

## ZIMBABWE Working Papers

Further analysis of Zimbabwe Demographic and Health Surveys

# Unintended Births and HIV in the 2010-11 Zimbabwe Demographic and Health Survey

Jekoniya Chitereka Pemberai Mandikutse Dadirai Nguwo Ngwarai Sithole Nyasha Madzingira

August 2014 • No. 14

#### Unintended Births and HIV in the 2010-11 Zimbabwe Demographic and Health Survey

Jekoniya Chitereka<sup>1</sup> Pemberai Mandikutse<sup>2</sup> Dadirai Nguwo<sup>3</sup> Ngwarai Sithole<sup>4</sup> Nyasha Madzingira<sup>5</sup>

### ICF International Rockville, Maryland, USA

#### September 2014

<sup>1</sup> Ministry of Health and Child Welfare; <sup>2</sup> Department of Community Medicine; <sup>3</sup> Population Services Zimbabwe; <sup>4</sup>Ministry of Health and Child Welfare; <sup>5</sup>Consultant, Harare, Zimbabwe



#### ACKNOWLEDGMENTS

The authors gratefully acknowledge the technical support provided by the DHS Program and in particular the analytical support provided by Trevor Croft and Sarah E.K. Bradley during an Extended Analysis Workshop in Zimbabwe in June 2013. The authors also thank Tesfayi Gebreselassie and Simbarashe Rusakaniko for thorough content review during the paper writing process. Additional thanks go to Cameron Taylor for logistical support.

Editor: Sidney Moore Document Production: Natalie La Roche Corresponding Author: Jekoniya Chitereka, Deputy M&E Director, Zimbabwe National Family Planning Council (ZNFPC); E-mail: jochitereka@gmail.com

The *DHS Working Papers* series is a prepublication series of papers reporting on work in progress. The *Zimbabwe Working Papers* are based on further analysis of data collected in the Zimbabwe Demographic and Health Surveys. The development of these working papers was funded by the United States Agency for International Development (USAID) through the MEASURE DHS-III project at ICF International, Rockville, Maryland, USA. The views expressed are those of the authors and do not necessarily reflect the views of USAID or the governments of the United States or Zimbabwe.

Recommended citation:

Chitereka, J., P. Mandikutse, D. Nguo, N. Sithole, and N. Madzingira. 2014. *Unintended Births and HIV in the 2010-11 Zimbabwe Demographic and Health Survey*. DHS Working Papers No. 113. (Zimbabwe Working Papers No. 14). Rockville, Maryland, USA: ICF International.

#### ABSTRACT

The results of the 2010/11 Zimbabwe Demographic and Health Survey (ZDHS) showed that 32 percent of births among women age 15-49 in the five years preceding the survey were *unintended*—either mistimed (wanted later) or not wanted at all (unwanted). Unintended births pose a serious threat to the attainment of the Millennium Development Goals, particularly for reducing child mortality and improving maternal health. The aim of this study is to establish if there is a relationship between women's HIV status and having unintended births.

The study used cross-sectional data from the 2010/11 ZDHS. Of the 9,171 women respondents in the survey, this study focused on the 1,458 women age 15-49 who had had a birth in the two years preceding the survey, were tested for HIV, and responded to the household relations module (domestic violence module). Almost 14 percent of women in this study were HIV-positive and about one-third (34 percent) reported that a birth in the two years preceding the survey was unintended.

The analysis showed that, controlling for other factors, 1) HIV-positive women were almost twice as likely as HIV-negative women to have had an unintended birth; 2) women who experienced spousal physical violence during their lifetime and women who experienced non-spousal sexual violence were strongly associated with unintended births; and 3) unintended births were significantly associated with the following variables: use of family planning, contraceptive discontinuation, mother's age at birth, marital status, and preceding birth interval of the index child.

Unintended births are a major challenge in sub-Saharan Africa. This analysis showed that HIV status is related to unintended births, with HIV-positive women being twice as likely to have an unintended birth. As a result, countries with a high HIV prevalence may be more at risk for a high burden of unintended pregnancies. HIV-positive women need comprehensive information on family planning.

#### **INTRODUCTION**

In 2008, an estimated 86 million pregnancies globally were unintended. Of these, 41 million ended in abortion, 33 million in unplanned births, and 11 million in miscarriage (Singh 2013). It is further estimated that between 20 and 40 percent of all births occurring in developing countries were unwanted, posing hardships for families and jeopardizing the health of millions of women and children (Worku and Fantahum 2007). *Unintended births* refers to births to women who indicated that the birth was wanted later or was not wanted at all. While unintended pregnancies and unintended births share a lot in common, unintended pregnancies will not always translate to unintended births, hence the two terms cannot be used interchangeably.

Approximately 35 million women in sub-Saharan Africa cannot access family planning and those living with HIV have the greatest unmet need for family planning (Ross and Winfrey 2002). Access to and availability of family planning is a critical factor, particularly in Zimbabwe where HIV prevalence is estimated at 15 percent and unmet need for family planning is 13 percent (ZIMSTAT and ICF International 2012). In Zimbabwe, more than 400,000 live births occur every year (MoHCW, PMTCT Annual Report, 2012) and, according to the ZDHS, unintended births remain high at 32 percent despite a high level of knowledge of contraceptive methods among women (98 percent) and a high contraceptive prevalence rate (59 percent). The aim of this study is to establish if there is any relationship between the HIV status of women who give birth and unintended births; and 2) to establish the association between HIV status and unintended births; and 2) to establish the association between genderbased violence (GBV) and unintended births.

#### BACKGROUND

Reducing the number of unintended births promotes reproductive health, specifically maternal health, by reducing the number of times a woman is exposed to the risks of pregnancy and increasing the length of birth intervals. A study by Singh, Singh, and Mahapatra (2013) in India noted that births identified as mistimed/unwanted had an 83 percent higher risk of neonatal mortality compared with wanted births. Several factors are associated with unintended pregnancies, including HIV infection. For example, fertility among HIV-positive women may increase as a result of societal pressure to have sexual intercourse, to have children, and to replace children who may have died (Magadi 2006; Ntozi 2002; Siegel et al. 2006). A study conducted in Kenya showed that the repeated occurrence of unintended pregnancies among HIV-positive women was due to inconsistent use of contraception (Obare et al. 2012). Some recent studies have found no significant differences in the sexual behavior and childbearing experiences and intentions of those who

have known their HIV-positive status from childhood and their counterparts in the general population (Obare et al. 2012).

A systematic review of 23 studies (17 from sub-Saharan Africa) by Calvert and Ronsmans (2013) on the contribution of HIV to mortality during pregnancy and the six-week postpartum period found that women with HIV were eight times more likely to die than their HIV-negative counterparts. Zaba et al. (2013) using network-based longitudinal data collected in six community-based studies in eastern and southern Africa found that nearly a quarter of deaths among women during pregnancy and up to six weeks thereafter in sub-Saharan Africa are attributable to HIV. For women living with HIV, preventing unintended pregnancies will, most importantly, promote women's health; however, it is also a cost-effective way to prevent new pediatric HIV infections (Reynolds et al. 2008).

Findings from studies on the pregnancy intentions of women living with HIV have shown mixed results. In Rwanda and Côte d'Ivoire, knowledge of HIV-positive results had little effect on pregnancy intentions, especially among women with no children or with fewer than the perceived optimal number of children (Aka-Dago-Akribi et al. 1999; Allen et al. 1993). In Malawi, Hoffman et al. (2008), found that receipt of HIV-positive test results led to a significant reduction in pregnancy intentions, regardless of the number of existing children. Findings from a meta-analysis by Berhan and Berhan (2013) indicated that wanting more children was associated with not having a child and being less than 30 years of age.

Intimate partner violence and unintended pregnancy have a relationship as well. Female survivors of sexual violence not only sustain physical injuries but are more likely than other women to have unintended pregnancies (Campbell et al. 2004; Pallitto and O'Campo 2004; Stephenson et al. 2008). From studies carried out in Colombia, the odds of having an unintended pregnancy were significantly higher if the women had been physically or sexually abused (Pallitto and O'Campo 2004). They further found that eliminating partner violence in Colombia would result in a decline in unintended pregnancies. Studies conducted in India revealed a similar pattern where women who have ever experienced physical violence from their husbands are less likely to use contraception and more likely to experience unwanted pregnancies (Stephenson et al. 2008). Unintended pregnancy is not only an indicator of lack of autonomy it is also an indicator of nonuse of contraception and lack of choices in fertility regulation, both of which are features of abusive relationships (Jejeebhoy 1997). The abusive spouse may insist on nonuse of contraception as a way of controlling the woman, who may eventually conceive even though she may not want the pregnancy at that point in time (Kaye 2001).

The results from the 2010/11 ZDHS show that 32 percent of births to women age 15-49 in the five years preceding the survey were unintended (ZIMSTAT and ICF International 2012). Additionally, 41 percent of ever-married women had experienced some form of violence (particularly physical violence)

from their husband/partners during the five years preceding the survey. While these findings are documented for women of reproductive age in Zimbabwe, in general there is little information available about the association between HIV status, gender-based violence (GBV), and unintended births.

#### **DATA AND METHODS**

#### **Study Design**

The data used in this analysis come from the 2010/11 ZDHS, which interviewed 9,171 women age 15-49 in a nationally representative sample. This study focused on 1,458 ever-married women who had a birth in the two years preceding the survey, were tested for HIV at the time of the survey, and who participated in the Household Relations Module. Ever-married women are used for the analysis because of the study's focus on gender-based violence (GBV)—physical violence, spousal sexual violence, and non-spousal sexual violence (Conceptual Framework).

#### Variables

The outcome or *dependent variable* in this study is the planning status (intended/unintended) of the birth of a child. The survey asked whether each pregnancy was *wanted* for each resulting live birth, which is taken from the question "At the time that you became pregnant with [NAME OF CHILD], did you want to become pregnant then, did you want to wait until later, or did you not want to have any (more) children at all?" Questions were asked separately for each child born in the five years preceding the survey. The outcome variable "unintended birth" is derived by combining births reported as wanted later at time of conception (mistimed) and those not wanted at all (unwanted).

#### **CONCEPTUAL FRAMEWORK**



Adapted from Jacob Adetunji (1998) DHS Analytical Reports

#### ANALYSIS

We analyze the data using both descriptive and multivariate statistical methods. The multivariate logistic regression model is fitted to examine the predictors of unintended births. Controls include knowledge of own HIV status, exposure to gender-based violence (namely, physical violence, spousal sexual violence and non-spousal sexual violence), age, education level, marital status, current contraceptive use, contraceptive discontinuation, contact with health worker, exposure to family planning messages, household wealth status, urban-rural residence, and geographical region (province) of the mother. The following indicators of child characteristics are also considered in the analysis: sex of the child, survival status (whether child is alive or dead), and preceding birth interval.

All analyses were performed using STATA 12.0 (Stata Corporation 2011), accounting for complex survey design and incorporating sampling weights.

#### RESULTS

Table 1 shows that among ever-married women who had a birth in the two years preceding the survey, who were tested for HIV at the time of the survey, and who participated in the Household Relations Module, almost 14 percent were HIV-positive and 34 percent had unintended births (i.e. mistimed or unwanted births). Most women are between the ages of 20 and 29 (59 percent); 17 percent were teenage mothers. Approximately two-thirds of women had secondary or higher education. Three-fourths resided in rural areas.

A majority of women in this study (70 percent) were not currently using a family planning method. Regarding discontinuation of contraceptive method before the index pregnancy, 8 percent of women reported discontinuing because of contraceptive failure, 18 percent said they wanted to become pregnant, and 4 percent stopped using contraception for other reasons. Forty-six percent of the women reported that they had no contact with a health provider, 31 percent had contact and discussed family planning, and 23 percent had contact, but did not discuss family planning with a health provider.

Approximately one-third (32 percent) of ever-married women reported having experienced physical violence from their most recent spouse/partners, 29 percent reported spousal sexual violence, and 24 percent reported non-spousal sexual violence. Forty-six percent of the women in this study live in households in the two lowest wealth quintiles (lowest and second) and one-third live in households in the two highest wealth quintiles (fourth and highest).

Mother's Characteristics	Ν	Percent
Planning status of birth		
Wanted then	960	65.8
Mistimed or unwanted	499	34.2
HIV Status		
HIV negative	1259	86.3
HIV positive	199	13.7
Age of mother at birth		
< 20 years	246	16.9
20-24	472	32.4
25-29	382	26.2
30-34	215	14.7
35-39	109	7.5
40-49	34	2.3
Marital status		
Currently in union	1325	90.9
Formerly married	133	9.1
Level of education		
No education	17	1.2
Primary	457	31.3
Secondary and above	985	67.5
Region		
Manicaland	230	15.8
Mashonaland Central	175	12.0
Mashonaland East	161	11.1
Mashonaland West	177	12.2
Matabeleland North	66	4.5
Matabeleland South	60	4.1
Midlands	193	13.2
Masvingo	173	11.8
Harare	180	12.3
Bulawayo	45	3.1

Table 1. Percent distribution of ever-married women age 15-49 who had a birth in the two years preceding the survey, were tested for HIV, and responded to the household relations module, Zimbabwe DHS 2010/11

(continued...)

Mother's Characteristics	Ν	Percent
Place of residence		
Urban	371	25.4
Rural	1088	74.6
Wealth quintile		
Lowest	342	23.5
Second	334	22.9
Third	299	20.5
Fourth	288	19.7
Highest	195	13.4
Family planning method used before birth	100	10.1
Did not use contraception	1024	70.2
Used contraception	435	29.8
Reason for discontinuation of method before	100	20.0
pregnancy		
Failure	110	7.6
Wanted to get pregnant	262	17.9
Other reason	63	4.3
Not using	1024	70.2
Exposure to family planning message	1024	10.2
No	910	62.4
Yes	549	37.6
Contact with health provider	545	57.0
No contact with health provider	666	45.7
Contact/did not discussed family planning	335	23.0
Contact/discussed family planning	458	23.0 31.4
Spousal physical violence ever	400	51.4
No	988	67.8
Yes	470	32.2
Spousal sexual violence ever	470	52.2
No	1042	71.5
Yes	416	28.6
	410	20.0
Non-spousal sexual violence ever No	1111	76.2
Yes	347	23.8
Child's Characteristics	547	23.0
Sex of the child		
Male	717	49.2
	742	
Female	742	50.9
Preceding birth interval	00	FG
< 24 months	82	5.6 15 4
24-35 months	225	15.4
36-47 months	223	15.3
48+ months	523	35.9
No preceding birth interval	405	27.8
Survival status of the child	~~~	4.0
Dead	62	4.3
Alive	1396	95.7

#### Table 1. – Continued

#### **Bivariate Analysis**

Table 2 presents the distribution of ever-married women age 15-49 who reported a birth in the two years preceding the survey by whether the birth was wanted or unintended (mistimed or unwanted). Table 2 shows that HIV-positive women had a significantly higher proportion of unintended births (48 percent) compared with HIV-negative women (32 percent). Women's experience of spousal physical violence and

spousal sexual violence as well as any non-spousal sexual violence were significantly associated with unintended births. In general, approximately, two in five women who experienced the three types of genderbased violence (GBV) were more likely to say the birth was unintended. Use of a family planning method was significantly associated with unintended births; a higher proportion of women who reported using contraception said the birth was unintended compared with those who did not use any family planning method.

The association between age at birth and unintended status of birth is U-shaped: 35 percent of women age < 20, 29 percent of those age 25-29, and almost 62 percent of those age 40-49 reported their index birth was unintended.

Regarding child characteristics, survival status and birth interval were significantly associated with the planning status of the birth being unintended. Women in the study reported that most of the children who died were unintended births. In addition, a large proportion of women said that children with short birth intervals were unintended births. For example, 57 percent of the births occurring after an interval of less than 24 months were reported as unintended, compared with 27 percent of the births occurring after an interval of more than 48 months.

There were no significant differences in unintended status of births by women's exposure to family planning messages, contact with a health provider, residence (urban-rural), region (province), marital status, and sex of the child.

Table 2. Percent distribution of ever-married women age 15-49 by planning status (wanted or mistimed/ unwanted) of most recent birth in the two years preceding the survey by selected socio-demographic characteristics, HIV status, and spousal violence indicators (n = 1,458), Zimbabwe DHS 2010/11

Mother's Characteristics	Wa	Wanted		Mistimed/Unwanted (unintended births)	
HIV status **	Ν	Percent	Ν	Percent	
HIV negative	857	68.1%	402	31.9%	
HIV positive	103	51.6%	97	48.4%	
Spousal physical violence ever **	100	01.070	01	10.170	
No	695	70.3%	294	29.7%	
Yes	265	56.4%	205	43.6%	
Spousal sexual violence ever **	200	00.470	200	40.070	
No	720	69.1%	322	30.9%	
Yes	239	57.5%	177	42.5%	
Non-spousal sexual violence ever **	200	57.570	177	42.070	
No	772	69.5%	339	30.5%	
Yes	188	54.1%	159	45.9%	
Family planning method used before birth **	100	54.170	159	45.976	
	701	70 59/	202	20 50/	
Did not use contraception Used contraception	721 239	70.5% 54.9%	303 196	29.5% 45.1%	
Reason for discontinuation **	239	04.9%	190	40.1%	
Failure	10	16 20/	0.2	02 00/	
	18	16.2%	92	83.8%	
Wanted to get pregnant	207	79.1%	55	21.0%	
Other reason	14	22.0%	49	78.0%	
Not using	721	70.5%	303	29.5%	
Exposure to family planning message	004	<u> </u>		<b>.</b>	
No	601	66.0%	309	34.0%	
Yes	359	65.4%	190	34.6%	
Contact with health provider					
No contact with health provider	436	65.5%	230	34.5%	
Contact/did not discussed family planning	216	64.6%	119	35.4%	
Contact/discussed family planning	307	67.2%	150	32.9%	
Age of mother at birth **					
< 20 years	160	64.9%	86	35.1%	
20-24	316	66.9%	156	33.1%	
25-29	271	70.9%	111	29.1%	
30-34	143	66.5%	72	33.6%	
35-39	57	52.4%	52	47.6%	
40-49	13	38.4%	21	61.6%	
Marital status					
Currently in union	912	68.8%	413	31.2%	
Formerly married	48	36.0%	85	64.0%	
Level of education*					
No education	8	46.9%	9	53.1%	
Primary	279	61.1%	178	38.9%	
Secondary and above	673	68.3%	312	31.7%	
Province					
Manicaland	151	65.7%	79	34.3%	
Mashonaland Central	106	60.6%	69	39.4%	
Mashonaland East	98	60.9%	63	39.1%	
Mashonaland West	111	62.4%	67	37.6%	
Matabeleland North	46	69.3%	20	30.7%	
Matabeleland South	37	62.8%	22	37.2%	
Midlands	143	74.3%	50	25.7%	
Masvingo	117	67.7%	56	32.3%	
Harare	122	67.7%	58	32.3%	
Bulawayo	29	65.3%	15	34.7%	
Bulanayo	20	00.070	10	(continued	

(continued...)

#### Table 2. - Continued

Mother's Characteristics	Wanted		Mistimed/Unwanted (unintended births)	
Place of residence				
Urban	253	68.1%	118	31.9%
Rural	707	65.0%	380	35.0%
Wealth quintile				
Lowest	212	61.9%	130	38.1%
Second	227	67.9%	107	32.1%
Third	196	65.5%	103	34.5%
Fourth	186	64.7%	102	35.3%
Highest	139	71.2%	56	28.8%
Child's Characteristics				
Sex of the child				
Male	475	66.2%	242	33.8%
Female	485	65.4%	257	34.6%
Preceding birth interval **				
< 24 months	35	42.9%	47	57.1%
24-35 months	111	49.3%	114	50.7%
36-47 months	138	61.8%	85	38.2%
48+ months	382	73.0%	141	27.0%
No preceding birth interval	294	72.5%	111	27.5%
Survival status of the child *				
Dead	31	49.0%	32	51.0%
Alive	929	66.6%	467	33.4%

Significance Level: \*\* p < .01; p < .05

#### **Multivariate Analysis**

Table 3 shows factors associated with unintended birth among ever-married women age 15-49 who reported a birth in the two years preceding the survey, were tested for HIV, and responded to the household relations module.

Controlling for socio-demographic and other characteristics of women and children in the study, HIV-positive women were about twice as likely as HIV-negative women to report the planning status of their birth as "unintended" (AOR = 1.77, 95% Confidence Interval [CI] = (1.17, 2.68)). Women who reported experiencing spousal physical violence and women who reported any non-spousal sexual violence had significantly higher odds of having an unintended birth—AOR = 1.50, 95%CI = [1.05, 2.15] and AOR = 1.57, 95%CI = [1.08, 2.28], respectively. At the same time, Table 3 shows there was no significant association between the experience of spousal sexual violence and unintended birth.

Women age 40-49 have a significant likelihood of having unintended births compared with women age 15-19, after controlling for other factors (AOR = 3.42, 95%CI = [1.26, 9.24]). Women who stated method failure or reasons other than wanting to become pregnant as the reason for discontinuation of a contraceptive method had significantly higher odds of having an unintended birth compared to women who stated they wanted to become pregnant.

Women formerly in union had a greater risk than women currently in union of having an unintended birth, after adjusting for other factors (AOR = 3.70, 95%CI = [2.21, 6.19]). Women with a preceding birth interval of 36 to 47 months (AOR = 0.44, 95%CI = [2.1, .96]) or 48+ months (AOR = 0.26, 95%CI = [1.3, .53]) had a very low likelihood of having an unintended birth compared to women with a preceding birth interval of less than 24 months. Similarly, women for whom the birth was their first (and hence had no preceding birth interval) were less likely to report an unintended birth.

The analysis also showed most of the social and demographic factors—education level, residence, household wealth status, and sex of the index child—were not significant predictors of unintended births.

Table 3. Odds ratio and 95% confidence interval from logistic regression showing predictors of unintended births among ever-married women age 15-49 who reported a birth in the two years preceding the survey, were tested for HIV, and responded to the household relations module, controlling for selected characteristics, Zimbabwe DHS 2010/11

	Adjusted Odds Ratio (AOR)	95% Confidence Interva		
Mother's Characteristics				
HIV Status **				
HIV Negative	1.00			
HIV Positive	1.77	1.17	2.68	
Spousal physical violence ever *	1		2.00	
No	1.00			
Yes	1.50	1.05	2.15	
Spousal sexual violence ever				
No	1.00			
Yes	1.32	0.87	2.01	
Non-spousal sexual violence ever *				
No	1.00			
Yes	1.57	1.08	2.28	
Reason for contraceptive discontinuation				
Wanted to get pregnant	1.00			
Failure **	19.25	9.81	37.77	
Other reason **	12.73	5.77	28.06	
Not using	1.53	0.99	2.36	
Exposure to family planning message				
No	1.00			
Yes	1.03	0.75	1.41	
Contact with health provider				
No contact with health provider	1.00			
Contact/did not discussed family planning	0.96	0.63	1.45	
Contact/discussed family planning	0.93	0.64	1.34	
Age of mother at birth				
< 20 years	1.00			
20-24	0.72	0.42	1.25	
25-29	0.69	0.37	1.28	
30-34	0.95	0.50	1.79	
35-39	1.90	0.91	3.94	
40-49 *	3.42	1.26	9.24	
			(continued	

(continued...)

Table 3. – Col	ntinued
----------------	---------

	Adjusted Odds Ratio (AOR)	95% Confidence Interva	
Mother's Characteristics			
Marital status			
Currently in union	1.00		
Formerly married **	3.70	2.21	6.19
Level of education			
No education	1.00		
Primary	0.43	0.13	1.39
Secondary and above	0.33	0.11	1.04
Province			
Manicaland	1.00		
Mashonaland Central	1.21	0.66	2.19
Mashonaland East	1.62	0.87	3.03
Mashonaland West	1.27	0.69	2.34
Matabeleland North	0.97	0.50	1.88
Matabeleland South	1.35	0.62	2.93
Midlands	0.74	0.41	1.34
Masvingo	1.05	0.56	1.99
Harare	1.03	0.49	2.16
Bulawayo	1.65	0.73	3.75
Place of residence			
Urban	1.00		
Rural	1.07	0.56	2.04
Wealth quintile			
Lowest	1.00		
Second	0.76	0.49	1.19
Third	0.76	0.50	1.18
Fourth	1.01	0.61	1.69
Highest	0.97	0.50	1.87
Child's Characteristics			
Sex of the child			
Male	1.00		
Female	1.18	0.88	1.59
Preceding Birth Interval			
< 24 month	1.00		
24-35 months	0.79	0.38	1.63
36-47 months *	0.44	0.21	0.96
48+ months **	0.26	0.13	0.53
No preceding interval *	0.39	0.18	0.83
Survival status of the child			
Dead	1.00		
Alive	0.72	0.38	1.35

Significance Level: \*\* p < .01; p < .05

#### DISCUSSION

Unintended births are a major challenge in high HIV burden countries like Zimbabwe because countries with high HIV prevalence are more at risk for a high burden of unintended pregnancies. Advances in treatment and access to antiretroviral therapy (ART) have improved the life expectancy of HIV-positive women. As a result, greater numbers of HIV-positive women who are living longer, healthier lives many want to have children. Currently, there is limited information available on the fertility and reproductive intentions of HIV-positive women in sub-Saharan Africa.

The goal of this study was to investigate the relationship between HIV status and unintended births. The results showed that there is a strong relationship between women's HIV status and unintended births. About 34 percent of HIV-positive women reported having an unintended birth in the two years preceding the survey. HIV-positive women were twice as likely as HIV-negative women to have an unintended birth. However, a study by Obare et al. (2012) showed no significant difference in childbearing experiences and intentions between women who knew they were HIV-positive and women in the general population.

Our results revealed that women who experienced some types of gender-based violence (GBV) are more likely to have unintended births compared with women who have never experience GBV. Various studies (Campbell et al. 2004; Pallitto and O'Campo 2004; Stephenson et al. 2008) found that women who experienced physical and sexual abuse were more likely to have unwanted births.

Other factors that influence the prevalence of unintended births are maternal age and marital status. Our findings showed that increase in maternal age is associated with increased likelihood of unintended births. Women who were formerly in union were found to have a higher risk of unintended births than currently married women. Because nonuse of contraception increases the chances of unintended births, family planning programmes should include older women and recently widowed and divorced women in their target groups.

The results have also shown the linkage between family planning (i.e., contraceptive discontinuation), HIV and GBV in increasing the likelihood of unintended births. This linkage shows the need for policy and programmes in Zimbabwe to step up efforts in the integrated approach to service delivery, especially sexual reproductive health and HIV. Women with known HIV-positive status need information on contraception and gender-based violence to aid in their reproductive decision-making processes and child bearing intentions. Clinical and support services for HIV-positive women of reproductive age should focus on promoting contraceptive use, access to methods, and correct and consistent use of contraceptive methods to prevent unwanted pregnancies and births.

This study does have some inherent limitations. It focuses on cross-sectional data from the 2010/11 ZDHS, which is susceptible to recall bias—women who have giving birth are asked to recall what transpired when they became pregnant, during pregnancy, during the birth, and following the birth. HIV status at the time of the survey might not be the same as at the time of the pregnancy. In addition, circumstances following the conception of the child—for example, spending time with the child or losing a husband—might change the unintended status of the birth itself. The study focuses on unintended births rather than unintended pregnancies (because of data limitations); hence, it fails to capture the planning status of pregnancies that were terminated by abortion or miscarried before full term and might have had the same

impact as unintended births. HIV-positive women who know their status may access services to terminate pregnancies differently than HIV-negative women.

#### CONCLUSIONS

HIV status is significantly associated with unintended births. In a country like Zimbabwe with a high disease burden unintended births among HIV-positive women may increase the chances of vertical transmission. HIV-positive women need comprehensive information on family planning and there is a need to address missed opportunities to contact women. The linkage between family planning and HIV needs to be strengthened and the National Prevention of Mother-to-Child Transmission (PMTCT) Programme is an opportunity to maximize this integration. Gender-based violence (GBV) has also proved to be a major challenge not only in terms of national development but at the household and individual level. Unintended births that occur as a result of women experiencing GBV reiterates the need for an integrated approach in sexual and reproductive health programming, especially family planning.

#### REFERENCES

- Adetunji, J.A. 1998. Unintended Childbearing in Developing Countries: Levels, Trends and Determinants. DHS Analytical Reports No. 8. Calverton, Maryland: Macro International Inc.
- Aka-Dago-Akribi, H., A. Desgrees Du Lou, P. Msellati, R. Dossou, and C. Welffens-Ekra. 1999. "Issues Surrounding Reproductive Choice for Women Living with HIV in Abidjan, Cote d'Ivoire." *Reproductive Health Matters* 7(13): 20–29.
- Allen, S., A. Serufilira, V. Gnmber, S. Kegeles, P. Van de Perre, M. Carael, and T.J. Coates. 1993. Pregnancy and Contraception Use among Urban Rwandan Women after HIV Testing and Counseling. *American Journal of Public Health* 83(5): 705–710.
- Berhan, Y., and A. Berhan. 2013. "Meta-analyses of Fertility Desires of People Living with HIV." *BMC Public Health* 13: 409.
- Calvert, C., and C. Ronsmans. 2013. "The Contribution of HIV to Pregnancy-related Mortality: A Systematic Review and Meta-analysis." *AIDS* 27(10): 1631–39.
- Campbell, R., T. Sefl, and C.E. Ahrens. 2004. "The Impact of Rape on Women's Sexual Health Risk Behaviors." *Health Psychology* 23(1): 67–74.
- Hoffman, I.F., F.E.A. Martinson, K.A. Powers, D.A. Chilongozi, E.D. Msiska, E.I. Kachipapa, C.D. Mphande, M.C. Hosseinipour, H.C. Chanza, R. Stephenson, and A.O. Tsui. 2008. "The Year-Long Effect of HIV-Positive Test Results on Pregnancy Intentions, Contraceptive Use, and Pregnancy Incidence among Malawian Women." *Journal of Acquired Immune Deficiency Syndrome* 47(4): 477–483.
- Jejeebhoy, S.J. 1997. "Implications for Domestic Violence for Women's Reproductive Health. What We Know and What We Need to Know." In: *Reproductive Health Research. The New Dimension*. Biennial Report 1996-1997. UNDP/UNFPA/World Bank, 138–149.
- Kaye, D. 2001. Domestic Violence and Induced-Abortion: Report of Three Cases. *East African Medical Journal* 78(10): 555–556.
- Magadi, M. 2006. "Poor Pregnancy Outcomes among Adolescents in South Nyanza Region of Kenya." African Journal of Reproductive Health 10(1): 26–38.
- Mbizvo, M.T., M.M. Bonduelle, S. Chadzuka, G. Lindmark, and L. Nystorm. 1997. "Unplanned Pregnancies in Harare, Zimbabwe: What Is the Contraceptive History Awareness of Mothers?" *Central African Journal of Medicine* 43 (7): 200–5.

- Ministry of Health and Child Welfare (MoHCW). 2012. Prevention of Mother to Child Transmission of HIV- 2012 Annual Report. Harare, Zimbabwe.
- Nhamo, D., I. Mudekunye-Mahaka, O. Chang, A. Chingono, G. Kadzirange, and M. Dunbar. 2013. "Factors Associated with Gender-based Violence and Unintended Pregnancy among Adolescent Women Living with HIV in Zimbabwe." Poster exhibition at 7<sup>th</sup> IAS Conference on HIV Pathogenesis Treatment and Prevention, Kuala Lumpur, Malaysia. Accessed at: http://pag.ias2013.org.
- Ntozi, J.P.M. 2002. "The Impact of HIV/AIDS on Fertility in Sub-Saharan Africa." *African Population Studies* 17(1): 103–124.
- Obare, F., A. Kwaak, and H. Birungi. 2012. "Factors Associated with Unintended Pregnancy, Poor Birth Outcomes and Post-partum Contraceptive Use among HIV-positive Female Adolescents in Kenya." *BMC Women's Health* 12: 34.Pallitto, C.C., and P. O'Campo. 2004. "The Relationship between Intimate Partner Violence and Unintended Pregnancy: Analysis of a National Sample from Colombia. *International Family Planning Perspectives* 30(4): 165–173.
- Pallitto, C.C., J.C. Campbell, and P. O'Campo. 2005. "Is Intimate Partner Violence Associated with Unintended Pregnancy? A Review of the Literature." *Trauma Violence Abuse* 6(3): 217–235.
- Reynolds, H.W., B. Janowitz, R. Wilcher, and W. Cates. 2008. "Contraception to Prevent HIV-positive Births: Current Contribution and Potential Cost Savings in PEPFAR Countries." Sexually Transmitted Infections 84(Suppl 2): II49–II53.
- Ross, J., and Winfrey, W. 2002. "Unmet Need for Contraception in the Developing World and the Former Soviet Union: An Updated Estimate." *International Family Planning Perspectives* 28(3).
- Roudi-Fahimi, F., and A. Abdul Monem. 2010. *Unintended Pregnancies in the Middle East and North Africa*. PRB Policy Brief. Washington, D.C.: Population Reference Bureau.
- Siegel, K., E.W. Schrimshaw, and H.-M. Lekas. 2006. "Diminished Sexual Activity, Interest, and Feelings of Attractiveness among HIV-infected Women in Two Eras of the AIDS Epidemic." Archives of Sexual Behavior 35(4): 437–449.
- Singh, A., A. Singh, and B. Mahapatra. 2013. "The Consequences of Unintended Pregnancy for Maternal and Child Health in Rural India: Evidence from Prospective Data." *Maternal and Child Health Journal* 17(3): 493–500.

- Singh, S., G. Sedgh, R. Hussain, and M. Eilers. 2013. "Incidence of Unintended Pregnancies Worldwide in 2012 and Trends since 1995." Paper presented at the 2013 Annual Meeting of the Population Association of America, New Orleans, Louisiana. *Accessed at*: http://paa2013.princeton.edu/papers/131981.
- StataCorp. 2011. Stata Statistical Software: Release 12. College Station, TX: StataCorp LP.
- Stephenson, R., M.A. Koenig, R. Acharya, and T.K. Roy. 2008. "Domestic Violence, Contraceptive Use, and Unwanted Pregnancy in Rural India." *Studies in Family Planning* 39(3): 177–186.United Nations. 2010. "Millennium Development Goals." *Accessed at*: www.un.org/millenniumgoals.
- Worku, S., and M. Fantahun. 2007. "Unintended Pregnancy and Induced Abortion in a Town with Accessible Family Planning Services. The Case of Harar in Eastern Ethiopia." *Ethiopian Journal* of Health Development 20(2): 79–83.
- World Health Organization (WHO). 2013. Global and Regional Estimates of Violence against Women: Prevalence and Health Effects of Intimate Partner Violence and Non-partner Sexual Violence. Geneva: WHO.
- Yeatman, S. 2009. "The Impact of HIV Status and Perceived Status on Fertility Intentions in Rural Malawi." *AIDS and Behavior* 13(Suppl 1): 12–19.
- Zaba, B., C. Calvert, M. Marston, R. Isingo, J. Nakiyingi-Miiro, T. Lutalo, A. Crampin, L. Robertson, K. Herbst, M.L. Newell, J. Todd, P. Byass, T. Boerma, and C. Ronsmans. 2013. "Effect of HIV Infection on Pregnancy-related Mortality in Sub-Saharan Africa: Secondary Analyses of Pooled Community-based Data from the Network for Analysing Longitudinal Population-based HIV/AIDS Data on Africa (ALPHA)." *The Lancet* 381(9879): 1763–1771.
- Zimbabwe National Statistics Agency (ZIMSTAT) and ICF International. 2012. *Zimbabwe Demographic and Health Survey 2010-11*. Calverton, Maryland: ZIMSTAT and ICF International Inc.