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Simona J. Simona
Mazuba Muchindu
Harriet Ntalasha

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Simona J. Simona[1]
Mazuba Muchindu[1]
Harriet Ntalasha[1]

ICF International
Rockville, Maryland, USA

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[1]Department of Social Development Studies, University of Zambia

Corresponding author: Simona J. Simona, Department of Social Development Studies, University of Zambia; Email: jssimona@yahoo.com; simona.simona@unza.zm

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ABSTRACT

This study used the 2013-2014 Zambia Demographic and Health Survey (ZDHS) dataset to examine, on one hand, the sociodemographic characteristics associated with intimate partner violence (IPV) and, on the other hand, the relationship between IPV and use of maternal health care (place of delivery and ANC visits). The study was based on 6,087 women, age 15-49, who were interviewed as part of the domestic violence module of the ZDHS. They reported having been in an intimate relationship previously and giving birth in the five years preceding the survey. Data were analysed using STATA 13.

The study found that women's characteristics, including marital status, household wealth, witnessing parental violence, and attitudes justifying wife beating, were significantly associated with reporting experience of IPV, after adjusting for educational attainment, occupation, alcohol consumption, area of residence, and other socio-economic factors. Partner characteristics significantly associated with IPV were alcohol consumption and controlling behaviour.

IPV is only significantly associated with maternal delivery in a health facility at the bivariate level of analysis. It is not significantly associated with use of maternal health care after adjusting for area of residence, mother's age for the most recent birth, birth order, educational attainment, and wealth.

The study indicates that gender inequality and problematic cultural norms that privilege men with power over women still exist in Zambia, and thus IPV preventive strategies should incorporate a way to adjustsuch cultural norms, not only to increase the use of maternal health services but also to enhance the welfare of women.

Keywords: Zambia, intimate partner violence (IPV), maternal health care, sociodemographic characteristics

1. INTRODUCTION

Intimate partner violence (IPV), defined as lifetime experience of violence by an intimate partner, is a global social and public health problem, perpetrated mostly by men against women (Krug et al. 2002; Chiume 2006; and Tuldhar et al. 2013). Globally, the lifetime prevalence of IPV among ever-partnered women ranges from 15% to 71%, and studies indicate that nearly one in every three women has experienced physical aggression, sexual coercion, or emotional abuse in an intimate relationship (Olayanju et al. 2013). According to a World Health Organization (WHO) multi-country study on women's health and domestic violence against women, 6%-49% of women age 15-49 reported sexual violence by a partner at some point in life (WHO 2010). In Zambia, evidence shows that 43% of women age 15-49 have experienced physical violence and that 37% experienced physical violence in the 12 months preceding the 2013-2014 Zambia Demographic and Health Survey (ZDHS) (CSO 2014).

Many studies have examined factors or predictors of intimate partner violence in different parts of the world. The documented factors of IPV operate on different levels, ranging from individual sociodemographic characteristics to culturally related factors, particularly in the African context. Commonly reported sociodemographic factors that are positively associated with IPV include the woman's age (Romans et al. 2007; Olayangu et al. 2013), childhood experience of domestic violence (Yount and Carrera 2006), having a low level of education, being unemployed, financial dependence on the partner (Dutton 1988; Gartner 1999; Smith 1990), using drugs or drinking alcohol (Koenig et al. 2006; Kwagala 2013), and having more surviving children (Hindin et al. 2008).

Lower levels of education and unemployment are both seen as contributing to women's frequent dependence on their husbands and partners, thereby making it difficult for them to leave situations of domestic violence. These factors also make women more tolerant of spousal abuse (Kalmus 1982), hence putting them in a vicious cycle of violence and abuse. Similarly, women with more children have been reported to be more likely to tolerate violence (Young and Carrera 2006). However, there have been contradictory findings on the association between education and IPV. Some studies have found that some women with lower educational status compared with their partners are at a higher risk of violence (Garcia-Moreno et al. 2005), but other studies have found

that women with higher educational status than their partners are at higher risk of violence (Jewkes et al. 2002; Taillieu and Brownridge 2010).

Other factors associated with women's likelihood of being victims of IPV include marrying at a young age, lack of contact with natal kin, witnessing abuse of one's mother, (Felson et al. 2000), coming from a poorer household than the partner (Resko 2010), and being more than 10 years younger than one's partner (Lawoko et al. 2007)

Cultural factors associated with IPV include justification that a husband can beat his wife for various reasons, including disobedience or refusal of sex (Shezongo-Macmillan 2007), male controlling behaviour, and control over family resources and the means of production (Jewkes et al. 2002; Taillieu and Brownridge 2010). However, some studies also show that women who have control over these resources are not protected from IPV (Vyas and Watts 2009).

Cultural factors in Africa can be explained by institutionalised gender inequalities that privilege men with power over women in decision-making (Ofei-Aboagye 1994; Hinden 2003; Suffitz 2010). This cultural inequality relegates women to subordinate positions, thereby exacerbating their vulnerability to domestic violence. In Zambia the IPV discourse is not different from the general African pattern (OMCT 2002; Dover 2005; Simpson 2005).

Women's experience of IPV has been associated with poor sexual and reproductive health outcomes, such as sexually transmitted infections (STIs), including HIV (Campbell 2002), pregnancy complications and abortion (Emenike et al. 2008), urinary tract infections (Campbell 2002), and sexual dysfunction (UNICEF 2000). The experience of IPV also has an indirect effect on maternal health by making it difficult for women to access a variety of maternal health care services (Fischbach and Herbert 1997; WHO 2012; Rahman et al. 2012).

Women who have ever experienced partner violence are less likely to use maternal health services such as antenatal care (ANC) during pregnancy. This finding has been established by a number of studies in different parts of the world. In a study exploring the relationship between maternal experiences of physical and sexual IPV and the use of reproductive health care services in Bangladesh, Rahman et al. (2012) found an association between maternal IPV experiences and the low use of ANC. Women who had been sexually abused were significantly less likely to have visited a skilled ANC and delivery care provider. The more severe the violence, the more profound

were the consequences. In Nigeria Ononokpono and Azfredrick (2014) also found significant associations between IPV and the use of maternal health care services. They found that women who had ever experienced physical or emotional IPV were significantly less likely to use adequate ANC and delivery assistance by a skilled health care provider.

The main argument given to explain the relationship between IPV and maternal health care indicators is that violence can affect a woman's emotional and physical health, and this in turn may lead to lack of incentive to pursue appropriate maternal health care (Rahman et al. 2012, in Ononokpono and Azfredrick, 2014). This seems to be common in countries with value systems that emphasize male dominance and subordination of women. In a study on use of maternal health care services in Nicaragua, for example, Lubbock and Stephenson (2008) found that men had the authority both in the workplace and in the home to dictate women's mobility and autonomy in accessing maternal health care services. They could deny women permission to seek care if, for example, they were examined by a male health practitioner, due to jealousy. Therefore, in many instances women would choose not to go for health care, in order to avoid potential violence or conflict with their partners.

Similarly, Amina et al. (2009) have argued that women in abusive relationships are more likely to have challenges in negotiating use of male-controlled contraception (e.g., condoms) compared with women who are not in such relationships. Such women also might fear using other forms of contraception (e.g., hormonal pills) without the knowledge of their partners, as this could make them appear to be cheating on the partner and thus result in violence.

However, other studies on IPV and use of maternal health services have reported conflicting results. In a recent study in New Zealand, researchers found increased use of contraception among women who had experienced IPV (Amina et al. 2009). Similarly, in Nigeria Ononokpono and Azfredrick (2014) found no significant relationship between sexual IPV and use of maternal health care services. In Zambia, Stewart et al. (2010) also found that women's experience of physical/sexual violence from partners was not associated with use of antenatal care, skilled delivery, and delivery in a facility (Stewart et al. 2010).

Given such conflicting results, there is need for further examination of the relationship between IPV and use of maternal health services. Few studies of this subject have been conducted in Zambia and other developing countries (Fischbach and Herbet 1997; Jewkes, Levin, and Penn-Kekana 2002; Usdin et al. 2005; Diop-Sidibe, Campbell, and Becker 2006). In addition, the little available literature on IPV and maternal health care in Zambia is based on old data.

2. CONCEPTUAL FRAMEWORK

There are a number of theoretical models that analyze both the factors associated with IPV and its consequences. Those that examine factors related to IPV include biological, psychological, cultural, phenomenological, ecological, and gender equality models. The ecological model provides a broad picture of factors related to both victims and perpetrators of IPV. This model focuses on the social environment and its influence on the possibility of being either a victim or perpetrator of intimate partner violence. Such an approach is considered useful when coming up with measures to reduce intimate partner violence and to strengthen protective factors and avoid the likelihood of becoming a victim and/or perpetrator of IPV (CDC 2004, in WH, 2010).

The ecological model proposes that IPV is a result of factors operating at four levels—individual, relationship, community, and societal. This study only looks at individual and relationship factors. Individual factors include sociodemographic characteristics that may increase the likelihood of an individual becoming a victim or perpetrator of violence, while relationship factors point to increased risk of violence as a result of relationships with peers, intimate partners, and family members, who are a person's closest social circle and can shape their behavior and range of experiences (WHO 2010; WHO 2012). At the individual level, among the factors consistently associated with a woman's increased likelihood of experiencing violence by her partner(s) are low level of education, exposure to violence between parents,sexual abuse during childhood, acceptance of violence, and exposure to other forms of prior abuse. Also, at the individual level some of the most consistent factors associated with a man's increased likelihood of committing violence against his partner(s) are young age, low level of education, witnessing or experiencing violence as a child, harmful use of alcohol and drugs, personality disorders, acceptance of violence (e.g., feeling it is acceptable for a man to beat his partner), and past history of abusing partners (WHO 2012).

One of the few models on the consequences of IPV is the IPV contextual framework proposed by Bell and Naugle in 2008. According to this model, consequences of IPV include increasing the partner's compliant behaviour, thus escaping or avoiding arguments, termination of the relationship, and physical injury (Bell and Naugle, 2014). A woman may therefore opt not to go for an ANC visit or other maternal care in order to avoid violence from her partner.

Based on the above formulation, we derived a conceptual framework, shown in Figure 1. This model highlights common individual factors and partner/relationship factors that lead to IPV. The model then looks at how IPV in turn leads to low use of maternal health services. The sociodemographic factors examined in the study are those covered by DHS data. For women, these

are area of residence, age, marital status, number of living children, education, employment, and wealth. For their husbands/partners they are education, alcohol consumption, education difference with wife/partner, age difference with wife/partner, and controlling behavior. It is acknowledged that while some of these may have a strong relationship, others may not.

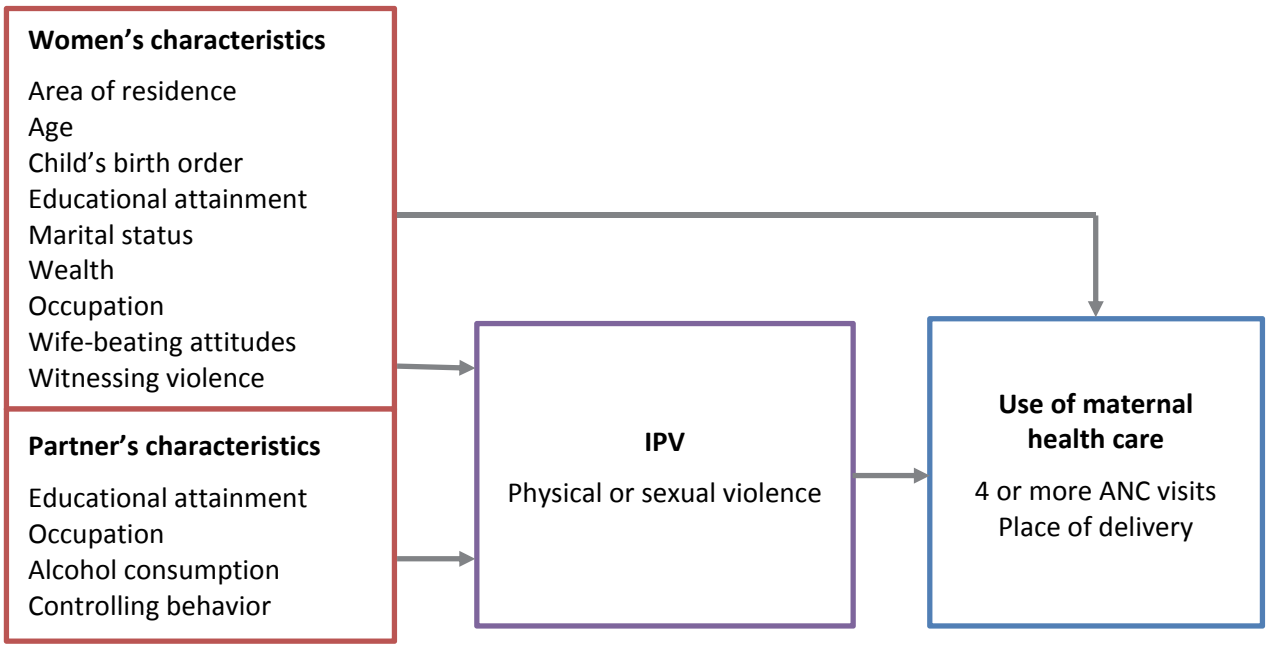
The maternal health care services studied are also those with available DHS data—antenatal care and place of delivery. As indicated already, the argument here is that IPV could affect a woman's emotional and physical health and this in turn could lead to lack of incentive to pursue appropriate maternal health care (Rahman et al., 2012, in Ononokpono and Azfredrick, 2014).

Research Questions

This study addresses the following research questions:

1. What sociodemographic factors are associated with intimate partner violence (IPV) among women age 15-49 in Zambia?
2. Among these women, what is the relationship between IPV and their use of maternal health services?

Figure 1. Conceptual framework for intimate partner violence and use of maternal health care services



3. DATA AND METHODS

3.1. Data Source

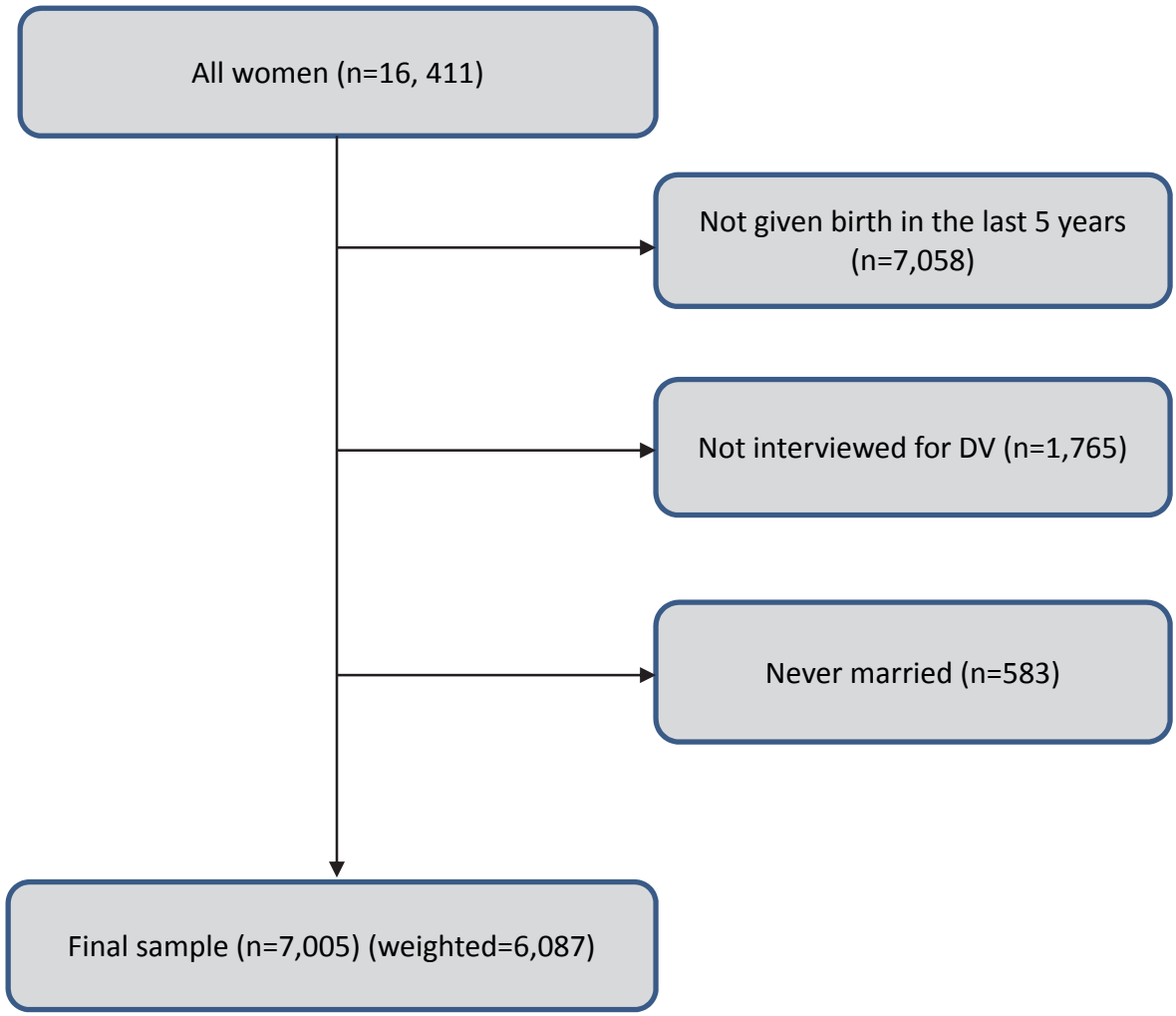
Data for this study were derived from the 2013-2014 Zambia Demographic and Health Survey (ZDHS). The survey is nationally representative and was organized under the auspices of the Central Statistical Office (CSO), Ministry of Health, and ICF International in partnership with other governmental and nongovernmental organizations in Zambia. The data collected through the survey include background characteristics, marriage and sexual activity, fertility, family planning, maternal health, nutrition, HIV/AIDS, and domestic violence. The study made use of the individual women's recode, from the survey module on domestic violence.

3.2. Sample Size and Sampling Procedure

The 2013-2014 ZDHS used a two-stage sampling design with a sampling frame from the Zambia 2010 Census of Population and Housing (CPH 2010). Because the country has 10 provinces, 20 strata were created representing urban and rural areas in each province. The survey selected 722 standard enumeration areas (SEAs) from the strata in the first-stage of the selection process, from which 18,050 households were selected. The total number of women age 15-49 interviewed was 16,411.

The domestic violence module was administered to one randomly selected woman in each selected household. The total number of women who answered the domestic violence module in the ZDHS was 11,778. These women were asked about their experiences of violence. Since our focus is on intimate partner violence and maternal health use, we restricted the analysis to ever-married women who had a live birth in the five years preceding the survey. The total number of women included in the study is 7,005 (weighted = 6,087). Figure 2 shows our sampling derivation.

Figure 2. Sample derivation



3.3. Definition of Variables

3.3.1. Dependent Variables

There are three dependent variables for this study: intimate partner violence (IPV), place of delivery, and number of antenatal care (ANC) visits. IPV is defined as ever experiencing physical or sexual violence. Ever experiencing physical violence was determined by the respondent answering "yes" to any of a string of questions about whether her spouse ever did the following:(1) slapped her; (2) twisted her arm or pulled her hair; (3) pushed, shook, or threw something at her; (4) punched her with his fist or something that could hurt her; (5) kicked her, dragged her, or beat her up; (6) tried to choke her or burned her on purpose; or (7) threatened her

or attacked her with a knife, gun, or any other weapon. Experiencing sexual violence was determined by the respondent answering "yes" to any of the two questions that asked whether the woman's spouse had ever forced her to have sexual intercourse or to perform any sexual activity without her will.

Data on place of delivery were collected for all births in the five years preceding the survey, but the analysis focused on the care that women received for their most recent birth. It was measured by the survey question that asked women where they delivered their more recent birth. If a woman answered home or other home, it was recoded as "home," and all kinds of conventional health facilities were recoded as "facility delivery."

ANC visits were measured using the question that asked women how many times they received antenatal care during the pregnancy for the most recent birth. If they received no ANC care or made one to three ANC visits, this was recoded as "0", and if they made four or more antenatal care visits, this was recoded as "1".

3.3.2. Independent Variables

There are three sets of independent variables in this study. The variables were chosen on account of their theoretical relevance, dominance in the literature, and presence in the DHS dataset. The first set considers IPV as the dependent variable and has sociodemographic characteristics as independent variables. The first set includes women's characteristics (current age, marital status, wealth index, educational attainment, employment, area of residence, alcohol consumption, experience of violence, and attitudes toward wife beating) and partners' characteristics (educational attainment, alcohol consumption, and occupation). The second set, which considers place of delivery as the dependent variable, has IPV and ANC visits as independent variables in addition to some sociodemographic characteristics that have been found to be associated with place of delivery in the literature. The third set considers receiving ANC (number of visits) as the dependent variable, with IPV as the independent variable, while controlling for the effects of the sociodemographic characteristics. Table 1 shows how the variables used in the study were defined and recoded for the purposes of this analysis.

Table 1. Operational definition of variables

Variable	Operational definition
Dependent variables	
IPV	0=no experience of physical or sexual spousal violence, 1=any lifetime experience of physical or sexual spousal violence
ANC	0=0-3 ANC visits, 1=4 and more ANC visits
Place of delivery	0=home, 1=facility delivery
Independent variables	
Area of residence	1=urban, 2=rural
Current age	1=15–24, 2=25–34, 3=35–49
Age at most recent birth	<20, 20-34, 35 or older
Child's birth order	1, 2, 3, 4 or higher
Educational attainment	0=none (no education), 1=primary (1-7 years), 2=higher (8+ years)
Marital status	1=married or in union, 2=widowed, 3=divorced 4=not living together
Household wealth	1=poorest, 2=poor, 3=middle, 4=rich, 5=richest
Religion	1=Catholic, 2=Protestant, 3=Muslim/other
Occupation in the past 12 months	0=not employed, 1=employed for cash, 2=self-employed agriculture
Alcohol consumption	Does respondent drink alcohol: 0=no, 1=yes
Wife beating justifiable	A positive response to any of the following wife-beating justifications: goes out without telling him, neglects children, argues with him, refuses to have sex with him, burns food (0=no, 1=yes)
Witnessed parental violence	0=no, 1=yes
Husband's educational attainment	0=none (no education), 1=primary (1-7 years), 2=higher (8+ years)
Husband jealous	Whether or not husband is jealous when respondent talks to other men: 0=no, 1=yes, 2=don't know
Husband's occupation in past 12 months	0=Not employed, 1=employed for cash, 2=self-employed agriculture
Husband's alcohol consumption	Does partner drink alcohol: 0=no, 1=yes

3.4. Statistical Analysis

We used STATA 13 to conduct our analysis. The analysis began with a univariate analysis, where descriptive statistics of sociodemographic characteristics of the respondents were obtained. Frequency distributions and proportions of each independent variable against the dependent variables were determined, followed by ascertaining associations between each independent variable against dependent variables, using chi-square. To obtain and ascertain the strength of associations, logistic regression models with 95% odds ratio confidence intervals were used. Three regression models were run. The first had IPV as the dependent variable and sociodemographic and partner characteristics as independent variables. The second model had ANC visits as the dependent variable and IPV as the independent variable, along with other women's characteristics. The third model had place of delivery as the dependent variable and IPV as an independent variable, while adjusting for the influence of selected socio-demographic variables.

To address the issue of disproportionate sampling and nonresponse, the domestic violence sample weight was applied in the analysis. The *svy* commands were applied to adjust for the effects

of a complex sampling design (two-stage sampling design) that was used in the 2013-14 ZDHS. Ignoring the sampling design has the effect of underestimating the sampling errors, which consequently obscures the decision on whether or not to reject the null hypothesis. The Variance inflator factor (VIF) was used to diagnose multicollinearity among the covariates in each model.

3.5. Ethical Consideration

Permission to use the 2013-14 dataset was obtained from the DHS Program website with the assistance of ICF International. There was no need to obtain any ethical clearance for the secondary analysis. All ethical protocols were fulfilled by ICF International and CSO during the initial stages of primary data collections (Central Statistical Office, Ministry of Health, and ICF International,2013-2014).

4. RESULTS

4.1. Background Characteristics of the Participants

Table 2 reports the background characteristics of the sample population for this study. Nearly two-thirds of the women (63%) resided in urban areas and almost half (47%) were age 25-34. Mother's age at the most recent birth was mostly 20-34 (69%), and for about one-third of the respondents (34%) their most recent birth was their second or third, while for only 14% of respondents the most recent birth was their first.

Most of the women had attained primary education (57%), were married (89%), and were Protestants (82%). About two-thirds (65%) were in the lowest three categories of the wealth index, while about half (49%) were employed for cash and 42% were not employed. Most of respondent's husbands were employed for cash (75%), and most had attained at least eight years of education (52%).

Table 2. Background characteristics of the participants

Background characteristics	Number of women	%
Woman's characteristics		
Area of residence		
Urban	2251	37.0
Rural	3836	63.0
Current age		
15–24	1677	27.6
25–34	2879	47.3
35–49	1531	25.1
Mother's age for most recent birth		
<20	807	13.3
20–34	4180	68.7
35+	1100	18.0
Birth order		
1^{s}	876	14.4
2 or 3	2088	34.3
4 or 5	1525	25.1
6th or more	1598	26.3
Educational attainment		
No education	662	10.9
Primary	3450	56.7
Higher	1975	32.4
Marital status		
Married	5386	88.5
Widowed	124	2.0
Divorced	388	6.4
Separated	189	3.1

(Continued…)

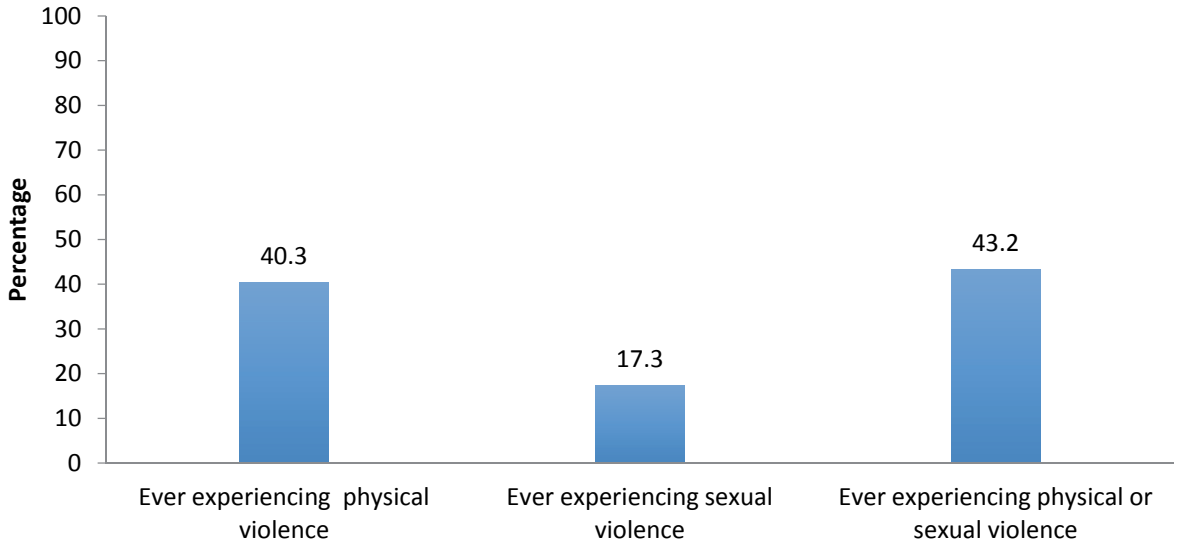
Table 2. − *Continued*

Background characteristics	Number of women	%
Woman's characteristics		
Household wealth index		
Poorest	1398	23.0
Poor	1316	21.6
Middle	1236	20.3
Rich	1165	19.1
Richest	972	16.0
Religion		
Catholic	1012	16.6
Protestant	4984	81.9
Muslim/other	91	1.5
Occupation in the past 12 months		
Not employed	2537	41.7
Employed for cash	2956	48.6
Self-employed agriculture	594	9.8
Alcohol consumption		
No	5524	90.8
Yes	563	9.2
Wife beating justifiable		
No	2994	49.2
Yes	3090	50.8
Witnessed parental violence		
No	3293	54.1
Yes	2218	36.4
Do not know	576	9.5
Husband's characteristics		
Husband's educational attainment		
No education	565	9.3
Primary	2380	39.1
Higher	3142	51.6
Husband jealous		
No	2139	35.2
Yes	3889	63.9
Don't know	59	1.0
Husband's occupation		
Not employed	428	7.0
Employed for cash	4556	74.8
Self-employed agriculture	1103	18.1
Husband's alcohol consumption		
No	3318	54.5
Yes	2769	45.5

4.2. Prevalence of Intimate Partner Violence among Ever-married Women Who Had a Birth in the Five Years Preceding the Survey

Figure 3 indicates that, among ever-married women with a recent birth, 40% reported ever experiencing physical violence by their intimate partners, and 17% reported experiencing sexual violence. More than four women in every ten (43%) reported ever experiencing physical or sexual violence.

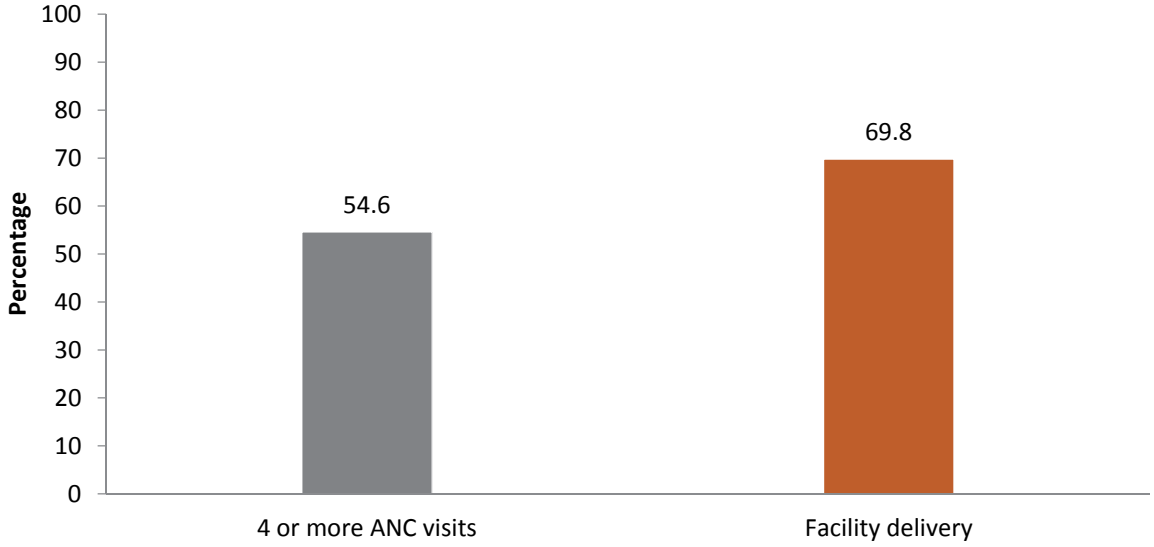
Figure 3. Prevalence of physical and sexual violence among ever-married women who had a birth in the five years preceding the survey



4.3. Use of Maternal Health Care: Facility Delivery and Four or More ANC Visits among Ever-married Women Who Had a Birth in the Five Years Preceding the Survey

Nearly three-quarters (70%) of ever-married women who gave birth in the five years before the survey delivered in a health facility, and more than half (55%) made four or more antenatal care visits to a health facility.

Figure 4. Percentage of ever-married women who used maternal health care services in the five years preceding the survey



4.4. Intimate Partner Violence and Women's Sociodemographic Characteristics

The bivariate analysis revealed a number of significant relationships between women's sociodemographic characteristics and their experience of IPV. Table 3 shows that women's educational attainment, marital status, and occupation in the 12 months preceding the survey were strongly associated with experiencing IPV. Levels of IPV were higher among women with less than eight years of education, among women who were divorced or separated compared with currently married women, and among women who were employed in the last 12 months, whether for cash or self-employed, compared with women who were not employed.

The results also show that women who consumed alcohol, women who responded that wife beating is justifiable, and women who had witnessed their mothers being beaten by their fathers reported significantly higher levels of ever experiencing IPV. Women whose husbands were self-employed, consumed alcohol, or were jealous reported higher lifetime experience of IPV. In contrast, urban or rural residence, age, wealth index status, and educational attainment were not associated with ever experiencing IPV.

Table 3. Percentage of women who had experience of intimate partner violence by background characteristics

	Intimate partner violence	
	%	Number of women
Woman's characteristics		
Area of residence		
Urban	42.9	966
Rural	43.4	1664
Current age		
15-20	43.0	720
25–34	44.0	1267
35–49	42.0	644
Educational attainment		**
No education	42.8	283
Primary	45.2	1560
Higher	39.9	787
Marital status		***
Married	41.9	2256
Widowed	43.6	47
Divorced	56.7	220
Separated	58.2	110
Wealth		
Poorest	44.5	621
Poor	42.4	559
Middle	47.2	583
Rich	42.3	492
Richest	38.6	375

(Continued…)

Table 3. − *Continued*

	Intimate partner violence	
	%	Number of women
Woman's characteristics		
Religion		
Catholic	44.2	447
Protestant	43.2	2152
Muslim/other	34.3	31
Occupation the past 12 months		***
Not employed	38.2	969
Employed for cash	45.4	1342
Self-employed agriculture	53.7	319
Alcohol consumption		***
No	42.1	2323
Yes	54.7	308
Wife beating justifiable		***
No	35.6	1068
Yes	50.5	1561
Witnessed parental violence		***
No	37.4	1233
Yes	50.1	1111
Don't know	49.7	287
Husband's characteristics		
Husband's educational attainment		
No education	42.1	238
Primary	45.2	1075
Higher	41.9	1317
Husband jealous		***
No	25.8	552
Yes	52.8	2054
Don't know	41.9	24
Husband's occupation		***
Not employed	43.1	184
Employed for cash	41.4	1887
Self-employed agriculture	50.7	559
Husband's alcohol consumption		***
No	35.2	1168
Yes	52.8	1463

*p<0.05, **p<0.01, ***p<0.001

4.5. Logistic Regression Analysis of IPV and Sociodemographic Characteristics

Table 4 presents the results of logistic regression analysis of IPV and sociodemographic characteristics. The results show that women who are divorced (p=0.001) or separated (p=0.022) have significantly higher odds of reporting ever experiencing IPV compared with married women. Lifetime experience of IPV is also significantly associated with household wealth: Women in the middle wealth quintile (p=0.006) have higher odds of reporting violence compared with those in the poorest quintile. The study shows interesting findings about women's employment and IPV: Women employed for cash (p=0.01) and those who are self-employed in agriculture (p=0.002) have significantly higher odds of reporting ever experiencing violence than women who are not employed. Also, as expected, women who responded that wife beating is justifiable have higher

odds of reporting violence compared with those without this attitude, and women who reported that they had witnessed marital violence between their parents have higher odds compared with women who had not been exposed to parental violence.

Concerning husband's characteristics, the findings indicate that jealousy and alcohol consumption by the husband are each significantly associated with women's reporting ever experiencing IPV. Women with jealous husbands (p=0.001) and women with partners who consume alcohol (p=0.001) have higher odds of reporting ever experiencing IPV. All other variables studied were not found to be significantly associated with IPV.

Table 4. Logistic regression results of IPV on woman's and husband's characteristics

	Ever experiencing IPV	
Variable	**Odds ratio**	**95% CI**
Women's characteristics		
Area of residence		
Urban	1	
Rural	0.91	(0.74 - 1.12)
Current age		
15–24	1	
25–34	0.98	(0.84 - 1.15)
35–49	0.82	(0.66 - 1.03)
Educational attainment		
No education	1	
Primary	1.03	(0.83 - 1.24)
Higher	0.80	(0.62 - 1.04)
Marital status		
Married	1	
Widowed	0.76	(0.47 - 1.21)
Divorced	1.64	(1.23 - 2.19) **
Separated	1.71	(1.08 - 2.72) *
Wealth		
Poorest	1	
Poor	1.08	(0.91 - 1.28)
Middle	1.32	(1.09 - 1.62)**
Rich	1.29	(0.99 - 1.68)
Richest	1.11	(0.77 - 1.60)
Religion		
Catholic	1	
Protestant	1.11	(0.94 - 1.31)
Muslim/other	0.80	(0.42 - 1.52)
Occupation in the past 12 months		
Not employed	1	
Employed for cash	1.28	(1.11 - 1.47)**
Self-employed agriculture	1.52	(1.17 - 1.97)**
Alcohol consumption		
No	1	
Yes	1.21	(0.95 - 1.54)***
Wife beating justifiable		
No	1	
Yes	1.44	(1.24 - 1.66)***

(Continued…)

Table 4. − *Continued*

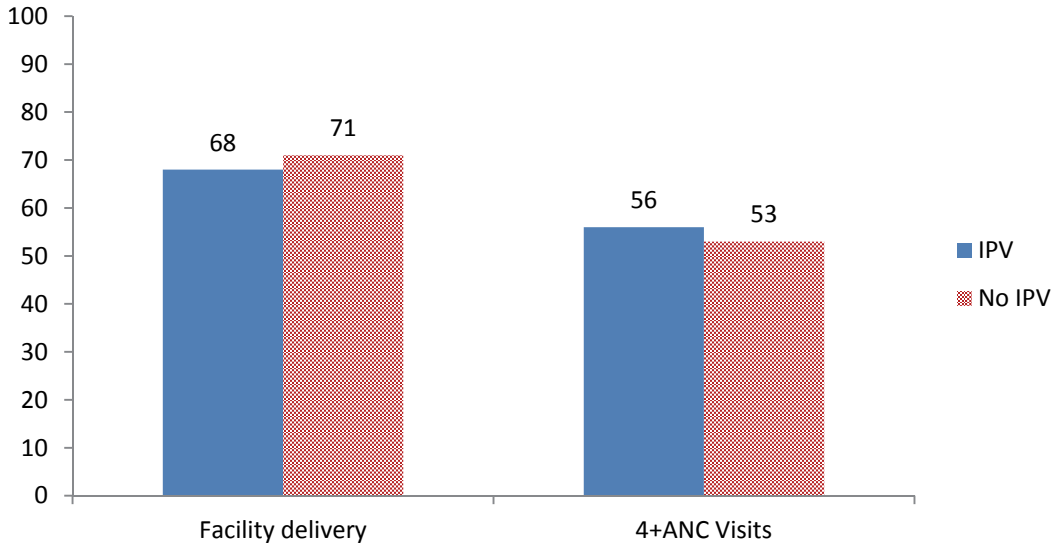
Variable	Ever experiencing IPV	
	Odds ratio	95% CI
Women's characteristics		
Witnessed parental violence		
No	1	
Yes	1.55	(1.35 - 1.78)***
Don't know	1.49	(1.17 - 1.91)**
Husband's characteristics		
Husband's educational attainment		
No education		
Primary	1.22	(0.98 - 1.53)
Higher	1.10	(0.87 - 1.39)
Husband jealous		
No		
Yes	2.69	(2.31 - 3.14)***
Don't know	1.78	(0.71 - 4.47)
Husband's occupation		
Not employed	1	
Employed for cash	0.97	(0.73 - 1.28)
Self-employed agriculture	1.17	(0 .84 - 1.62)
Husband's alcohol consumption		
No	1	
Yes	1.83	(1.59 - 2.10)***

*p<0.05, **p<0.01, ***p<0.001

4.6. IPV and Use of Maternal Health Care Services

Figure 5 indicates that there is no relationship between number of ANC visits and reporting ever experiencing IPV. However, there is a significant relationship between place of delivery and reporting ever experiencing IPV, in that women who report ever experiencing IPV are significantly less likely to deliver at a health facility.

Figure 5. Percentage of women who used maternal health care services by experience of IPV



4.7. Results of Multiple Logistic Regressions of Use of Maternal Health Care and IPV

Table 5 presents the logistic regression of IPV and use of maternal health care (place of delivery and ANC visits). The first model reports the relationship between IPV and place of delivery, while adjusting for area of residence, mother's age for the most recent birth, birth order, educational attainment, wealth, and number of ANC visits. The results show that after adjusting for the covariates, the odds of delivering in a health facility for women who reported ever experiencing IPV do not significantly differ from those of women who never experienced IPV.

The same results are observed in the second model, when ANC visits and the same covariates are considered. After adjusting for area of residence, mother's age for the most recent birth, birth order, educational attainment, and wealth, the odds of reporting ever experiencing IPV are not significantly associated with having four or more ANC visits.

Table 5. Multiple logistic regression results of use of maternal health care

Variable	Maternal health care use	
	Facility delivery Odds ratio (95% CI)	4 or more ANC visits Odds ratio (95% CI)
IPV		
No	1	1
Yes	0.91(0.79-1.05)	0.93(0.81-1.06)
Area of residence		
Urban	1	
Rural	0.38(0.29-0.50)***	1.40(1.14-1.71)**
Mothers age at birth		
<20	1	
20–34	1.78(1.28-2.47)**	1.17(0.90-1.53)
35+	1.71(1.15-2.53)**	1.31(0.94-1.82)
Birth order		
1st	1	1
2nd or 3rd	0.48(0.33-0.62)***	0.83(0.67-1.06)
4th or 5th	0.42(0.30-0.41)***	0.91(0.69-1.19)
6th or more	0.29(0.20-0.41)***	0.93(0.69-1.26)
Woman's educational attainment		
No education	1	
Primary	1.19(0.96-1.49)	1.25(1.03-1.46)*
Higher	2.05(1.56-2.69)***	1.26(1.00-1.58)*
Wealth		
Poorest	1	1
Poor	1.22(1.03-1.46)*	1.22(1.03-1.46)*
Middle	1.18(0.96-1.45)	1.30(1.08-1.56)**
Rich	1.81(1.35-2.42)***	1.31(1.03-1.66)*
Richest	3.52(2.01-6.15)***	2.37(1.73-3.23)***
ANC Visits		
0-3	1	
4 or more	1.41(1.22-1.63)***	

*p<0.05, **p<0.01, ***p<0.001

5. DISCUSSION AND CONCLUSIONS

The study sought to establish the relationship between IPV and sociodemographic characteristics, on one hand, and how IPV is associated with use of maternal health care, on the other hand. The findings show that 43% of women who have ever been in an intimate relationship and who had a birth in the five years preceding the survey have ever experienced IPV. The prevalence of IPV reported in this study is relatively high and requires concerted efforts from stakeholders to address this widespread problem.

Women's characteristics that were significantly associated with reporting IPV in the study include women's marital status, household wealth, witnessing parental violence, and attitudes justifying wife beating. These findings are in some respects consistent with previous studies, and contrasting in others. It is commonplace for previous studies in developing countries to report a positive relationship between household wealth and experiencing IPV (Yount and Carrea 2006; Luke et al. 2007; Kwagala 2013). In contrast, this study found that women in the middle wealth quintile had higher odds of reporting IPV. Similar results are found marginally for Zambia and Bolivia, in a multi-country study by Hindin et al. (2008). A backlash hypothesis within the feminist discourse may be appropriate for interpreting findings of a relationship between higher levels of wealth and increased prevalence of IPV. It asserts that men who direct violence toward empowered women may be threatened by the loss of authority, power, and masculinity status due to the social mobility of women, and use violence as a means to keep women in "their place" to maintain the status quo (Brownmille 1975).

The findings on attitudes justifying wife beating and having witnessed parental violence agree with other studies done in Africa (Antai 2011; Kwagala 2013; Gage and Hutchinson 2006; Klomegah 2008; Hindin et al. 2008). The finding that IPV victims often justify wife beating reflects both the persistence of cultural norms that privileged men with power hold over women (Simpson 2005; Fourie 2004; Dover 2005) and also the lack of progress in the fight against gender inequality in the Zambian society. The same explanation suffices for the link between being a victim of violence and having witnessed parental violence. Women who grew up witnessing violence between their parents may be more likely to accept it as part of everyday life.

Men's jealousy and alcohol consumption are common predictors of intimate partner violence against women in Africa (Koenig et al. 2003; Kimuna and Djamba 2008). These two factors could be constructed as precursors to the enactment of violence against women, which in a male-dominated society like Zambia is plausible (OMCT, 2002). However, the causal direction between consuming alcohol and perpetrating IPV is confounding. It is not clear whether alcohol consumption causes violence against women or the desire to commit physical or sexual violence against women causes alcohol consumption.

Contrary to other studies elsewhere (Antai 2011; Kwagala 2013), our study did not find occupation, educational attainment, and area of residence to be significantly associated with IPV in the adjusted model. This difference in findings should help to highlight the importance of analyzing factors specific to the population under study.

The second part of our analysis, which examined the relationship between IPV and use of maternal health care, shows a significant relationship only between IPV and facility delivery at the bivariate level, which shows that women who reported ever experiencing IPV are less likely to deliver at a health facility compared with women who reported never experiencing IPV. But after adjusting for key sociodemographic factors, such as area of residence, educational attainment, birth order, and wealth, the analysis did not find place of delivery or number of ANC visits to be significantly associated with IPV. This finding means that the odds of accessing maternal health and antenatal care are not significantly different between women who reported ever experiencing IPV and those who reported never experiencing it. These findings are consistent with other studies done in Zambia (Hindin et al. 2008; Stewart et al. 2010) and in Nepal (Tuladhar et al. 2013).

It is important to explore the reasons that encourage women to go for antenatal checks and subsequently deliver in a health facility, despite experiencing physical or sexual violence. It may be that women who experience spousal violence fear the health risks to the unborn baby and thus are motivated to ensure its safety by consistently complying with the recommended number of ANC visits and by delivering at a health facility. Another reason could be that male partners become involved in encouraging their wives to attend ANC and deliver at a health facility regardless of their violent behaviour, because of the symbolic meaning that is attached to childbearing in most Zambian societies. Some scholars in Zambia, for instance, have intimated that sexual prowess and its associated results such as polygamous marriages and childbearing are

symbols of masculinity (Dover 2005; Simpson 2005). This can act as a motivation for men to be helpful during the process of childbirth.

The availability of health care services, community knowledge, and acceptance of maternal health services also influence use of maternal health care services (Lubbock and Stephenson 2008). Where maternal health services are easily accessible and women know the importance of accessing these services, there is a high likelihood that they will use such services, even when facing IPV victimization. This may be true for Zambia because of the strides the country has made in providing maternal health services in the last 5-10 years. The 2013-14 ZDHS reported that 96% of mothers received ANC from a skilled provider (a doctor, clinical officer, nurse, or midwife) for their most recent birth in the five years preceding the survey, and 68% of births took place in a health facility.

This study has strengths and limitations. Firstly, it is probable that sensitive topics such as physical and sexual violence always suffer from underreporting due to many cultural and other underlying factors. Thus it is likely that it underestimates prevalence of IPV among the selected sample population. The second limitation is that the cross-sectional nature of the study design used in the DHS limits determination of causality between the variables. Also, the definition of ever experiencing physical or sexual violence used in this study may not reflect the current situation, and cannot help in deciphering whether the violence was in fact committed by the woman's current partner. These limitations notwithstanding, using DHS data has important strengths. The survey uses probability sampling procedure to select participants from the entire country, which validates generalization of the findings to the whole population, and its standard form allows for comparability within and between countries and between repeat surveys. Data are collected through a carefully designed questionnaire by highly experienced interview teams with extensive training and supervision.

All in all, the current study found that in Zambia the sociodemographic characteristics of women that are associated with experience of IPV include marital status, household wealth, occupational status, witnessing parental violence, and attitudes justifying wife beating. Partner characteristics include alcohol consumption and jealousy. The study also discovered that IPV is not strongly associated with use of maternal health care except at a bivariate level, where place of delivery is associated with IPV. These findings underscore the importance of addressing issues of

gender equality and problematic cultural norms embedded in our society that make women vulnerable to IPV. Although the relationship between IPV and use of maternal health care was not found to be statistically significant, its direction gives important insight that calls for the need to continue with programs aimed at increasing access to and knowledge about maternal health care services.

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