72 per 1000 women age 15 to 44 years.

Though the pregnancy rate in Southern Africa was reported as 84 per 1000 women age 15 to 44 years, the region has the highest percentage of unintended at 59.6% (see table 1).

Table 1: Prevalence of unintended pregnancies in regions of Africa

Region*	Pregnancy rate per 1000 women age 15 to 44 years	Unintended pregnancy rate per 1000 women age 15 to 44 years	Percentage
Eastern Africa	258	118	45.7
Middle Africa	263	94	35.7
Northern Africa	146	55	37.7
Southern Africa	141	84	59.6
Western Africa	243	72	29.6
Africa	222	86	38.7

*The sub regions are as defined according to the United Nations classification system [UNFPA 2009].

In Zambia, the pregnancy rate according to the 2007 Zambia Demographic and Health Survey (ZDHS) was 264 per 1000 women aged 15 to 44 years, and the prevalence of unintended pregnancies was 42% of all pregnancies that occurred regardless of the outcome [ZDHS 2007].

Consequences of unintended pregnancies

Unintended pregnancies have a direct impact on the rate of abortions. Worldwide about 46 million (22%) pregnancies end up as induced abortions and nearly half of these are unsafe abortions [UNFPA 2009, Singh et al, Okoonofua et al 1999]. Research in Zambia has shown that unsafe abortions are a major contributor to maternal mortality, accounting for about 15% of maternal deaths [WHO 1998, Mhango et al 1983]. The maternal mortality ratio in Zambia, according to the last Zambia Demographic and Health Survey, was 591 per 100 000 live births [ZDHS 2007], making it one of the highest in the world.

The sub-Saharan region of Africa has a high prevalence of HIV infections, in Zambia, the HIV prevalence is 14% among the adult population and 16% in the women attending antenatal clinic [ZDSH 2007].

Unintended pregnancies that occur among HIV positive women can contribute to the transmission of HIV infection through mother to child as some of the women with

unintended pregnancies are not aware of their HIV status [Population Action 2007, Black et al 2009]. Unintended pregnancies have an impact on perinatal and infant wellbeing, as women with unintended pregnancies have poor health-seeking behavior during the pregnancy and after delivery. These women are more likely to discover the pregnancies late, have poor or no antenatal care, and less likely to deliver at a health centre [Donovan et al 1995, Kosk K. et al 1998, Santelli et al 2003]. This ultimately affects the women's health and that of her newborn baby and the existing children [Brown et al 1995, Kosk. et al 1998].

RATIONALE FOR THE STUDY

Pregnancy is a major cause of reproductive morbidity and mortality in Zambia and according to the 2007 ZDHS unintended pregnancies are common, accounting for 42% of pregnancies. In developing countries like Zambia, unintended pregnancies have been shown to have a direct effect on maternal and neonatal morbidity and mortality with the maternal mortality ratio estimated to be 591 per 100 000 live births (ZDHS 2007). In a country with a high HIV prevalence such as Zambia, unintended pregnancies may be a major contributor to mother to child transmission of HIV (MTCT) and ultimately pediatric HIV infection rates and deaths.

The University Teaching Hospital conducts both complicated and uncomplicated deliveries and its patient population is varied in nature. Some of the women that are delivered at the hospital may have unintended pregnancies. While it is accepted that every pregnant woman is at risk, women with unintended pregnancies are particularly at high risk because of the associated reproductive and socio-demographic factors associated with these pregnancies such as teenage pregnancies, grand multi-parity, poor antenatal attendance and HIV infection.

SIGNIFICANCE

The prevalence, determinants, socio-demographic characteristics and outcomes of unintended pregnancies in Zambia in general and Lusaka in particular are unknown. The study helped to define and characterize the problem of unintended pregnancies in

Lusaka and lays groundwork for further research and intervention. Prevention of unintended pregnancies is an important, but not the only, approach in reducing maternal and neonatal morbidity and mortality. Knowing determinants of unintended pregnancies during antenatal care and delivery should alert health care providers for the need to have appropriate and comprehensive family planning counseling as part of the antenatal and postnatal care to prevent future unintended pregnancies.

OVERALL OBJECTIVE

To study the prevalence, determinants and outcomes of women with unintended pregnancies ending in deliveries at the UTH in Lusaka.

SPECIFIC OBJECTIVES

1. To determine the prevalence of unintended pregnancies.
2. To establish the determinants of unintended pregnancies.
3. Determine socio-demographic factors associated with unintended pregnancies.
4. To assess the fetal and maternal outcomes of unintended pregnancies at the time of delivery.

LITERATURE REVIEW

Prevalence of unintended pregnancies

The prevalence of unintended pregnancies worldwide is about 42% or about 80 million pregnancies per year, and in Africa, the prevalence is 39%. According to the Zambia Demographic and Health Survey of 2007, the prevalence of unplanned pregnancies among women who have ever become pregnant regardless of the outcome of the pregnancy was 42% [ZDHS 2007]. In a hospital based study in Harare, Zimbabwe, Mbizvo et al found the prevalence of unintended pregnancies ending into deliveries to be 50% of all deliveries [Mbizvo et al 1997].

Socio demographic characteristic of unintended pregnancies

Studies have shown that unintended pregnancies are associated with extremes of reproductive age, with these pregnancies common in those aged below 19 years [(Odds Ratio OR) = 2.2, 95% CI = 1.5–3.2] or women who are 35 years or older [OR = 2.8, 95% CI = 1.7–4.6] [Mbizvo et al 1997, Shaheen et al 1999, Solomon 2006]. The high level of unintended pregnancies among those below 19 years is a reflection of the high prevalence of teenage pregnancies. It is estimated that about 14 million (10.6%) of pregnancies worldwide occur in adolescents.

Unintended pregnancies are common among young women, of low education background who have less than 12 years of formal schooling. This was found to be the case in the United States of America, Nigeria and Egypt. However, Mbizvo et al found no independent association between the level of education and pregnancy planning in Zimbabwe [Mbizvo et al 1997]. Further these pregnancies are common among nulliparous or women of high parity and of low-income status (OR = 2.1) [Okonofua 1999, Shaheen et al 1999, CDC 1999].

Research has found that women with unintended pregnancies are likely to start antenatal clinic late and have no or fewer than the four recommended antenatal visits compared to those who reported intended pregnancies (OR = 1.56, 95% CI: 1.24–1.96; OR = 1.41, 95% CI: 1.03–1.93 respectively) [Shaheen 1997, Kosk 1997, Santelli et al 2003, WHO 1996]. Further, there is an association between low birth weight neonates and

early childhood growth stunting and unintended pregnancies [Mbizvo et al 1997, Mendoza- Shapiro et al 2004].

There has been mixed findings about unintended pregnancy and contraceptive use. For example, an Egyptian study found that non-users of contraceptive had a lower unintended pregnancy rate compared to users [Shaheen et al 1999]. The study attributed this to contraceptive failure rather than non-use. However, another study in Egypt found that 73.6% of women who were non-users of contraceptives had a higher rate of unintended pregnancies as compared to users [Caterline 2003].

A study in the United States of America found that 53% of unintended pregnancies occurred among women who were not using contraceptives as compared to 47% among users of reversible contraceptive methods who experienced contraceptive failure or discontinued family planning for reasons other than to get pregnant [Barden-O'Fallon et al 2008]. Compared to women who had never used contraceptive methods, the odds of unintended pregnancy occurring were higher among those who had ever used these methods and those who had used them just before last pregnancy (OR = 1.55, 95% CI: 1.12–2.14 OR = 1.64, 95% CI: 1.10–2.43, respectively).

Knowledge of contraception is almost universal in most regions of Africa. It was reported to be as high as 100% in Nigeria but only 18% use in a region where 78% of women above age 15 years of age were sexually active [Orji et al 2002]. In Zambia, contraceptive knowledge is about 97% among women and 99% among men (surveyed in the ZDHS 2007).

Despite this level of knowledge, contraceptive use in Zambia was only 41% in 2007 with 27% of currently married women having unmet need for family planning, 17% for spacing and 9% for limiting. Other researchers have found an association between women with previous termination of pregnancy, lack of knowledge on ovulatory cycle and disagreement or ignorance about husband's desire for having children with unintended pregnancies [Shaheen et al 1999].

In sub Saharan Africa, the risk of mother to child transmission is exacerbated by the high levels of unintended pregnancies in a region with high HIV/AIDS prevalence [Black et al

2009, Stover et al 2003]. The situation is further worsened by low contraceptive use and high levels of unmet needs for family planning among HIV infected women. This therefore implies high levels of re-infection among couples with known HIV infection who are not practicing effective dual protection contraceptive (i.e. contraceptive to prevent pregnancies and to prevent sexually transmitted infection such as HIV). Unintended pregnancies are an important reproductive health concern among HIV positive women.

METHODOLOGY

Study design

This was a cross-sectional prospective study. The target population was immediate post partum women admitted to the University Teaching Hospital in Lusaka and the study population was immediate postpartum women at the University Teaching Hospital who met the eligibility criteria.

Data was captured by use of a structured questionnaire (designed by the investigator) and validated by a pilot study. The questionnaire was administered by trained staff working in the postnatal wards and data entry errors were minimized by double entry using two data entry clerks and further checked by the investigator. Range and consistency checks were conducted on the data.

HYPOTHESIS

At least 47% of women who delivered at and those referred to the University Teaching Hospital within 48 hours of delivery had unintended pregnancies.

Inclusion criteria

1. All pregnant women who deliver at the University Teaching Hospital.
2. Post partum women referred to UTH within 48 hours of delivery.
3. All immediate post partum women (up to 48 hours of delivery) who meet the eligibility criteria
4. Women who gave consent.

Exclusion criteria

1. Women who were unable to give consent.
2. Patients who refused to participate in the study.
3. Pregnancy ending before 24 weeks.

Study population and sample size

The target population was immediate post partum women (within 48 hours of delivery) in Lusaka and the study population were all women within 48 hours of delivery admitted at admitted to the University Teaching Hospital Lusaka and those that were referred to UTH within 48 hours of delivery who met the eligibility criteria. These women constituted the cases in the study to capture the complete antenatal data such as gestation age at booking, number of antenatal visits, antenatal and pregnancy complications and pregnancy outcome.

UTH has an average of 1168 deliveries per month or 38 deliveries per day, so over a period of three months 3504 were delivered. A total of 290 immediate postpartum women seen at UTH, who met the eligibility criteria and were able to give consent were recruited into the study.

The sampling method that was used is a systematic sampling method with a sampling frame of 3504/290 resulting into selecting every 12th delivery recorded in the delivery book that met the selection criteria. All women who deliver at home or local clinic were included if they met the eligibility criteria.

Sample size calculation

The sample size was 290, Calculated using the single proportion formula as follows

Formula used: $n = (Z)^2 p (100-p) / (d)^2$

Where n = sample size

Z = Z statistic for a level of confidence

P = expected prevalence, d = precision

For a confidence level of 95% the Z value is 1.96. Therefore taking the expected prevalence according to the Zambia Demographic and Health survey of 2007 as 42% at 95% confidence level with a precision of 6%

$$\begin{aligned} n &= (1.96)^2 \times 42 \times (100-42) / (6)^2 \\ &= 3.8416 \times 42 \times 58 / 36 \\ &= 259.95 (260) \end{aligned}$$

To account for non-responses at 10%, which is 30, brings the total sample size to 290.

Data collection tools

Information was collected by means of a structured questionnaire administered to the selected study population in all postnatal wards (see Appendix II) and from a review of patients' antenatal, delivery and postnatal records. Two data collectors were trained on data collection and entry. The data was collected between January and February 2012.

Patients in the study were recruited from the postnatal wards of the University Teaching Hospital. They were counseled and evaluated for eligibility and those who were eligible, consent obtained before enrollment. Once consent (see Appendix II) was signed, the questionnaire was administered.

All the data collection and entry were done by trained data clerks under the supervised of the investigator and analysis was done with the help of a statistician.

Data analysis strategies

Pregnancy intention was the main variable of interest in this study. Pregnancies were classified as those that were wanted at the time of conception (intended pregnancies) and those that were mistimed or unwanted at time of conception (unintended pregnancies). Bivariate analysis was done to assess associations between pregnancy intention (in this case unintended which is the dependant variable) and the determinants and outcomes which were the independent variables. The association was checked by computing the odds ratios O.R at 95% confidence interval using the statistical software SPSS 15. A P value of 0.05 was considered significant by the Pearson test for significance.

Patient consent

1. Information was given and explained in a language that the patient understood using the information sheet (see Appendix II). Concerns and questions that the patient had were answered and clarified.
2. Consent form were administered to patients 18 years or older, for patients younger than 18 years consent was sought from and signed by their parents or guardians. This was done in the postnatal ward before the women were discharged from the hospital after delivery.

3. Only patients who consented were enrolled into the study and, the questionnaire then administered.

Ethical issues

Clearance was obtained from the Department of Obstetrics and Gynecology and ethical approval obtained from the University of Zambia Biomedical Ethics committee.

The information sheet (Appendix I) form was provided in English, and for the women who could not read or understand English, the form was carefully read aloud and explained to the participant in a language the participant could understand.

This study was conducted in compliance with the principles of the Declaration of Helsinki. Patient autonomy, privacy and confidentiality was maintained at all times while collecting, analyzing and reporting on the data.

No patient was identified by name, only by coded numbers. Interview records were kept securely, only accessible to the study team and destroyed after analysis was completed. Data was only presented in aggregate form.

RESULTS

The sample for analysis in this study was women in the immediate postpartum period (within 48 hours of delivery) who responded to the question about pregnancy intention of the index pregnancy at delivery. A total of 290 women responded and the baseline data is as shown Table 2. 34.5% (n= 100) of the women reported their pregnancy was intended and 65.5% (n =190) of the women had unintended pregnancies. The mean age of the group was 25.6 years, standard deviation (SD) 5.04. The proportion of the study sample aged < 19 years old was 25% (n= 74) and > 35 years old 14% (n=39).

Table 2: Description of women aged between 15 to 49 years (n= 290).

	N	%
Age		
<19yr	74	25
20-35yrs	117	61
>35yrs	39	14
Marital status		
Married	55	19
Single	235	81
Parity		
0	130	44.8
1-3	91	31.4
4-6	39	13.5
>6	30	10.3
Education level		
Never been to school	15	5.2
Primary school	126	43.5
Secondary school	121	41.7
Tertiary education	28	9.7
Occupation		
Unemployed	160	55.2
Formal employment	57	19.7
Informal employment	73	25.5
Residency		
High density	190	65.5
Medium density	61	21
Low density	21	7.2
Others	18	6.2

Pregnancy intention and socio-demographic variables

In the bivariate analysis of pregnancy intention and socio-demographic variables (Table 3), the following variables were significantly associated with unintended pregnancy: women aged below 19 years [34% (n= 65)], married women [74.3% (n = 143)], those with primary or secondary education [86.8% (165)], unemployed [54.2% (n=103)] from high-density residential areas [72.1% (n = 137)].

Table 3: Distribution of women age 15 to 49 years who gave birth by pregnancy intention according to selected socio-demographic characteristics

	Intended pregnancy (N=100)		Unintended pregnancy (N=190)		Unadjusted OR	P value
	n	%	n	%		
Age						
<19yrs	9	9	65	34.2	0.26	0.533
20-35yrs	83	83	94	49.5	1.68	
>35	8	8	31	16.3	0.49	
Marital status						
single	8	8	47	24.7	0.32	0.19
married	92	92	143	74.3	1.24	
Education level						
Never been to school	2	2	13	6.8	0.29	0.12
Primary school	46	46	80	42.1	1.1	
Secondary school	36	36	85	44.7	0.81	
Tertiary education	16	16	12	6.3	2.53	
Occupation of participant						
Unemployed	57	57	103	54.2	1.05	0.704
Formal employment	24	24	33	17.4	1.38	
Informal employment	19	19	54	28.4	0.67	
Occupation of partner						
Unemployed	4	4	6	3.5	1.25	0.254
Formal employment	47	47	89	46.8	1.00	
Informal employment	49	49	95	50	0.98	
Residency						
High density	53	53	137	72.1	0.74	0.27
Medium density	30	30	31	16.3	1.84	
Low density	11	11	10	5.3	2.08	
Others	6	6	12	6.3	0.952	
Total monthly income (ZMK)						
<1000 000	56	56	115	60.5	0.93	0.254
1 000 000- 2 000 000	23	23	44	23.2	0.99	
2 000 001- 3 000 000	10	10	17	9	1.11	
> 3 000 000	11	11	14	7.3	1.51	

Pregnancy intention and reproductive health variables

The relationship of unintended pregnancy with reproductive health variables showed that women in their first pregnancy, those with no previous history of an abortion or use of contraceptives were significantly associated with increased probability of unintended pregnancy.

Table 4: Distribution of women age 15 to 49 years who gave birth by pregnancy intention according to selected past reproductive characteristics

	Intended pregnancy (N=100)		Unintended pregnancy (N=190)		Unadjusted OR	P value
	n	%	n	%		
Parity						
0	41	41	89	46.8	0.88	0.329
1-3	35	35	56	29.5	1.19	
4-6	18	18	21	11.1	1.62	
>6	6	6	24	12.6	0.48	
History of previous abortion						
no	75	75	164	86.3	0.87	
yes	25	25	26	13.7	0.65	
Previous history of contraceptive use						
Yes	67	67	139	73.2	0.92	0.204
no	33	33	51	26.8	1.26	
Previous history of still birth						
no	50	90.1	92	94.9	0.95	0.352
yes	5	9.1	5	5.1	1.78	
Previous history of home delivery						
No	51	92.7	92	94.8	0.98	0.677
Yes	4	7.3	5	5.4	1.40	

Pregnancy intention and current reproductive variables

The relationship of unintended pregnancy with women age 15 to 49 years who gave birth by pregnancy intention according to selected reproductive characteristics at index pregnancy. Those with no previous history of an abortion or use of contraceptives were significantly associated with unintended pregnancy.

Table 5: Distribution of women age 15 to 49 years who gave birth by pregnancy intention according to selected reproductive characteristics at index pregnancy

	Intended pregnancy (N=100)		Unintended pregnancy (N=190)		Unadjusted OR	P value
	n	%	n	%		
Contraceptive use at index pregnancy						
Yes	0	0	34	18	0	0.01
No	100	100	154	81.1	1.23	
Can't remember	0	0	2	1.1	0	
Gestation age at first antenatal visit						
<12weeks	19	19	28	14.7	1.29	0.01
12-20weeks	52	52	77	40.5	1.28	
21-28	29	29	70	36.8	0.79	
>28	0	0	15	7.9	0	
Number of antenatal visit						
0	1	1	0	0	0	
1	5	5	13	6.8	0.74	
2	26	26	50	26.3	0.99	
3	27	27	71	37.4	0.72	
4	28	28	43	22.6	1.24	
>4	13	13	13	6.8	1.91	
Timing of HIV testing						
Knew before pregnancy	10	10	18	9.5	1.05	0.536
Tested during pregnancy	90	90	169	89	1.01	
Refuse to answer	0	0	1	0.5	0	
Can't remember	0	0	2	1	0	
HIV status at delivery						
Negative	78	78	161	84.7	0.96	0.26
Positive	19	19	28	14	1.36	
Refuse to answer	0	0	1	0.5	0	
Can't remember	3	3	0	0		

	Intended pregnancy (N=100)		Unintended pregnancy (N=190)		Unadjusted OR	P value
	n	%	n	%		
Place of delivery						
Home	6	6	0	0	0	0.944
Health facility	94	94	189	99.5	0.95	
Others	0	0	1	0.5	0	
Mode of delivery						
SVD	63	63	144	75.8	0.831	0.05
C/S	37	37	46	24.2	1.53	
Gestation at delivery						
28-34weeks	15	15	16	8.4	1.79	0.180
35-36weeks	16	16	36	18.9	0.85	
37-40weeks	63	63	120	63.2	1.00	
>40	6	6	18	9.6	0.63	

Pregnancy intention and delivery outcomes

Among the selected pregnancy outcomes unintended pregnancies was not significantly associated with adverse outcomes.

Table 6: Distribution of women age 15 to 49 years who gave birth by pregnancy intention according to selected delivery outcomes

	Intended pregnancy (N=100)		Unintended pregnancy (N=190)		Unadjusted OR	P value
	n	%	n	%		
Status at birth						
Live births	92	92	168	88.4	1.51	.454
Still births	8	8	22	11.6		
Admission to NICU					1.59	.22
Yes	20	20	25	14.9		
No	<u>72</u> (92)	<u>80</u> 100	<u>143</u> (168)	<u>85.1</u> 100		
Birth weight						
<1500	4	4	15	7.9	1.59	0.850
1500g-2499g	15	15	28	14.7	0.59	
2500-3499g	44	44	83	43.7	0.97	
3500-4000g	28	28	55	29	1.00	
>4000g	4	4	8	4.2	0.9	
Don't know	5	5	1	0.5	10	
Birth weight						
<2500	19	20	43	23	0.85	0.706
>2500	<u>76</u> 95	<u>80</u> 100	<u>146</u> 189	<u>77</u> 100		

Discussion

Unintended pregnancy is an important reproductive issue of concern given that about 42% of all pregnancies in Zambia were reported to be unintended [ZDHS 2007]. In this study, the prevalence of unintended pregnancies among women delivering at the University Teaching Hospital was found to be 65%. Of these, 32.7% (n=141) were mistimed pregnancies and 51.4% (n=149) were unwanted pregnancies. This figure is higher than the 50% reported in a Harare-based study by Mbizvo (comprising 41% unwanted and 9% mistimed) or by the 18.4% Shaheen et al in an Egyptian study reported in 1999 [Mbizvo et al 1995, Shaheen et al 1999].

Socio-demographic characteristics

The study findings were consistent with the published literature concerning the socio-demographic determinants of intended pregnancy. Analysis of the data showed a relationship between pregnancy intention and women's age, education and area of residence. Women aged <19 years and those >35 years were more likely to have unintended pregnancy. Women aged below 19 year were likely unmarried adolescents with limited knowledge and access to family planning. Women aged over 35 years could have achieved their desired family size and may not be using appropriate family planning.

Education was also an important determinant of unintended pregnancy, in this study. The prevalence of unintended pregnancies was high among participants who had never attended formal schooling or had a tertiary level of education.

Concerning residence, participants from higher density areas had more unintended pregnancies, presumably because of illiteracy, poor housing conditions, and higher rates of fertility and limited provision and utilization of social services.

Selected past reproductive characteristics

One of the most important determinants of unintended pregnancy is contraception use. Literature has shown a relationship between contraceptive use and unintended pregnancies. For instance, in a study by Casterline et al (2003) it was found that the majority of women who had unintended pregnancies were non-users of contraceptive as was shown in similar studies by Sheehan et al in Egypt and Mbizvo et al Zimbabwe. In this

study, 18% (n=34) of women who reported unintended pregnancies were users of contraception compared to 81.1% (n=154) non-users. The small number of women (18%) that were contraception users may have had compliance or use issues.

Concerning parity, the majority of unintended pregnancies were among women in their first pregnancy 46.8% (n=89) or those who had 6 pregnancies or more 12.6% (n=24) at the index pregnancy. Further these women were more likely to start antenatal clinic at gestation age of more than 28 weeks 7.9% (n=15). Despite this, women with unintended pregnancy were not associated with poor antenatal attendance as reported in literature as most of the women had at least one visit during the pregnancy 46% (n=134) with 39.4% (n=56) having the recommended 4 minimum antenatal visits.

With respect to timing of HIV testing and the prevalence of HIV infection, 9.5% (n=18) of the participants knew their status before the index pregnancy compared to 89% (n= 169) who were tested for the first time at the index pregnancy. The finding is consistent with that reported in literature where it was determined that the majority of women with unintended pregnancies do not know their HIV status at the time of conception. The prevalence of HIV among women with unintended pregnancies was 14% (n=28) and is a potential for MTCT. This is major concern as one of the pillar of prevention of mother to child transmission of HIV infection is the prevention of unplanned pregnancies among HIV positive couples. The prevalence of HIV infection among women with intended pregnancies was 19% (n= 19) which was higher than the levels reported among women attended antenatal clinic in general (ZDHS 2007).

Delivery outcomes

In this study, there were no significant adverse outcomes in terms of stillbirths, admission to NICU or low birth weight. However, poor fetal outcomes may be attributed to poor health seeking behaviors among women with unintended pregnancies as reported in this study and in literature. The resultant is late commencement of antenatal care, failure to detection, treat and prevent complications that lead to adverse fetal outcome.

Study limitations

The study was a cross-sectional survey that looked at women's pregnancy intention at the time of conception and the related determinants and outcomes. Thus, the results should be interpreted in view of the limitations of the cross-sectional design. Not all women with unintended pregnancies will carry these pregnancies to viability and delivery as some may seek to abort these pregnancies. The study did not study this group of women in determining the prevalence and determinants of unintended pregnancies and could be an area of future research. Further, the male partner's views concerning the pregnancy intention have not been considered in this study. This is a major limitation of the study in understanding unintended pregnancy among women of reproductive age group. Regression analysis would have enabled the effect of confounders on outcomes to be studied.

Conclusion

The prevalence of unintended pregnancies among women delivering at the University Teaching Hospital was found to be 65.5%. The prevalence among teenage women was significant at 34%. More women of low socio-economic status and from high-density residential areas had an unintended pregnancy. The study has further shown that most of these women were not using any form of contraceptive method at the time of the index pregnancy and that the majority of these women did not know their HIV status at the index pregnancy. This might have an effect on the prevention of mother to child transmission of HIV. Further, there was a suggestion that unintended pregnancies were associated with a higher risk of stillbirth (though not significant in this study).

Recommendations

Further research is needed to determine the prevalence of unintended pregnancies among women coming with abortions to the University teaching Hospital.

Family planning counselling needs to be enhanced and the different contraceptive methods made readily available to women identified with unintended pregnancies during antenatal and postnatal periods. Teenage pregnancies with the stipulated problems require follow studies to determine the extent and deterrents of the problem.

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APPENDICES

APPENDIX I: STUDY INFORMATION AND CONSENT FORM

The study you are being asked to take part in is planned to assess the prevalence and socio- demographic factors and outcomes associated with unintended pregnancies that end up in deliveries.

Your participation is voluntary and you can choose not to take part in the study, this decision will not influence the care given to you as a patient.

The purpose of the study will be explained to you in a language you can understand and any questions that you have asked have been answered and if you choose to take part in the study, you will be asked to sign a consent form.

Any information that you share with study team will be confidential, you will not be identified by your name but by a code and no information about you disclosed without your permission.

POSSIBLE BENEFIT TO PARTICIPANTS:

To link patients with unintended pregnancies to family planning services

POSSIBLE DISADVANTAGES TO PARTICIPANTS:

May emotionally affect patients with unintended pregnancies that end with adverse outcomes such as fetal loss. In such instance, the woman might blame herself for the adverse fetal outcome or loss if it is implied that the pregnancy was unintended might mean unwanted baby, this may cause the woman to suffer from postpartum psychosis.

POSSIBLE BENEFITS TO THE COMMUNITY

To highlight the problems of unintended pregnancies among women of reproductive age Group.

Statement of consent

Title: A study to determine the prevalence, determinants and outcomes of women with unintended pregnancies ending into deliveries at the University Teaching Hospital, Lusaka.

1. I have read and understood the information that has been read to me about this study.
2. My questions have been answered to my satisfaction.
3. I do agree to participate in this study

.....
_____/_____/_____

Participant's name Participant's signature/ thumbprint Date

.....
_____/_____/_____

Witness name Witness signature Date

You are free to ask questions. For more information, clarification or quarries please contact the following.

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APPENDIX II: DATA COLLECTION INSTRUMENT

Study to determine the prevalence, determinants and outcomes of women with unintended pregnancies ending into deliveries at the UNIVERSITY TEACHING HOSPITAL LUSAKA
Study I.D. # _____ Date _____ / _____ / _____
Hospital number

SECTION 1 SOCIO-DEMOGRAPHIC

1.1 Age of participant (in years)

- 0 = <19 years
- 1 = 20 – 24 years
- 2= 25 – 29 years
- 3= 30 – 34 years
- 4= >35 years
- 5 = Don't know

1.2 Current marital status

- 0 = single never married
- 1 = married
- 2 = separated
- 3 = divorced
- 4 = widowed
- 5 = others specify-----

1.3 Level of education of participant

- 0 = never attended school
- 1 = attended primary school
- 2 = attended junior high school
- 3 = attended senior high school
- 4 = attended tertiary education
- 5 = Others specify.....

1.4 Occupation of participant

- 0= Housewife
- 1= Salaried professional
- 2= Self employed
- 3= Classified daily employee
- 4= Others specify-----

1.5 Occupation of partner

- 0 = Unemployed
- 1 = Salaried professional
- 2 = Self employed
- 3 = Classified daily employee
- 4 = Others specify-----

1.6 Total monthly family income

- 0 = < K 500 000
- 1 = K500 001 – 1 000 000
- 2 = K1 000 001 – 1 500 000
- 3 = K1 500 001 – 2 000 001
- 4 = K2 000 001 – 2 500 000
- 5 = K2 500 001 – 3 000 000
- 6 = > K3 000 000

1.7 Area of residency

- 0 = High density area
- 1 = Medium density area
- 2 = Low density area
- 3 = Others specify.....

SECTION 2 REPRODUCTIVE DETERMINANTS

2.1 Parity at index pregnancy

- 0= 1
- 1= 2 – 3
- 2= 4 – 5
- 3 = >6

2.2 Number of abortions prior to this delivery

- 0 = 0
- 1 = 1
- 2 = 2
- 3 = >2

2.3 Have you ever used contraceptives before?

- 0 = Yes 1 = No

2.4 If answer to question 2.3 is NO what was the reason for not using contraceptives?

- 0= fear of side effects
- 1= my religion does not allow
- 2= lacked of information on contraceptives
- 3= don't know where to get contraceptive
- 4=My partner does not approve the use of contraceptive
- 5 = others specify.....

2.5 If you have used contraceptive before what was the type?

- 1 = Hormonal
- 2 = IUCD
- 3 = Barrier
- 4 = Natural methods.
- 5 = Traditional methods
- 6 = others specify

**SECTION 3 OUTCOMES OF PRECEEDING PREGNANCY IF THE CLIENT >
PARA 1 IF < PARA 1 GO TO SECTION 4**

3.1 Fetal outcome in the last pregnancy

- 0= the baby was born alive and cried at birth
- 1= the baby was born alive but did not cry at birth
- 2= the baby was born as a fresh still born
- 3= the baby was born as a macerated still born
- 4= I don't know

3.2 What was the mode of delivery in the last pregnancy?

- 1= Spontaneous vaginal delivery
- 2 = Ceaserean section

3.3 Where was the deliver?

- 1= At home
- 2= At the local clinic
- 3= At the hospital

3.4 Did you suffer any complication in the last pregnancy?

- 0= Yes
- 1= No
- 2= Can't remember

3.5 If yes to question 3.1.4 specify the nature of the complication

- 0 = hypertension. 2 = severe bleeding while pregnant. 3 = severe bleeding after delivery, 4 = fever after delivery

SECTION 4 OUTCOME OF PRESENT PREGNANCY

4.1 At the time you discovered you were pregnant, was the pregnancy

- 0 = Desired at the time of conception
- 1= Not desired at the time of conception
- 2=Don't know

4.2 If the pregnancy was not desired at the time of conception did the pregnancy

- 0= Occured earlier then desired time
- 1= Occured when a pregnany was never desired
- 2= don't know

4.3 At the time you discovered you were pregnant, were you using any form of contraceptives?

- 0= Yes
- 1= No
- 2= can't remember

4.4 If using contraceptive what type?

- 0= Hormonal
- 1= IUCD
- 2= Barrier
- 3= Natural methods.
- 4= Traditional methods

4.5 If not using contraceptive what was the reason?

- 1= Had stopped using contraceptive
 - 2= Lack of information on contraceptives
 - 3= dont know where to obtain contraceptives
 - 4= Partner didnot agree with the use of contraceptive
 - 5= My religion does not allow me to use contraceptive
 - 6= Others specify
-

4.6 If you had stopped using contraceptive what was the reason?

- 0= Side effects
 - 1= I run out of the contraceptive
 - 2= Partner did not agree with use of contraceptives
 - 3= Forget to take the contraceptive
 - 4= Others Specify.....
-

SECTION 5 ANTENATAL

5.1 At what gestation age did you discover you were pregnant?

- 0= <12 weeks
- 1=12 – 20 weeks
- 2= 21- 28weeks
- 3= 29- 36weeks
- 4= >36 weeks
- 5= I did not attend antenatal clinic
- 6= I don't know

5.2 At what gestation age was your first antenatal visit?

- 0= <12 weeks
- 1=12 – 20 weeks
- 2= 21- 28weeks
- 3= 29- 36weeks
- 4= >36 weeks
- 5= I did not attend antenatal clinic
- 6= I don't know

5.3 How many times did you attend antenatal clinic?

0 = 0 1=1 2=2 3=3 4=4 5=>5

SECTION 6 HIV INFECTION

6.1 When was the HIV test done?

0=before this pregnancy 1=during this pregnancy 2=refuse to answer 3= others specify	<input type="checkbox"/>
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6.2 What were the HIV results?

0= reactive 1= non reactive 2= I don't know 3= refuse to answer	<input type="checkbox"/>
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6.3 If the results were reactive were you

0= Already on HAART before pregnancy 1= Started on HAART during this pregnancy 1= Not on HAART but started on PMTCT during this pregnancy 2= Neither on HAART nor PMTCT during this pregnancy	<input type="checkbox"/>
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SECTION 7 LABOUR AND DELIVERY

7.1 Did your experience any complication during this pregnancy?

0= yes 2= No (go to question 6.1.3) 3= don't know

7.2 If Yes to question 7.1 what was the complication?

0= Very high blood pressure
1= Convulsions
2= Fever
3= Severe bleeding while pregnant
4= low haemoglobin
5= Others specify.....
.....

7.3 Where did you deliver this pregnancy from?

0= home
1= at the local clinic
2= at the hospital
3= others specify

7.4 If delivery was at home, what was the reason?

0= choose to deliver at home
1=had no transport to go to a health facility
2= I had no one to accompany me to a health facility
3= I didn't know labour had started
4= others specify

7.5 What was the gestation age at time of delivery?

0 = 28 – 34 weeks
1= 35 – 36 weeks
2= 37 – 40 weeks
3= > 41 weeks

7.6 What was the mode of delivery?

0= Spontaneous vaginal delivery 1= Caesarean section

