Research Article-Original article

Risk factors associated with and factors that influence intimate partner violence, a case study of South Africa

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Abstract

This study aims to identify the factors associated with intimate partner violence (IPV) against women of reproductive age (15-49 years) in South Africa. We used the dataset from 2016 South Africa Demographics and Health Survey. The survey logistic regression, which is an integral part of the GLM family, was used. In this study, it was found that risk factors that influence IPV are: partner's age, marital status, region, woman's age, media exposure, size of the family, sex of the household head, wealth index, pregnancy termination status, contraceptive use, body mass index, cohabitation duration, partner's desire for children, woman's employment status, woman's earnings compared to partner's earnings, knowledge of sexually transmitted infections (STIs), wife-beating attitude, partner's alcohol drinking status, and woman's father ever beat her mother. The findings of the risk factors in the current scientific setting can aid public health workers and institutions responsible for gender monitoring to design effective strategies to reduce the intimate partner violence levels directed against women.

Keywords: Intimate partner violence, South Africa, Women, Survey Logistic Regression

1. Introduction

Violence against women-particularly intimate partner violence (IPV) and sexual violence, is a significant public and clinical health problem and a violation of women's human rights(World Health Organization [WHO], 2020). According to WHO, (2020), globally, 1 in 3 women experiences physical or sexual violence in their lifetime, mainly by an intimate partner. Threats of such acts, coercion or arbitrary deprivation of liberty, whether occurring in public or private life."

IPV is prevalent in both the developed and the developing world (Abrahams, Jewkes, Laubscher, & Hoffman, 2006). It is mostly perpetrated by men. The levels of IPV among women that become victims vary within communities, and between regions in a country. This arises from certain factors associated with the cultural beliefs, socioeconomic conditions, differing religions, and traditions of the various areas (WHO, 2020).

Women exposed to partner violence are more than twice likely to have an abortion, almost twice as likely to experience depression. And in some regions, they are 1.5 times more likely to acquire HIV than women who have not experienced partner violence (Organization & others [WHO], 2013).

Many authors have assessed the determinants of physical, sexual violence, and psychological forms of abuse, such as emotional violence (Habyarimana, Zewotir, & Ramroop, 2018). Most of the studies utilized logistic regression models (Adjah & Agbemafle, 2016; Audi, Segall-Corrêa, Santiago, Andrade, & Pèrez-Escamila, 2008), amongst others, to analyze the data. These models are helpful if their assumptions are not violated. If the data comes from a complex survey design, the measurement from the same cluster may be correlated, and then the assumption of independence is violated (Habyarimana et al., 2018). The study by

Habyarimana et al. (2018) addressed the issue via a generalized linear mixed model (GLMM) that accounted for random effects and correlation over-dispersion and heterogeneity.

Objective

The main objective of the study is to determine the risk factors related to IPV in women aged between 15-49 years from South Africa. To achieve this, the survey logistic regression will be used to model the dataset.

2. Methods and Materials

The current study considers physical, sexual, and emotional violence nationwide rather than focusing on a specific region within the country of interest. To the best of our knowledge, there was no study in literature considering physical, sexual, and emotional violence, including the use of contraceptives, and knowledge of STIs. We used survey logistic regression to identify the factors associated with IPV in women of reproductive age from South Africa.

Dependent variable

The prevalence of IPV in women aged between 15-49 years was determined using the outcome of the emotional, physical, and psychological violence response from the respondents. Therefore, the response variable was binary, where the woman experienced IPV (at least one of the responses above was positive) or not (none of the responses were positive).

Independent variables

Some of the covariates in this study were also used to model domestic violence against women by other authors (Finnbogadóttir, Dykes, & Wann-Hansson, 2014; Habyarimana et al., 2018, 2021; Jewkes, Penn-Kekana, Levin, Ratsaka, & Schrieber, 2001), amongst others. The socio-demographic characteristics of the women were recorded as: woman's age, woman's education status, working status, literacy, pregnancy termination status, contraceptive use, body mass

index, and knowledge of STIs (Maman, Campbell, Sweat, & Gielen, 2000; Martin et al., 1999). The socioeconomic and demographic characteristics of the partner: education status, age in years, working status, alcohol drinking status (Van der Straten et al., 1998), whether there is polygamy and their desire for children. The community and family characteristics that we investigated are size of the family, wealth quintile, type of residence, region, sex of the household head, marital status and cohabitation duration. These variables were selected based on some previous studies (Finnbogadóttir et al., 2014; Habyarimana et al., 2018).

3. Statistical method

Missing values

The method known as multiple imputation by chained equations (MICE). The method is well presented in a study by Van Buuren, Boshuizen, & Knook (1999). Multiple imputations provide a helpful strategy for dealing with data sets that have missing values.

Technique used

The multiple imputation by chained equations (MICE) have been used in addressing the issue of missing values. The values were assumed to be missing at random (MAR), and therefore the steps for MICE were carried out in this study. PROC mi in SAS Enterprise was used for missing values in this study.

The survey was done based on multi-stage sampling, stratified sampling, cluster sampling with an unequal probability of selecting elements known as complex survey design. In these surveys, the cluster incorporated in the sample represents only a random sample from the populations of the clusters. In modeling data from these kinds of surveys, the sampling design must be taken into account. But many models in literature can be used if the assumptions are violated. For instance, we can use the survey logistic regression (Habyarimana, Zewotir, & Ramroop,

2014; Heeringa, West, & Berglund, 2017) and the GLMM (Ayele, Zewotir, & Mwambi, 2012; Heeringa et al., 2017), amongst others.

Survey design effect

Regression is increasingly being used in survey analysis. At the same time, it is rare in practice to find a survey design that does not use the structure, either through stratification, multi-stage sampling techniques, or other explicit uses of auxiliary information about the population under study (Nathan & Holt, 1980). The DHS datasets are provided with the domestic violence weighting variable. The current study used the weighting variable to incorporate the complex survey design (Lu & Yang, 2012).

Model formulation

The response variable Y can take two possible outcomes: either a 'success' or a 'failure' denoted by 1 or 0, respectively. In the current study, 'success' is when a woman has experienced intimate partner violence, and 'failure' is the outcome that a woman has never experience intimate partner violence. Let π_i and $1-\pi_i$ be the probabilities of success and failure respectively, then on the $i^{th}(i=1,\dots,N)$ observational units then, $\Pr(Y_i=1)=\pi_i$ and $\Pr(Y_i=0)=1-\pi_i$. These are the probabilities of 'success' and 'failure', respectively. In statistics, the objective is to investigate the relationship between the response probability $\pi=\pi(x)$ and the explanatory variables $x=(x_1,\dots,x_p)$. Binary data are ungrouped data that lists observations by individual experimental units (McCullagh & Nelder, 2019).

PROC SURVEYLOGISTIC (Agnelli, 2014; Morel, 1989) from SAS Enterprise 9.4 was used to analyze the data. We fitted all significant variables at a 5% level in the GLM. The two-way interaction effect was considered in the analysis and was found to be significant. The model goodness-of-fit was assessed based on the Akaike Information Criterion (AIC) (Moeti, 2007). The prediction accuracy by the area under the ROC curve.

Data source

The current study used the data from the 2016 South African Demographic and Health Survey (SADHS). The SADHS 2016 followed a stratified two-stage sample design with a probability proportional to size sampling of PSUs (Primary Sampling Units) at the first stage and systematic sampling of DUs (Dwelling Units) at the second stage. Seven hundred and fifty PSUs were selected from 26 sampling strata, yielding 468 selected PSUs in urban areas, 224 PSUs in rural areas, and 58 PSUs in farm areas. In this study we used women dataset provided by SADHS 2016. The current study considered 8514 women, from South Africa.

4. Interpretation of Results

Descriptive Statistics

The results from cross-tabulation analysis are summarized in Table 1. The table shows that the province with the highest prevalence of IPV was the Eastern Cape with 3.78%, followed by Kwazulu-Natal, Mpumalanga, Limpopo, Free State, North-West, Gauteng, Western Cape, and Northern Cape, with 3.69%, 3.68%, 3.62%, 2.90%, 2.90%, 2.84%, 1.66%, and 1.60% respectively. The table also shows that 24.28%, 2.44%, and 0.21% of women view wife-beating attitudes as unacceptable, acceptable, and unknown, respectively, (p-value<.0001). Women who terminated pregnancy is 3.77%, and 23.16% for those who have never done so, (p-value<.0001). The results found that 14.86% of women are using contraceptives while 12.07% are not, (p-value<.0001). Women who are single, married, and those living with a partner have a 14.15%, 7.48%, and 5.30% prevalence, respectively, (p-value<.0001).

Statistical Inference

Table 2 shows that a woman whose partner does not drink alcohol is 0.44 (OR=0.440, p-value<.0001) times less likely to experience IPV, compared to a woman whose partner drinks. A woman who has never witnessed her father beating her mother is 0.44 (OR=0.439, p-

value<.0001) times less likely to experience IPV, compared to a woman who has witnessed her father beating her mother. A woman who is unsure is 0.73 (OR=0.725, p-value=0.0200) times less likely to experience IPV, compared to a woman who has witnessed her father beating her mother. A woman who views wife-beating as acceptable is 1.80 (OR=1.797, p-value<.0001) times more likely to experience IPV, compared to a woman who views wife-beating as unacceptable. A woman who is unsure is 0.32 (OR=0.32, p-value<.0001) times less likely to experience IPV, compared to a woman who views wife-beating as unacceptable.

A woman with medium exposure to the media is 1.34 (OR=1.336, p-value=0.0007) times more likely to experience IPV, compared to a woman with low exposure to the media. A woman with high exposure to the media is 1.25 (OR=1.254, p-value=0.0283) times more likely to experience IPV, compared to a woman with low exposure to the media. A unit increase in the woman's age increases the chances of her experiencing IPV by 0.0122 units.

A one-member increase in the number of household members decreases a woman's chances of experiencing IPV by 0.1607 units. A woman from a house where the head of the household is male is 1.24 (OR=1.240, p-value=0.0006) times more likely to experience IPV, compared to a woman from a house where the head of the household is female. A woman who has never terminated a pregnancy is 0.66 (OR=0.660, p-value<.0001) times less likely to experience IPV, compared to a woman who has terminated a pregnancy.

A married woman is 1.70 (OR=1.704, p-value<.0001) times more likely to experience IPV compared to a single woman. A woman living with her partner is 1.81 (OR=1.805, p-value<.0001) times more likely to experience IPV compared to a single woman. A woman who stayed with her partner for 5-9 years is 0.80 (OR=0.802, p-value=0.0427) times less likely to experience IPV, compared to a woman who stayed with her partner for 0-4 years.

A woman who has an employed partner is 0.84 (OR=0.842, p-value=0.0268) times less likely to experience IPV, compared to a woman who does not know if her partner is employed or not. An employed woman is 1.30 (OR=1.295, p-value<.0001) times most likely to experience IPV compared to an unemployed woman. A woman who earns about the same as her partner is 1.19 (OR=1.186, p-value=0.0262) times more likely to experience IPV, compared to a woman who earns than her partner. A woman whose partner does not bring in earnings is 1.41 (OR=1.411, p-value=0.0006) times more likely to experience IPV, compared to a woman who earns less than her partner. A woman who does not know about STIs is 0.43 (OR=0.428, p-value<.0001) times less likely to experience IPV than a woman who knows about STIs.

Interaction effects

Figure 1 shows that IPV increases with increasing age, whether a woman is using contraceptives or not. We observe from the same figure that IPV is higher among women using contraceptives compared to women not using contraceptives.

Figure 2 shows that IPV decreases for women from the poorest to a poorer wealth index class. For a woman who is not using contraceptives, it increases from a poorer to a middle wealth index class and decreases from a middle to a richer wealth index class. However, for a woman using contraceptives, we observe from the same figure that IPV increases for a woman from the poorest to a poorer wealth index class, and decreases for a woman from a poorer, middle, and richer wealth index class.

5. Discussion

The risk factors associated with IPV against women differ from country to country (WHO, 2013). In most cases, this is a consequence of specific cultural beliefs, traditions, and policies of that country (Habyarimana et al., 2014). A woman with a partner who does not drink alcohol is at a low risk of experiencing IPV than a woman who has a partner who drinks alcohol. This

finding is consistent with other findings from previous studies (Ali, Yassin, & Omer, 2014; Habyarimana et al., 2018; Obi & Ozumba, 2007). A woman who has never witnessed her father abuse her mother is at low risk of experiencing IPV, compared to a woman who has witnessed her father abuse her mother. The more a woman is exposed to the media, the higher the risk of experiencing IPV.

The study's key findings reveal that as the woman's age increases, the risk of experiencing IPV also increases. Similar findings were found in other studies (Bonomi et al., 2007; Obi & Ozumba, 2007). The region from which the woman lives was statistically significant. A woman from a household with more members is at a low risk of experiencing IPV than a woman from a household with fewer members. A woman from a house where the household head was a male, was at a high risk of experiencing IPV compared to a woman who is from a house where the head of the household was a female.

A woman from the poorest, poorer, middle, and richer wealth index household, respectively, is at high risk of experiencing IPV than a woman from the richest wealth index household. A woman who has never terminated a pregnancy was at low risk of experiencing IPV than a woman who has once terminated a pregnancy. A woman who does not use any contraceptives was at low risk of experiencing IPV than a woman who uses contraceptives. A woman with a higher body mass index is at low risk of experiencing IPV than a woman with a low body mass index.

A woman who is married or staying with her partner is at higher risk of experiencing IPV than a single woman. A woman who has been staying with her partner for a period longer than 5 years is at low risk of experiencing IPV than a woman who has stayed with her partner for less than 5 years. If a woman's partner wants the same number of children, then that woman is at

low risk of experiencing IPV than a woman whose partner wants more, fewer, or the woman does not know her partner's desire for children.

The study also revealed that if a woman's partner is employed, then the woman is at a low risk of experiencing IPV than a woman whose partner is unemployed. An employed woman is at a high risk of experiencing IPV than an unemployed woman. The study's findings also suggest that the older the woman's partner, the lower the risk of experiencing IPV. As the woman's earnings get higher than that of her partner, the risk of IPV gets lower. Like the findings by Obi & Ozumba (2007). The study's findings also show that a woman with the knowledge of STIs are at a high risk of experiencing IPV. As the woman's age increases and she is not using contraceptives, she is at a high risk of experiencing IPV than a woman who uses contraceptives. A woman who is using contraceptives from the different wealth index (poorest, poorer, middle, and richer) is at higher risk of experiencing IPV than a woman from the richest wealth index class who is not using contraceptives.

6. Conclusion

This current study highlights novel findings, such as the knowledge of sexually transmitted infections and contraceptive use by women as significant IPV risk factors. Perhaps governments need to educate couples contemplating marriages and married couples to go a short course addressing these issues. Religious organizations can attempt to assist couples from a grassroots level. These issues can also be addressed through roadshows in rural areas, public schools, and universities.

The women's exposure to the media could help in reducing the high rate of IPV. The study's findings suggest that women and men can be taught of IPV at an early age to avoid the high increase in violence cases as the women gets older. The study's findings revealed that motivating women to empower themselves and be independent might reduce the rate of IPV.

Women may be encouraged to pursue their studies and open a business that could help them earn a living and be independent. The policymakers could use different platforms to get engaged with the targeted group of individuals. Some of these platforms could be social media, radio talk shows where women can talk about their experiences anonymously, television documentaries with willing participants outlining the different types of violence, and some of the health consequences resulting from the violence.

7. Study limitations

The current study used the DHS cross-sectional data sets, and this type of data may not address specific issues, such as causality. A longitudinal study may be more appropriate to determine causality.

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Figure

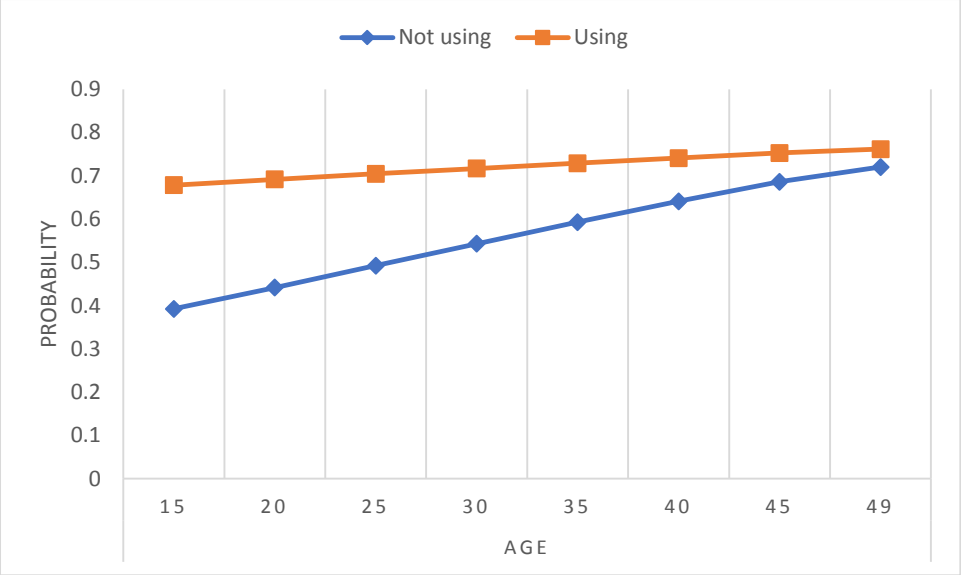

Figure 1: Predicted probability of experiencing IPV by woman's age and contraceptive use (South Africa)

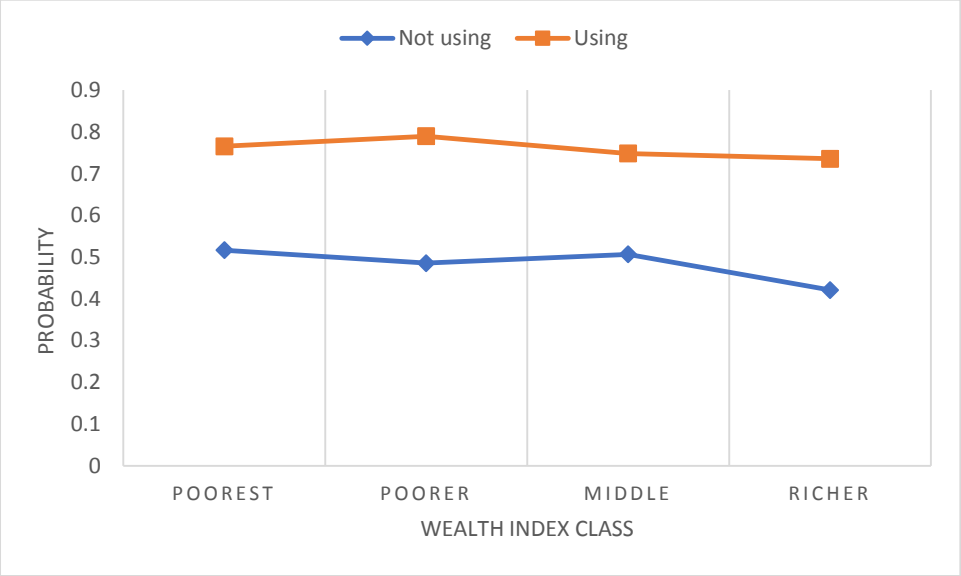

Figure 2: Predicted probability of experiencing IPV by wealth index class and contraceptive use (South Africa)

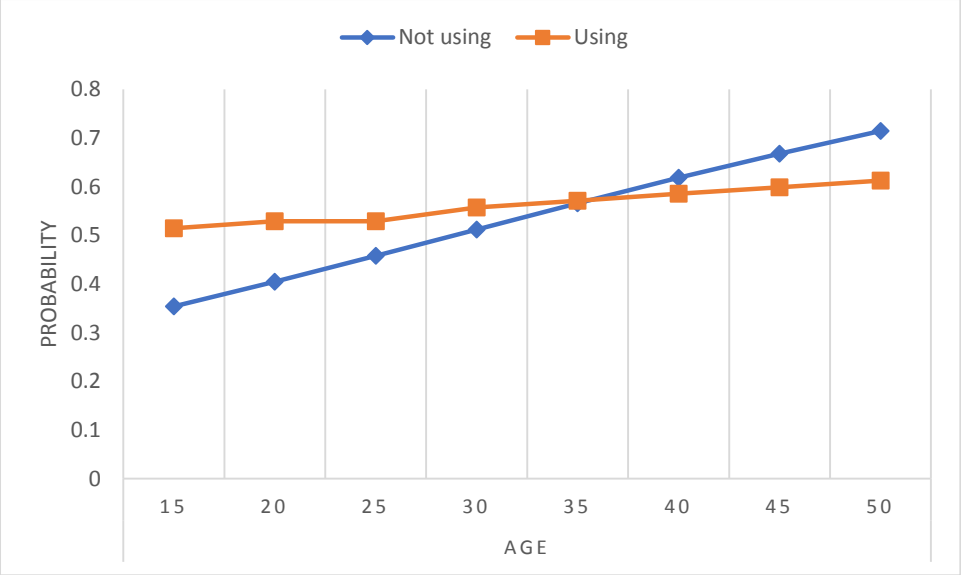

Figure 3: Predicted probability of experiencing IPV by woman's age and contraceptive use (Uganda)

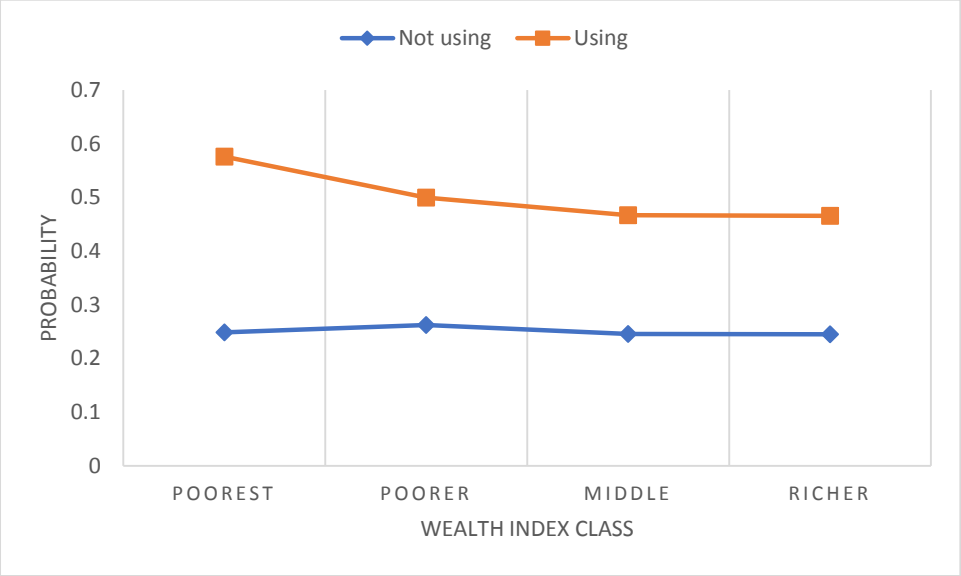

Figure 4: Predicted probability of experiencing IPV by Wealth index class and contraceptive use (Uganda)

Table

Indicator	Category	EXPERIENCED IPV		P-value
		YES - N (%)	**NO** - N (%)	
IPV		2293(26.93)	6221(73.07)	
Woman's current age	Continuous	Minimum=15		
		Mean=30.21		
		Maximum=49		
Region	Western Cape	141(1.66)	515(6.05)	<.0001
	Eastern Cape	322(3.78)	719(8.44)	
	Northern Cape	136(1.60)	582(6.84)	
	Free State	247(2.90)	607(7.13)	
	Kwazulu-Natal	314(3.69)	1024(12.29)	
	North West	270(2.90)	593(6.96)	
	Gauteng	242(2.84)	621(7.29)	
	Mpumalanga	313(3.68)	741(8.70)	
	Limpopo	308(3.62)	797(9.36)	
Type of place of residence	Rural	1263(14.83)	3542(41.60)	0.1256
	Urban	1030(12.10)	2679(31.47)	
Woman's education level	No education	58(0.68)	132(1.55)	0.3699
	Primary	245(2.88)	617(7.25)	
	Secondary	1745(20.50)	4836(56.80)	
	Higher	245(2.88)	636(7.47)	
Number of household members	Less than 5	1774(20.84)	3676(43.18)	<.0001
	More than or equal to 5	519(6.10)	2545(29.89)	
Sex of the household head	Male	1090(12.80)	2521(29.61)	<.0001
	Female	1203(14.13)	3700(43.46)	
Literacy	Cannot read	100(1.17)	232(2.72)	0.1816
	Able to read	2193(25.76)	5989(70.34)	
Wife-beating attitude	Unacceptable	2067(24.28)	5726(67.25)	<.0001
	Acceptable	208(2.44)	332(3.90)	
	I don't know	18(0.21)	163(1.91)	
Access to the media	Low exposure	325(3.83)	981(11.52)	<.0001
	Medium exposure	1384(16.26)	3345(39.39)	
	High exposure	583(6.85)	1886(22.15)	
Wealth index	Poorest	492(5.78)	1271(14.93)	<.0001
	Poorer	573(6.73)	1292(15.18)	
	Middle	587(6.89)	1369(16.08)	
	Richer	435(5.11)	1298(15.25)	
	Richest	206(2.42)	991(11.64)	
Ever had a terminated pregnancy	No	1972(23.16)	5763(67.69)	<.0001
	Yes	321(3.77)	458(5.38)	
Contraceptive method used	No	1028(12.07)	3461(40.65)	<.0001
	Yes	1265(14.86)	2760(32.42)	
Body Mass Index	Underweight	71(0.83)	201(2.36)	0.0806
	Healthy	637(7.48)	1676(19.69)	
	Overweight	559(6.57)	1384(16.26)	
	Obese	1026(12.05)	2960(34.77)	
Current marital status	Single	1205(14.15)	4468(52.48)	<.0001
	Married	637(7.48)	1188(13.95)	
	Living with partner	451(5.30)	565(6.64)	
Number of other wives/partners	No other wives	2109(24.77)	5741(67.43)	0.8179
	One or more	65(0.76)	178(2.09)	
	I don't know	119(1.40)	302(3.550	
Cohabitation duration	0-4	2059(24.18)	5740(67.42)	0.0003

	5-9	234(2.75)	481(5.65)	
Partner's desire for children	Both want same	1077(12.65)	3434(40.33)	<.0001
	Partner wants more	453(5.32)	1041(12.23)	
	Partner wants fewer	129(1.52)	287(3.37)	
	Don't know	634(7.45)	1459(17.14)	
Partner's education level	No education	99(1.16)	279(3.28)	0.0130
	Primary	258(3.03)	588(6.91)	
	Secondary	1559(18.31)	4162(48.88)	
	Higher	364(4.28)	1147(13.47)	
	Don't know	13(0.15)	45(0.53)	
Partner's occupation status	Employed	1931(22.68)	5363(62.99)	0.0198
	Don't know	362(4.25)	858(10.08)	
Woman's occupation status	Unemployed	1261(14.81)	4148(48.72)	<.0001
	Employed	938(11.02)	1840(21.61)	
	Don't know	94(1.10)	233(2.74)	
Partner's age	Less than 25	139(1.63)	756(8.88)	<.0001
	Between 25 and 34	802(9.42)	2372(27.86)	
	35 and above	1352(15.88)	3093(36.33)	
Woman's earnings compared to partner	More than him	442(5.19)	1151(13.52)	0.0425
	Less than him	1219(14.32)	3441(40.42)	
	About the same	369(4.33)	998(11.72)	
	Partner doesn't bring in	209(2.45)	457(5.37)	
	Don't know	54(0.63)	174(2.04)	
Knowledge of Sexually Transmitted Infections (STIs)	No	25(0.29)	242(2.84)	<.0001
	Yes	2268(26.64)	5979(70.23)	
The person who usually decides on what to do with the woman's earnings	Woman alone	723(8.49)	1709(20.07)	0.0011
	Woman and partner	1390(16.33)	4013(47.13)	
	Partner alone	180(2.11)	499(5.86)	
Woman's father ever beat her mother	No	1699(19.96)	5432(63.80)	<.0001
	Yes	449(5.27)	551(6.47)	
	Don't know	145(1.70)	238(2.80)	

Table 1: The prevalence of IPV among women of reproductive age by category of the indicator variable (South Africa)

Parameter	Estimate	Standard error	t-value	P-value	Odds ratio
Intercept	-0,0446	0.2857	-0,11	0,9118	0,9564
Partner drinks alcohol (ref=Yes)					
No	-0.8209	0.0572	-14.36	<.0001	0.440
Don't know	0.6884	0.5897	1.17	0.2435	1.991
Woman's father ever beat her mother (ref=Yes)					
No	-0.8233	0.0827	-9.96	<.0001	0.439
Don't know	-0.3209	0.1376	-2.33	0.0200	0.725
Access to the media (ref=Low exposure)					
Medium exposure	0.2897	0.0851	3.41	0.0007	1.336

High exposure	0.2262	0.1029	2.20	0.0283	1.254
Wife-beating attitude(ref=Unacceptable)					
Acceptable	0.5864	0.1056	5.55	<.0001	1.797
I don't know	-1.1440	0.2797	-4.09	<.0001	0.319
Woman's current age	0.0122	0.00621	1.96	0.0499	1.012
Region (ref=Eastern Cape)					
Western Cape	-0.4393	0.1389	-3.16	0.0016	0.645
Northern Cape	-0.6347	0.1575	-4.03	<.0001	0.530
Free State	0.0550	0.1277	0.43	0.6668	1.057
Kwazulu-Natal	0.0336	0.1193	0.28	0.7783	1.034
North West	-0.0256	0.1312	-0.20	0.8452	0.975
Gauteng	0.00839	0.1280	0.07	0.9478	1.008
Mpumalanga	0.0102	0.1081	0.09	0.9250	1.010
Limpopo	0.1858	0.1090	1.70	0.0888	1.204
Number of household members	-0.1607	0.0114	-14.07	<.0001	0.852
Sex of household head (ref=Female)					
Male	0.2149	0.0627	3.43	0.0006	1.240
Wealth index (ref=Richest)					
Poorest	0.6168	0.1568	3.93	<.0001	1.853
Poorer	0.7562	0.1478	5.12	<.0001	2.130
Middle	0.5239	0.1456	3.60	0.0003	1.689
Richer	0.4569	0.1413	3.23	0.0013	1.579
Ever had a terminated pregnancy (ref=Yes)					
No	-0.4158	0.0893	-4.66	<.0001	0.660
The contraceptive method used (ref=Yes)					
No	-1.6123	0.2623	-6.15	<.0001	0.199
Body Mass Index	-0.00220	0.00102	-2.16	0.0309	0.998
Current marital status (ref=Single)					
Married	0.5331	0.0787	6.78	<.0001	1.704
Living with partner	0.5908	0.0859	6.88	<.0001	1.805
Cohabitation duration (ref=0 to 4 years)					
5 to 9 years	-0.2212	0.1089	-2.03	0.0427	0.802
Partner's desire for children (ref=Both want same)					
Husband wants more	0.3046	0.0724	4.21	<.0001	1.356
Husband wants fewer	0.2540	0.1307	1.94	0.0523	1.289
Don't know	0.3093	0.0673	4.60	<.0001	1.362
Partner's occupation (ref=Don't know)					
Employed	-0.1725	0.0777	-2.22	0.0268	0.842
Woman's occupation (ref=Unemployed)					
Employed	0.2582	0.0622	4.15	<.0001	1.295
Don't know	0.0724	0.1378	0.53	0.5993	1.075
Partner's age	-0.0123	0.00458	-2.68	0.0076	0.988

Woman's earnings compared to partner (ref=Less compared to him)					
More compared to him	0.0220	0.0778	0.28	0.7773	1.022
About the same	0.1709	0.0764	2.24	0.0256	1.186
Partner does not bring in earnings	0.3442	0.0997	3.45	0.0006	1.411
Don't know	-0.0847	0.1670	-0.51	0.6124	0.919
Ever heard of Sexually Transmitted Infections (STIs) (ref=Yes)					
No	-0.8482	0.2218	-3.82	0.0001	0.428
Interaction effects					
Woman's age by contraceptive use	0.0285	0.00563	5.07	<.0001	1.029
Wealth index (ref=Richest) by contraceptive use (ref=Not using)					
Poorest by not using contraceptives	0.4954	0.2074	2.39	0.0172	1.641
Poorer by not using contraceptives	0.2314	0.1997	1.16	0.2470	1.260
Middle by not using contraceptives	0.5496	0.2036	2.70	0.0071	1.733
Richer by not using contraceptives	0.2709	0.2123	1.28	0.2022	1.311

Table 2: Survey logistic regression model coefficients, standard errors, and odds ratios (South Africa)