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Prevalence and Risk Factors of Intimate partner Violence in COTE D'IVOIRE

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ABSTRACT

Prevalence and Risk Factors of Intimate partner Violence in COTE D'IVOIRE

By

BANGAMAN CHRISTIAN AKANI

DATE DECEMBER 2ND 2020

INTRODUCTION:
Intimate partner violence is a critical and global public health issue that affects numerous women, especially in Sub-Saharan Africa. Studies from conflict and post-conflict Sub-Saharan Africa nations revealed an increasing risk of violence against women in areas of conflict. Cote d'Ivoire is a West African nation that encountered multiple conflicts from 2002 to 2011.

AIM:
This study aimed at examining the underlying factors of violence against women in a post-conflict context.

METHODS:
This study analyzed data from the 2012 Cote d'Ivoire Demographic Health Survey. The outcome variable was any Intimate partner violence. The predictor variables were socio-demographic among women, economic opportunities, and partner-related characteristics. Three multivariate logistic regression models were performed, and odds ratios (OR) with a confidence interval of 95% (CI 95%) were estimated.

RESULTS:
Just over 30% of respondents in the sample (3,500) ever experienced any Intimate partner violence. Respondents' age, religion, wealth index, residency, and region were significantly related to Intimate partner violence. Also, partner's education level, alcohol consumption, and polygamous status were significantly associated with IPV. However, results also indicated that respondents' level of education, occupation, and decision-making on large purchases were not associated with Intimate partner violence.

CONCLUSION:
In Cote d'Ivoire, policymakers should consider these risk factors and design intervention methods based on the ecological model to prevent intimate partner violence.

KEYWORDS
Intimate partner violence, risk factors, Cote d'Ivoire, demographic and health surveys

Words count: 217

Prevalence and Risk Factors of Intimate partner Violence in COTE D'IVOIRE

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APPROVAL PAGE

PREVALENCE AND RISK FACTORS OF INTIMATE PARTNER VIOLENCE: EVIDENCE FROM 2011-
2012 COTE D'IVOIRE DEMOGRAPHIC HEALTH SURVEY

by

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Author's Statement Page

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_____ _Benjamin Christian Akani_ _____

Signature of Author

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1. INTRODUCTION

1.1 Background

Intimate partner violence (IPV) is a critical and global public health issue that affects numerous people, with a considerable portion of victims being women facing violence inflicted by men. IPV is the physical, sexual, or psychological harm perpetrated by a current or past romantic partner (Mikton, 2010). According to the World Health Organization (WHO) (2013), globally, an estimated 30% of women have experienced some form of IPV violence in their lifetimes. Sequelae of IPV among female victims include sexually transmitted infections (STIs), maternal morbidity and mortality, and child abuse among toward offspring (Falb et al., 2014; Thomson et al., 2015).

Within regions or countries, the prevalence of IPV differs widely. While the Americas, Europe, and the Western Pacific rates are 30%, 25%, and 25% respectively, the prevalence is slightly higher in South Asia, the Eastern Mediterranean, and Africa 38%, 37%, 37%, respectively (Tlapek, 2015a). In the 2013 Global and regional estimates of violence against women, the vast majority of IPV occurred in the Sub-Saharan region of Africa (SSA) with the central part of the continent ranked first with a prevalence of 65.6%, followed by East, South, and West Africa, with 38.83%, 29.67%, 41.75%, respectively (García-Moreno, Pallitto, Devries, Stöckl, Watts, Abrahams, et al., 2013). These estimates are a stark reminder that in some African countries, women's lives are at significant risk due to this form of violence. For instance, in South Africa, every 6 hours a woman is murdered by her romantic partner (Tenkorang et al., 2013). In 2007, Kenya recorded around 50% of homicides were due to domestic violence (Kimani, 2012).

Among the diverse models developed to study and understand IPV, the ecological framework (figure 1) is the most used to depict this issue (Heise, 1998). It illustrates IPV as a consequence of factors from distinct environmental layers that are interconnected. The model provides a practical approach to explore the problem, identify risk factors, and implement sound policies.

. Gender inequality,
. National laws and Statutes (federal, state, and tribal),
. Sanction mechanisms regarding abuse

. Norms granting men control over women
. Acceptance of violence against women
. Rigid gender roles
. Notions of Masculinity linked to dominance

. Poverty, low socio economic position, unemployment,
. Associating with delinquent peers
. Isolation of women and family

. Marital conflict
. Male control of wealth and decision-making within the family
. Family structure

. Intergenerational exposure to abuse
. Educational attainment
. Employment and income
. Social networks outside the family

Figure 1: social ecological model (Antai & Adaji, 2012)

This socio-cultural environment places women in a subservient relation to their male counterparts, whereby violence is accepted and condoned within marriage (Tenkorang et al., 2013). In addition to African cultural factors, demographic and socio-economic factors contribute to IPV against women (Capaldi et al., 2012a; Thomson et al., 2015). Pertinent regressors include a woman's age, level of education, decision-making power, wealth status, marital status, religion, place of residence (urban/ rural), number of children, partner's alcohol use and polygamy (Kpozehouen et al., 2018a; Takyi & Lamptey, 2020; Tlapek, 2015a; Uthman et al., 2009).

Studies from conflict and post-conflict SSA nations revealed that there is an increasing risk of occurrence of violence against women in areas of conflict. Data showed that the prevalence of IPV in Uganda, Democratic Republic of Congo (DRC), Liberia, and South Sudan were respectively 59.7 % , 57 %, 37.9 % and 20 % (Allen & Devitt, 2012a; Ministère du Plan et Suivi de la Mise en

œuvre de la Révolution de la Modernité (MPSMRM) et al., 2014; Uganda Bureau of Statistics (UBOS) & ICF International Inc., 2011). This study in conflict and post-conflict in SSA is inchoate and growing.

A community-based study in Cote d'Ivoire indicated that 47% of women living in rural areas experienced IPV from their male partners (Hossain et al., 2010). Another study indicated a similar result, with half of the women (49.8%) reporting various forms of IPV during their lifetime (Falb et al., 2014). While these studies are informative, they lack information on all forms of IPV and do not examine wealth index, type of residence, and other common predictors of violence against women. Each of the studies used district-level data to perform the analyses.

This study in a post-conflict SSA country, which is rudimentary and growing, attempts to address the limitations of previous studies—lack of known predictors, and the sample size. This paper also seeks to fill the gap between IPV and post-conflict countries by investigating the underlying factors at a national level on violence against women that may be fundamental for designing effective programs to address this issue.

1.2 Research Questions

This paper seeks to fill the gap between IPV and post-conflict countries by describing any types of IPV and analyizing the multilevel risk factors based on ecological model in Cote d'Ivoire.

2. REVIEW OF THE LITERATURE

2.1 Overview

Among the violations of human rights that are least respected and infringed, violence against women is the most widespread, with partner violence being the most prevalent (Abrahams et al., 2014; García-Moreno, Pallitto, Devries, Stöckl, Watts, & Abrahams, 2013). IPV is associated to a diverse range of negative consequences that scatters beyond the individual level, also leading to negative externalities (Cools & Kotsadam, 2017).

Intimate partner violence is found in all countries of the world; however, the acceptability of violence varies significantly from one society to another (García-Moreno, Pallitto, Devries, Stöckl, Watts, & Abrahams, 2013). Sub-Saharan Africa is one of the regions most affected by IPV with an heterogenous variation across the region suggesting contextual factors (Abrahams et al., 2014). In addition to contextual factors, studies have shown the existence of individual factors that play a role in violence against women (Kpozehouen et al., 2018b; Mikton, 2010; Uthman et al., 2009). This literature review aims to present a non-exhaustive individual and community factors contributing to this problem in SSA.

2.2 Risk factors

2.2.1 Individual factors

Studies on violence against women have underscored several individual factors that are associated with physical, sexual, and emotional violence against women. These includes direct factors—respondents 'age, level of education, wealth index, occupation, religion, residency, and witnessing domestic violence—and partner's related characteristics.

Among the common predictors tested in research focused on IPV, it is well-established that age was associated with the IPV(Capaldi et al., 2012b; Kim et al., 2008). For example Ogum (2018) in Ghana found that age was a protective factor as it increases. Similar findings have been seen elsewhere in Nigeria. After adjusting for other covariates, Okenwa(2009) shown that younger

ages were more likely to be exposed to physical, sexual violence, and any forms of violence compared to older ages.

The role played by economic status and occupation is disputed in studies, even though there is an agreement that there are related to IPV perpetration. While some studies showed that high socio-economic status and occupation are protective factors (Lawoko, 2006; Lawoko et al., 2007; Okenwa et al., 2009), others have indicated the opposite (Okenwa et al., 2009).

The literature is limited in the exploration of how religious identification impacts IPV risk, as very few studies have examined this association. Scholars have postulated that religion, which plays a salient role in people's life in this part of the world, is associated with the risk of IPV (Okenwa et al., 2009; Takyi & Lamptey, 2020). For instance, women who affiliated in Islam reported to experience IPV 1.35 times compared to those with no religion (Kpozehouen et al., 2018b). Additionally, those who follow traditional practices were found more likely to be at risk of IPV (Kpozehouen et al., 2018b). In contrast, women whose faith lies in Christianity including Catholic, were less likely to be exposed to IPV (Dickson et al., 2020). However, the observed effects of the different religion practices are not consistent across the literature (Takyi & Lamptey, 2020).

A vast majority of literature has identified witnessing domestic as a correlate of intimate partner against women. Gass (2011) in his study in South Africa demonstrated that IPV is rooted in people's childhood exposure. The odds of reporting perpetration among women who witnessed inter-parental physical violence were three times the odds of reporting perpetration among women who did not experience inter-parental physical violence. This strong and positive association has been also observed in Gambia (Jabbi et al., 2020), which suggests that witnessing father-to-mother violence is a critical predictor that influences IPV across the continent.

2.2.2 Partner and relationship risk factors

In addition to these factors directly related to women, partner's related characteristics are associated with IPV. These are in particular partner's alcohol consumption, level of education, and polygyny.

Partner alcohol consumption is a well-known predictor of intimate partner violence against women , primarily in research in high-income countries (Abbey et al., 2014). Green (2017) in his study with national data from 14 sub-Saharan Africa countries showed that alcohol use was associated with the odds of reporting IPV in all 14 countries. The results in this study revealed that alcohol is a strong predictor with an odds ratio of 3.2 for women experienced any type of violence from their partner. Tlapek (2015b) also found similar conclusion of increased risk of IPV from respondent who partners consume alcohol.

There is evidence that suggests that a partner's educational level is associated with IPV. In Ghana, Takyi (2020) showed that women whose partners with primary education level are more likely to commit acts of violence. Further, Izugbara's (2020a) finding of 27 sub-Saharan African countries concluded the same. Izugbara found that there was a 13% increased risk of IPV for women with a partner with primary education level.

Women in a polygynous relationship is a common trait in most Sub-Saharan countries. An association between polygyny and IPV has also be indicated in numerous studies (Amo-Adjei & Tuoyire, 2016; Conroy, 2014; Ntaganira et al., 2008). Abramsky (2011) observed that women engaged in a polygynous relationship were more likely to accept being beaten by their partner. Furthermore, the author indicated women in this type of relationship experienced higher exposure to perpetration IPV than those committed in a monogamous union.

2.2.3 Community factors

Apart from individual factors, it appears that different theoretical models also explain violence against women as the result of extrinsic factors (Cools & Kotsadam, 2017). Compared to other regions, it is well known that Africa is full of customs and values based on tradition (Cools & Kotsadam, 2017; Hung et al., 2012; Thulin et al., 2020) . In some societies, it is common to observe that the man's role—head of the household—is to provide financial resources and lead the household in an autocratic way (Benebo et al., 2018; Linos et al., 2013; Uthman et al., 2011). In these societies, these social norms often justify violence against women. For example, in her study, Wandera (2015) revealed that women were more likely to report IPV when engaged with a partner with controlling behaviors, 1.81 times when the partner was jealous if she talked with

other men, 1.5 times when she is accused of unfaithfulness, and 1.63 times when she meets with her female friends without her partners' authorization. Furthermore, in Nigeria, Benebo (2018) found that women who lived in a community where men justified wife-beating were 1.66 times more likely to report IPV. Data from several studies suggested that the community-level predictors also influenced attitudes justifying physical violence, participation in decision-making, residency, and region.

Our study will examine some of these most common risk factors found in the literature review.

3. METHODS AND PROCEDURES

3.1 Setting

Cote d'Ivoire is a West African nation that encountered an armed conflict between a rebel group from the north and the Republican security forces in 2002. Despite various negotiations, the clash remained until the agreement of a united national government in 2007. In 2010, this peaceful environment was broken during the presidential election, where disputed results declared victory to the current president and was backed by the United Nations (Human Rights Watch, 2012). After a short resurgence of violence and tension during this election, the situation settled after a decade of political instability. Even though Cote d'Ivoire's political climate is currently stable, IPV remains a public health issue in this region.

3.2 Data Source and Study Sample

The 2011-2012 Cote d'Ivoire Demography and Health Surveys (CI-DHS) data were used and accessed with permission from the DHS Program website (Measure DHS, 2012). CI-DHS was based on random sampling with two-levels. The first level was region selection. A list of urban and rural areas was obtained from the selected regions. The second level was the selection of households from the list of urban and rural areas of selected regions. The number of chosen households in each region was proportional to the total number of households by region. A detailed description of the sampling procedure was reported in the 2012 CI-DHS report (Institut national de la statistique & ICF international, 2012).

The study sample was based on 2011-2012 CI-DHS women between the ages of 15 and 49 with 10,060 respondents. From this sample, only one woman per household was randomly selected to receive an optional Domestic Violence (DV) module when privacy was assured to respect the standards of ethics and safety (Institut national de la statistique & ICF international, 2012; WHO, 2001). This module was based on the shortened and modified version of the Conflict Tactics Scale (CTS) (Straus et al., 1996). Finally, we extracted a weighted sample of 3,500 women who reported being in a union and living with their partner for additional examination. The sample was reduced so that women with prior marriages were ruled out to decrease the

probability that an individual other than the current partner had perpetrated IPV. Also, this method guaranteed that the partner variables to assess the respondents' characteristics were specific to their current intimate partner (Tlapek, 2015a).

Violence weighting variable (d005) was included in the CI-DHS data and the Stata survey (svy). Svy command is used to control survey design effects of individuals clustered in sampling units of households and stratification of districts. Sample weights were applied to generate national representative estimates during the analyses. Survey weighting is necessary to account for the sophisticated survey design (StataCorp, 2015).

3.3 Variables of interest

3.3.1 Dependent variables

IPV was assessed as having any of three aspects of violence: (a) physical, (b) sexual, and (c) emotional (Tlapek, 2015a). It was coded positively if the respondent recognized any of the 3 types of IPV. Physical IPV was measured using seven questions that related whether women had experienced any of the following by their partner: (a) being pushed or having something thrown at them, (b) being punched with a fist or something harmful, (c) being slapped, (d) being kicked or dragged, (e) being strangled or burned, (f) being threatened with a gun or knife, or (g) having had their arms twisted or hair pulled. The second variable, sexual IPV, was assessed by the endorsement of two possible actions whether the women had (a) ever been physically forced to have sex when not wanted or (b) the husband had forced her to perform unwanted sexual acts. The third measure, emotional IPV, was appraised based on the response of two question items that asked whether the women had been a) humiliated or belittled by the husband, and (b) threatened with harm.

3.3.2 Independent variables

Independent variables in the study were classified into three categories: socio-demographic among women, economic opportunities, and partner and relationship related characteristics. Socio-demographic factors included age in years (15-19; 20-29; 30-39; 40-49). Educational level

was defined as none, primary, secondary and highest. In Cote d'Ivoire, primary is defined as primary school, secondary as high school, and highest is defined as university. The region included Abidjan, South without Abidjan, Center, West, East, and North (figure1). Other socio-demographic variables included residency (urban, and rural), religion (no religion, Muslim, Catholic, Methodist, evangelical, other Christian, and Animist), and wealth index (poorest, poorer, middle, richer, and richest). The second category encompassed economic opportunities, which included occupation and household decision-makers (decision making on large purchases). The third group, partner and relationship factors included partner's education level (no education, primary, secondary, highest, don't know), partner's alcohol use (yes, no), and if partner has other wives (yes, no, don't know).

Cote d'Ivoire
Regions and capital city
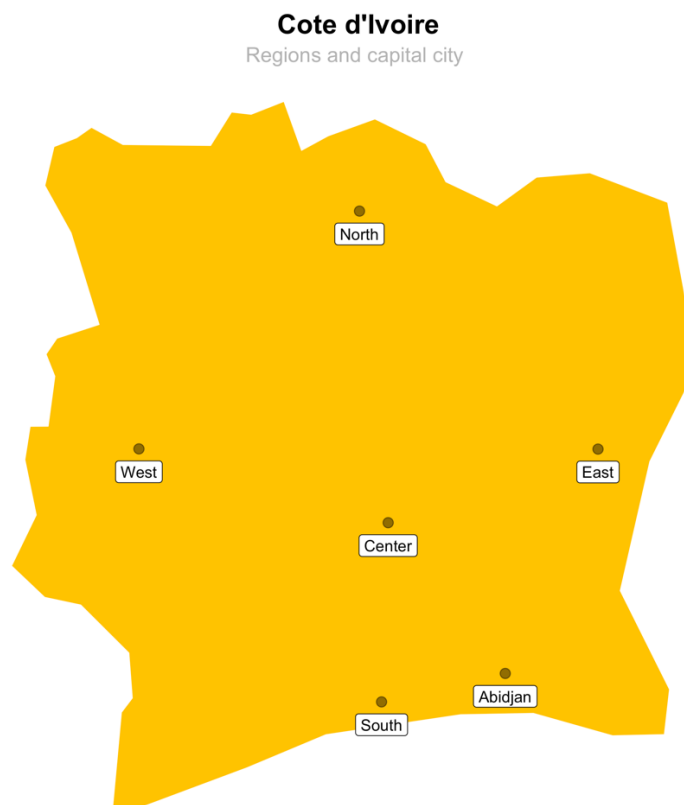
Figure 2: Capital city (Abidjan) and Regions in Cote d'Ivoire

Source: author

3.4 Statistical analysis

In the descriptive statistics, we used the frequency distribution to describe the characteristics of the population. A bivariate analysis (Chi-square test) was computed to compare differences among the independent variables and whether women ever experienced IPV. Then a multivariate analysis was conducted. We estimated three models during the multiple logistic regression. In the first step, IPV was modeled with women's socio-demographic factors. In the second model, we added economic opportunity factors. In the final model, we adjusted the partner and relationship predictors.

Results were presented in the form of Odds Ratios (OR) and their p-values. The level of statistical significance using p-values was set at $p < 0.1$. All data analysis was done with STATA 14 and Rstudio Version 1.3.1093.

4. RESULTS

4.1 Descriptive statistics

4.1.1 Distribution of respondents by socio-demographic characteristics

The distribution of proportions of women who experienced at least one IPV in their lifetime and critical characteristics of respondents' partners are shown in Table I (appendix).

Just over 30% of respondents in the sample ever experienced any type of IPV. There was almost an even distribution of women by age who said they encountered IPV in their lifetime, although nearly a third (32.90%) were 20-29 years old figure 3.
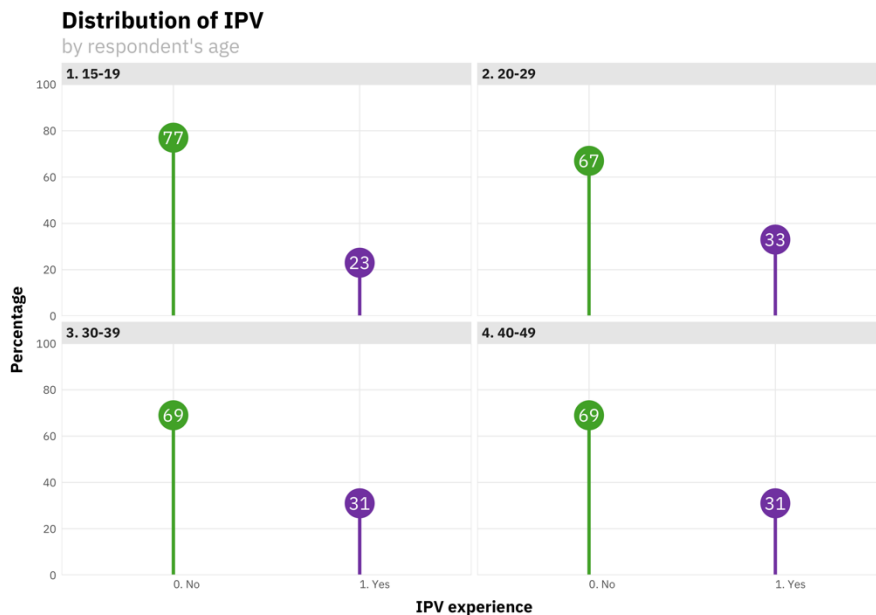
Figure 3: distribution of IPV by respondent's age

From the analyses conducted, the highest level of education obtained by the majority of the women who had ever experienced IPV was primary level education (35.53%) (figure 4).

Distribution of IPV
by respondent's education level
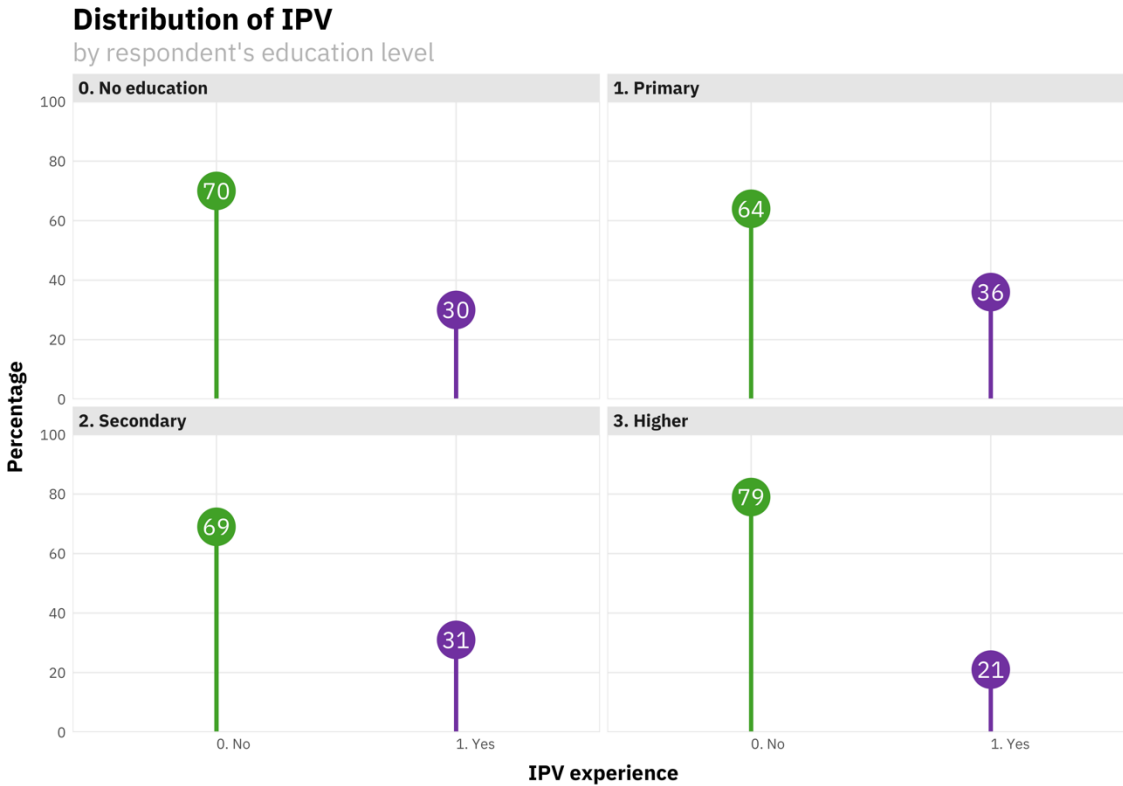
Figure 4 : distribution of IPV by respondents' religion

Also, the results showed that women who experienced IPV were in the middle-income category (34.64%) (figure 5).
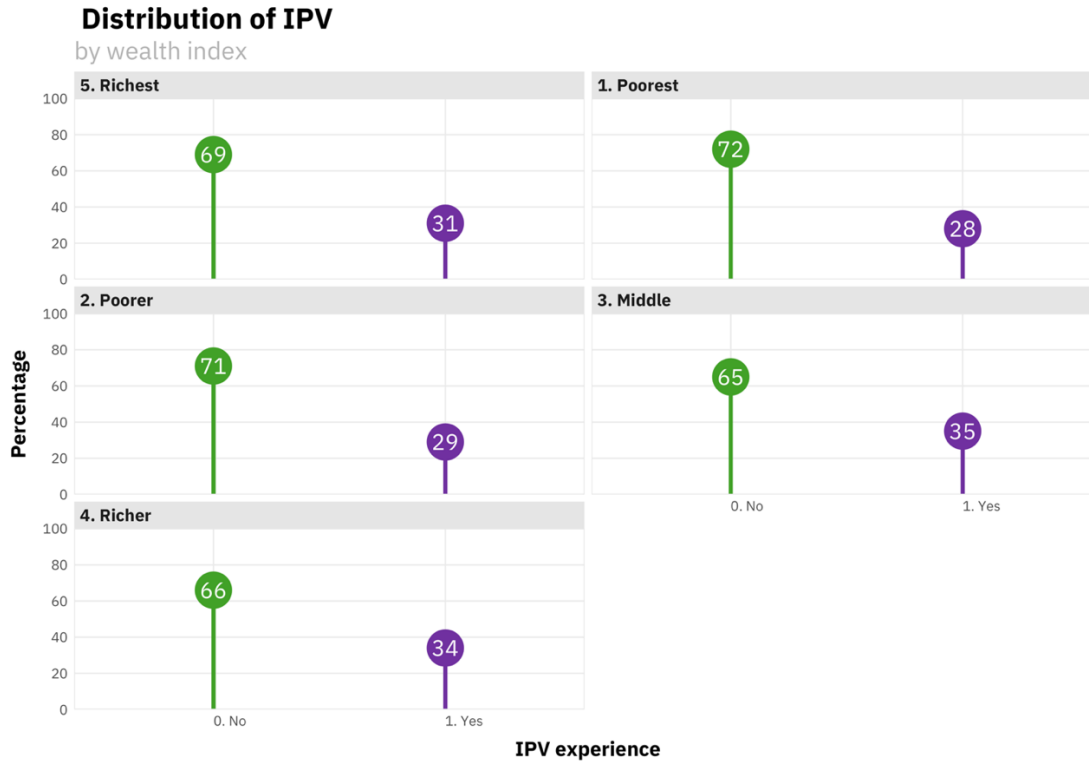
Figure 5 : distribution of IPV by respondents' wealth index

The distribution of IPV based on residence indicated that women who lived in urban areas (34.25%) experienced more IPV (figure 6).
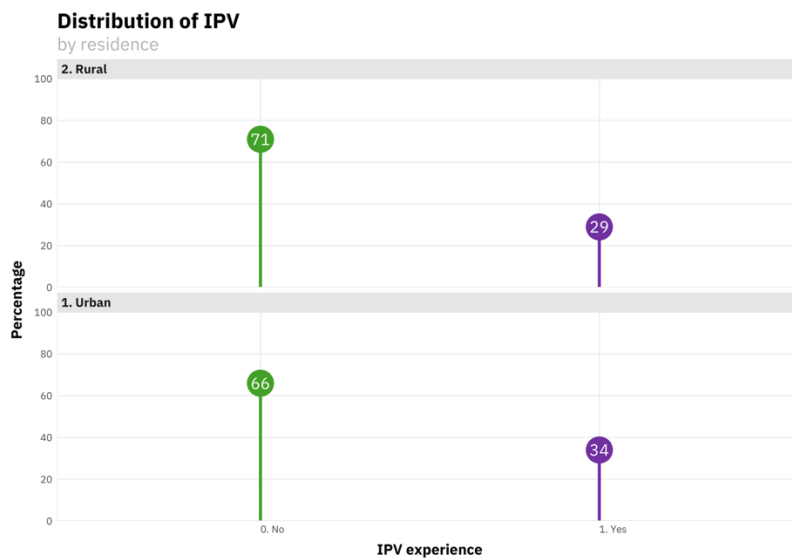
Figure 6 : distribution of IPV by respondents' residence

The result revealed that women whose identify as other Christian (36.30%) experienced more IPV (figure 7).

Distribution of IPV
by religion
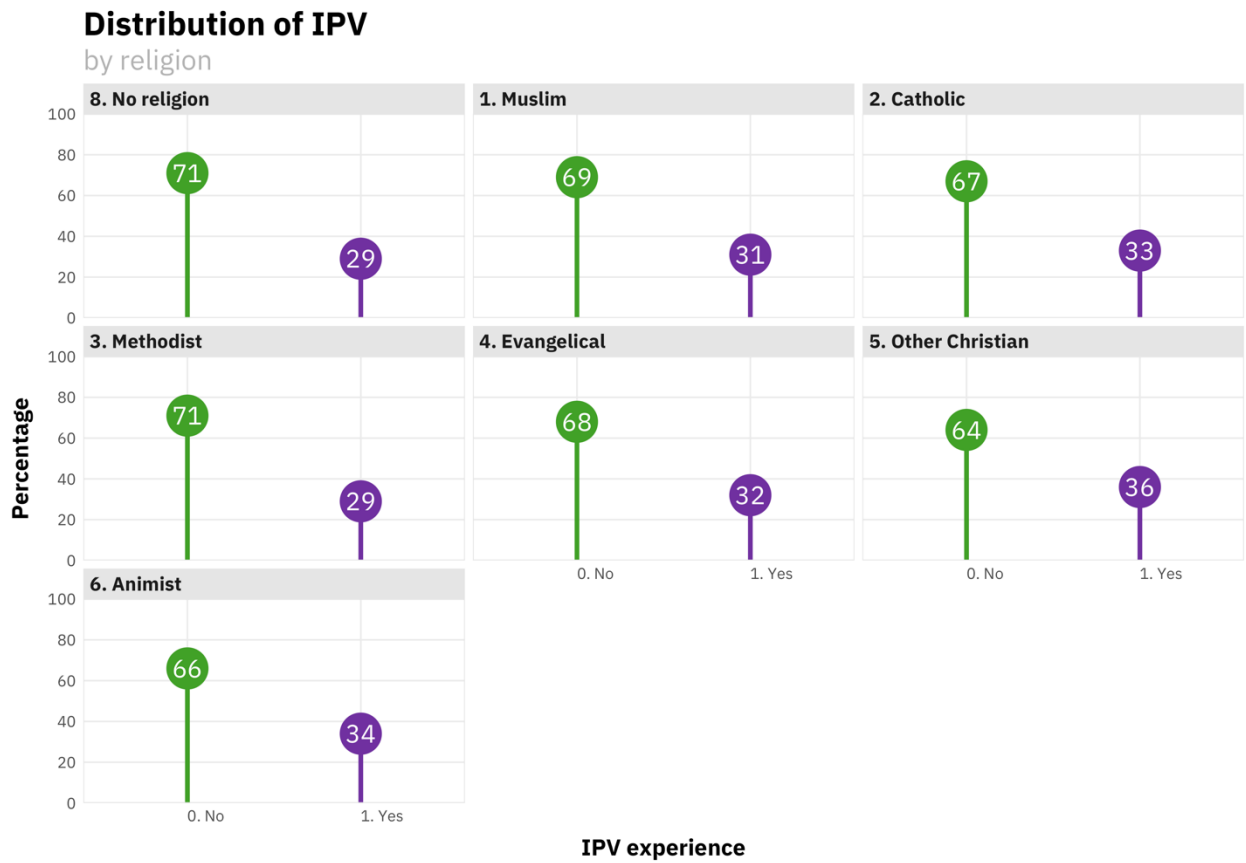
Figure 7 : distribution of IPV by respondents' religion

Just over a third women who lived in Abidjan (34.83%) and the West (35.21%) region part of the country experienced more IPV (figure X).

Distribution of IPV
by region
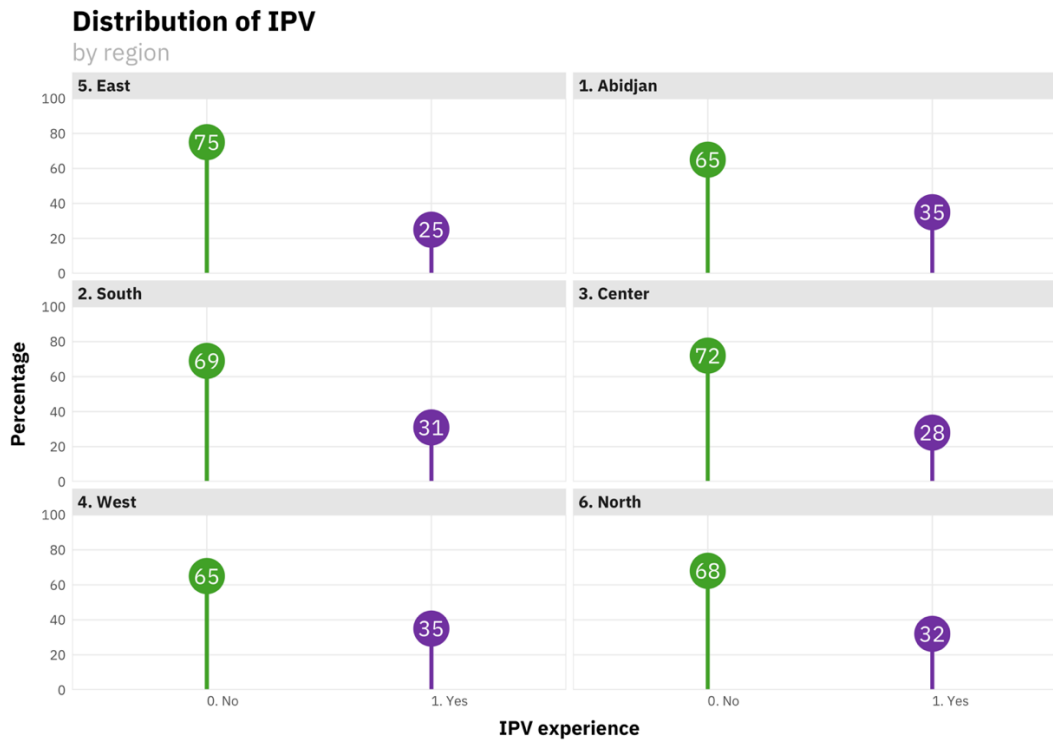
Figure 8 : distribution of IPV by respondents' region

The differences in proportion were statistically significant only for the residency (p-value=0.04) and the level of education (p-value =0.06).

4.1.2   The association between IPV and economic opportunities

Table II shows the economic opportunities among women who experienced any of the three types of IPV. Less than a third of women who responded (32.09%) indicated having an occupation. Concerning the household decision-maker with regards to the decision power on large household purchases, women in the study who said they experienced IPV claimed someone else, and others made decisions with respectively 37.06% and 68.60%. Although 37.06 % reported making their own decisions, 28.75% of women declared deciding with their husbands. The household decision-maker was statistically significant (p-value=0.08).

Table I: Distribution of women who experienced at least one of the three types of IPV in their lifetime by economic opportunities

Characteristics	Total	Currently experienced any of the three types of IPV N (%)	Chi2 (P-value)
Occupation	**3,488**	**1,093 (31.34)**	
No	884	258 (29.12)	3.11
Yes	2,604	836 (32.09)	(0.20)
Household decision-maker	**3,488**	**1,092 (31.31)**	
Respondent alone	264	98 (37.06)	
Respondent and husband	1,053	303 (28.75)	**15.82**
Partner alone	2,152	681 (31.63)	**(0.08⁺)**
Someone else	13	7 (52.10)	
Other	6	4 (68.60)	

⁺ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$

N: number

4.1.3   The association between IPV and partners' related factors

Results in Table III show that partners' relevant factors, including level of education (p-value=0.004), alcohol consumption (p-value < 0.0001), and the number of other wives (p-value=0.04) were significantly associated with any of the three types of IPV.

Concerning their husband, over a third (33.95%) had a primary or secondary level of education (37.74%), and less than four in ten (37.98%) consumed alcohol. Also, more than a third (34.94%) women reported that their husband had more than one wife, while 29.80% stated their partner had only one wife, and 42.2% did not know.

Table II: Distribution of women who experienced at least one of the three types of IPV in their lifetime by partners' related factors.

Characteristics	Total	Currently experienced any of the three types of IPV N (%)	Chi2 (P-value)
Partner's education level	**3,489**	**1,094 (31.32)**	
No education	1,839	539 (29.32)	
Primary	782	265 (33.95)	**28.87**
Secondary	596	225 (37.74)	**(0.004**)**
Highest	182	42 (22.68)	
Don't know	90	23 (25.36)	
Partners' alcohol consumption	**3,489**	**1,094 (31.32)**	**41.91**
No	2,309	646 (27.96)	**(< 0.0001**)**
Yes	1,180	448 (37.98)	
Partner has other wives	**3,492**	**1,092 (31.28)**	
No	2,519	751(29.80)	**11.36**
Yes	948	331(34.94)	**(0.04*)**
Don't know	25	10 (42.19)	

[+]p < 0.10, [*]p < 0.05, [**]p < 0.01

N: number

4.2 Multiple logistic regression results

Table IV (appendix) summarizes the results of the logistic regression of IPV controlling for economic opportunities and partner-related factors.

In the first model (figure 9), respondents' age, level of education, and region were significant predictors. The odds of experiencing IPV among women between the ages of 20-29, 30-39, and 40-49 were 1.629, 1.518, and 1.524, times respectively, greater than the odds of IPV among

younger women, ages 15 to 19. Besides, the odds of reporting IPV among women with a primary level of education was 2.381 times the odds of reporting among women with a higher level of education. Furthermore, IPV was positively associated with the region including Abidjan (OR=1.403; 95 % CI: 0.992,2.277), West (OR=1.824; 95 % CI: 1.002,1.964), North (OR=1.611; 95 % CI: 0.694,1.654). Also, women living in a urban residency reported 1.369 times (95 % CI: 00.982,1.910) to experience IPV.
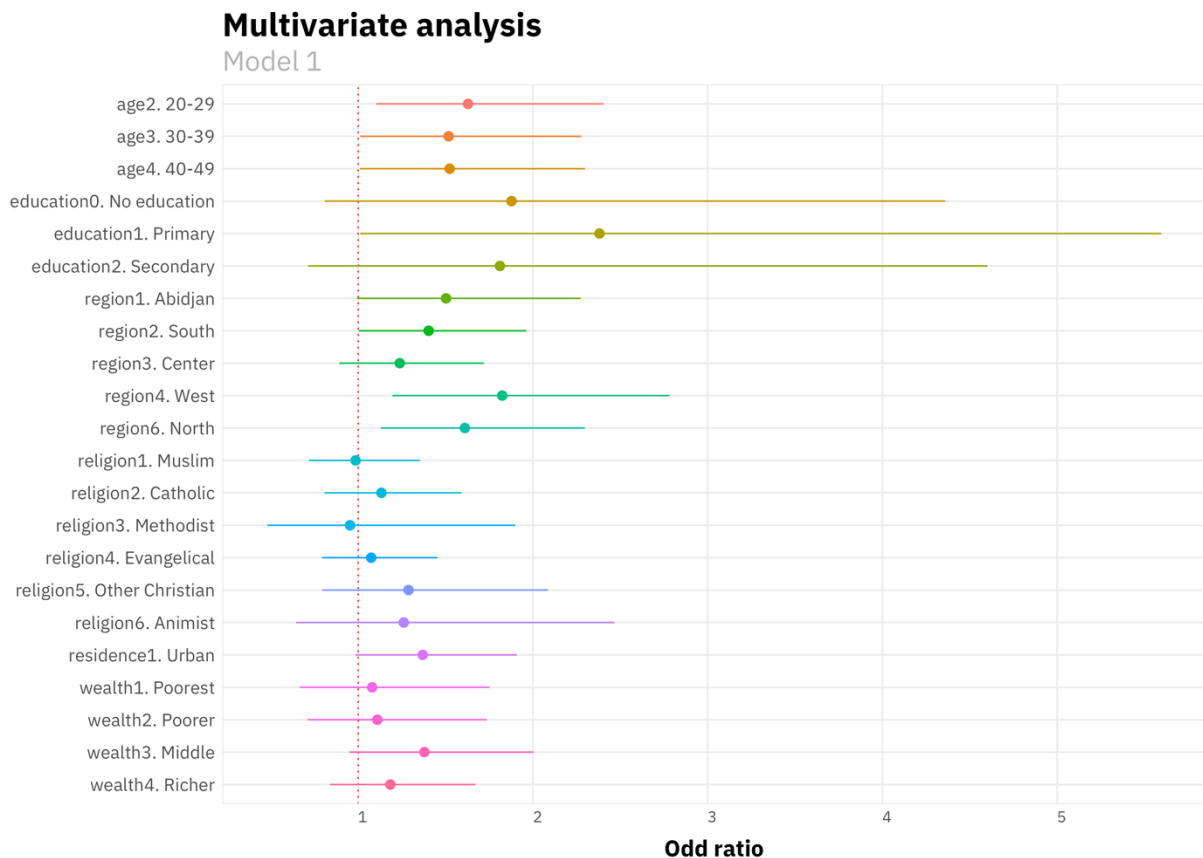
Figure 9 : Logistic regression of IPV and sociodemographic characteristics

In the second model (figure 10), we included household decision-makers and occupation. These factors slightly weakened respondents' age specifically for 20-29 (OR=1.628; 95 % CI: 1.109,2.390), 30-39 (OR=1.478; 95 % CI: 0.996,2.193) 40-49 (OR=1.478; 95 % CI: 0.980,2.227) and region (Abidjan vs East, OR= 1.539; 95 % CI: 1.011,2.343; South vs East, OR= 1.458; 95 % CI:

1.040,2.044; West vs East, OR= 1.881; 95 % CI: 1.217,2.907; North vs East, OR= 1.630; 95 % CI: 1.134,2.342). Besides, the two factors lessen the odds of experiencing any form of IPV among respondents with the primary level of education at 2.355 times (95% CI=1.055,5.258). However, the factors associated with economic opportunities moderately strengthen the women's residency in an urban area (OR= 1.388, 95 % CI: 0.997,1.932). Also, compared to the richest households, the middle has 1.396 (95 % CI: 0.954,2.042) times the odds of experiencing any form of IPV.
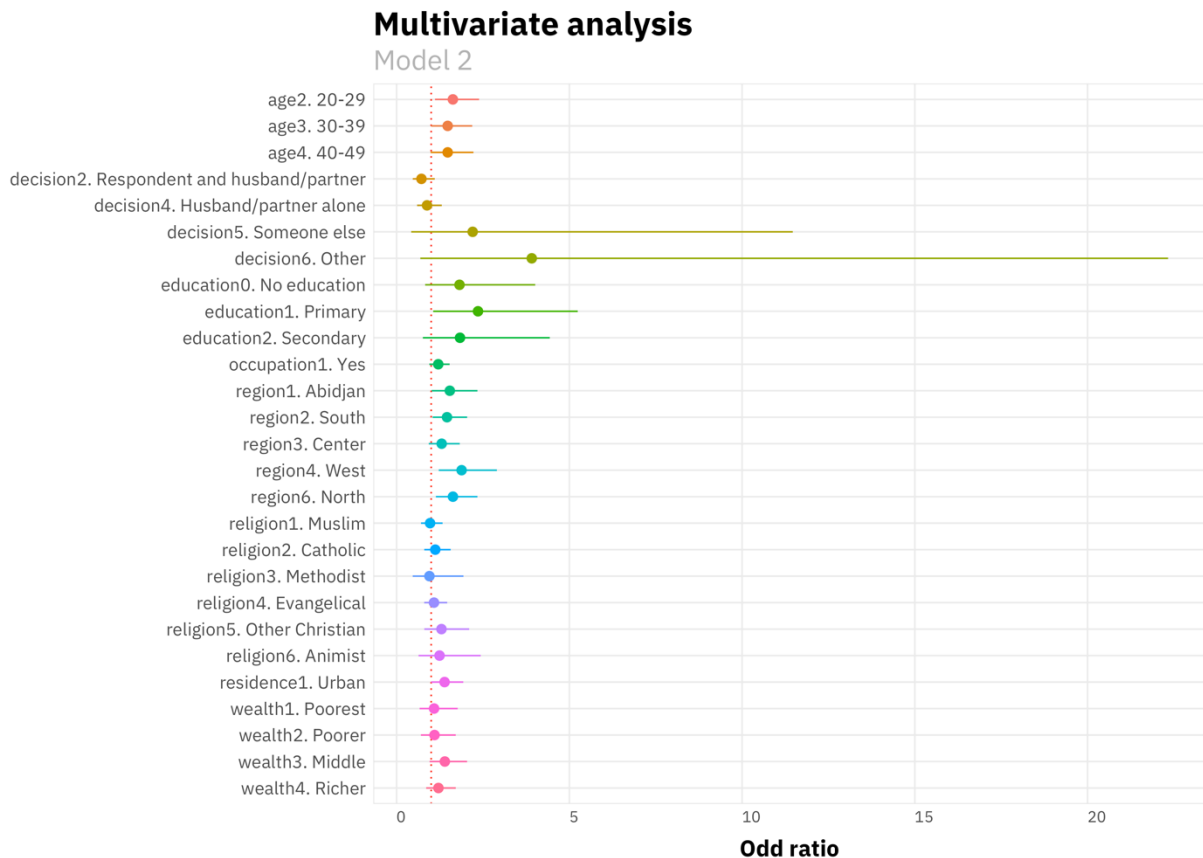
Figure 10 : Second logistic regression

In the final model (figure 11), we adjusted the partner's related factors. All partners' related factors were associated with IPV. The odds of experiencing any form of IPV among respondents whose partner had a primary and a secondary level of education were respectively 1.614 (95% CI= 0.971,2.682) and 1.977 (95% CI= 1.210,3.231) the odds of experiencing any form of IPV among

respondents whose partner had a higher level of education. Likewise, respondents who stated that their partner drank were 2.085 (95% CI=1.660,2.618) times greater than those who did not. IPV among respondents whose partners have more than one wife was 1.368 times (95 % CI: 1.086,1.722), as likely as IPV among those whose partners have one wife. Moreover, respondents' age namely 20-29 (OR=1.635; 95 % CI: 1.115,2.398), 30-39 (OR=1.426; 95 % CI: 0.953,2.134), 40-49 (OR=1.442; 95 % CI: 0.949,2.192), religion Muslim vs no religion (OR=1.484; 95% CI: 1.052,2.094), middle households (OR=1.468; 95 % CI: 0.983,2.194), and living in a urban residency (OR=1.533; 95 % CI: 1.083,2.169) were positively associated with IPV after controlling for partners' related factors.
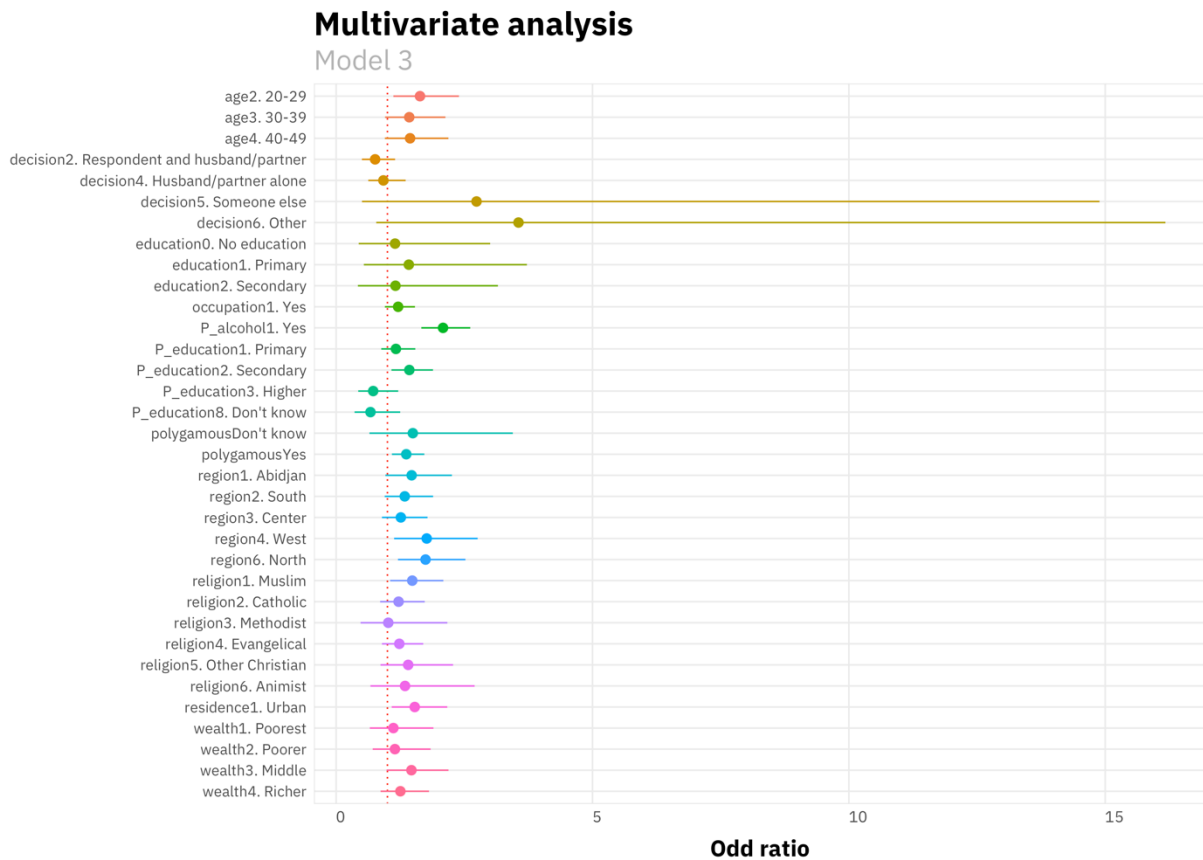
Figure 11 : logistic regression of currently experienced any of the three types of IPV

5. DISCUSSION AND CONCLUSION

5.1 Discussion of Research Questions

Using data from Cote d'Ivoire, we found several factors that place women in Sub-Saharan Africa at an increased risk of experiencing IPV. Socio-demographic characteristics revealed that women aged 20-49 years, in the middle wealth index, west region, living in urban residency, and of the Muslim religion were more likely to be victims of IPV. Additionally, partner characteristics associated with IPV included education level, alcohol consumption, and polygyny were also associated with IPV.

5.1.1.1 Socio-demographic characteristics among women

Younger age was found to be associated with IPV. This finding is consistent with other studies that showed IPV decreases with age (Capaldi et al., 2012b; Iman'ishimwe Mukamana et al., 2020; Uthman et al., 2009). This could be explained by the instability around employment, pregnancy, and financial difficulties at early age and unions (Stöckl et al., 2014). Also, young people, in general, tend to be less mature and more impulsive (Iman'ishimwe Mukamana et al., 2020).

Although the respondents' economic status was associated with IPV, this predictor needs careful interpretation. Respondent's economic status was found significant at 10%. Besides, this result is inconsistent with some studies which posit the respondent's economic status is a protective factor; however, findings may vary consequently on the method and settings (Hindin et al., 2008).

Findings revealed that women living in the West region of the country were more likely to be victims of IPV. The western part of the country is known to have been the most affected during the post-election crisis in 2010. In a conflict zone, women are vulnerable, and their rights are violated continuously by armed groups and their partners (Tlapek, 2015a). Past studies showed that violence is a war's trademark and undermines society (Annan & Brier, 2010; Nandi et al., 2017). Post-war-related post-traumatic stress disorder (PTSD) can be a mechanism by which violent behavior increases (Taft et al., 2007). Further, the western region is deeply entrenched in

patriarchal values that influence both men and women. In this type of society, researchers contend that patriarchal norms and attitudes foster and legitimate men to abuse their partners (Allen & Devitt, 2012b; Horn et al., 2014). This culture demands that women be obedient, respectful, and submissive to their husbands as any challenge can be seen as flouting men's authority. Therefore, the current results support hypotheses that women who lived in this region were reported having experienced IPV.

Our results found that women in urban areas were more likely to experience IPV. However, these results challenge prior studies that contend that IPV is more often encountered in rural areas. In rural areas, the traditionalist culture is entrenched and conveys the belief that the men exercise control over women, which therefore justifies the violence towards their female partners (Iman'ishimwe Mukamana et al., 2020; Kpozehouen et al., 2018a; Uthman et al., 2009). This inconsistency with our study could imply that urbanization is taking precedence over culture. Cote d'Ivoire, like many African countries, is experiencing a rampant migration from the countryside to cities that foster crowded settlements and slums. Research concerning urban communities found that women living in poor settlements experienced IPV by their partners who have been described as the root of the growing epidemic of violence against women in these communities (Izugbara et al., 2020b). Besides, lack of a support system (social, psychological, and financial) could reinforce IPV in urban areas in most SSA (Mannell et al., 2018; Mannell & Dadswell, 2017).

With regards to our findings on Muslim women being at the greatest risk, previous studies among Muslim immigrants indicate that there are traditional gender roles and attitudes that may incite violence against women (Gennari et al., 2017). For example, men tend to be authoritative and need to display courageousness, while women are encouraged to display submissiveness (Abu-Ras, 2007). When these gender dynamics and differences are present, they show that men have control and authority over their wives. Women are expected to meet normative cultural expectations in the relationship, as well as in their community. When these expectations are not

met, women succumb to violence as a measure used by men to "educate" and teach. Violence appears to be normative rather than deviant behavior (Ibrahim & Abdalla, 2010).

Surprisingly, our study did not find any significant relationship between respondent's level of education, occupation, decision making on large purchases, and IPV.

The association between education and IPV is mixed (Hindin et al., 2008). In most studies, education is a protective factor against IPV, and women with higher education levels are less likely to report IPV. (Tenkorang et al., 2013). Education offers individuals to strengthen their abilities, including self-confidence and social empowerment, to use information and resources to their benefit effectively. Consequently, no surprise highly educated women do experience less frequently IPV. Besides, literature also documented non-significant association between education and IPV (Ntaganira et al., 2008; Wandera et al., 2015). In our study, the respondent's level of education did not show any statistical significance with IPV. The third multivariate analysis model did not confirm this predictor as IPV's protective or risk factor, which could also suggest the presence of a possible confounder with other study variables that muted the relationship. (Tlapek, 2015b).

There was no relationship between women's occupation and IPV. This finding is in line with previous studies on IPV who did not find any statistical significance (Okenwa et al., 2009; Tenkorang et al., 2013). However, the literature is disputed, and some studies found a positive association between occupation and IPV (Lawoko, 2006; Lawoko et al., 2007; Okenwa et al., 2009).

In the case of decision making, our study did not find any association with the outcome. However, the literature found a positive or negative direction relationship between decision making and IPV. Hindi (2008), in a multi country gathering of 10 South American and Sub-Saharan countries, indicated women with lower household autonomy were more likely to report lower IPV from their romantic partner.

Earlier observations are proof of evidence that these sociodemographic characteristics—respondents' level education, occupation, decision making on large purchases—may not be as specific to influence the risk of perpetrating IPV. Also, these sociodemographic characteristics

and IPV could suggest the existence of a third variable that modify the stability and the significance of this relationship (Sunmola et al., 2019).

5.1.1.2 Partner and relationship risk factors

There is evidence in our study that suggests that a partner's educational level is associated with IPV; this was primarily observed among those with a primary and secondary level of education. Our research seems to agree with prior studies in Ghana (Takyi & Lamptey, 2020), Benin (Kpozehouen et al., 2018a), and Uganda (Uthman et al., 2009), which found that men with low-level educational attainment consider it legitimate to mistreat their partners to impose their dominion. In addition, the search for financial stability and stable employment makes them less adept at managing stress and frustration than husbands with higher levels of educational attainment (Krishnan, 2005; Martin et al., 2002). This situation allows them to be prone to abuse their partners (Iqbal & Fatmi, 2018). Conversely, other studies suggest that men with a high level of education are less inclined to have behaviors and health conditions such as addictive substance use and sexual dysfunction, factors that are associated with domestic violence (Ackerson et al., 2008).

The accusation of infidelity is a serious matter that affects the couple. Women in our study who knew that their male partner had other romantic partners were more likely exposed to IPV. Conroy (2014) suggested that if a woman felt that her partner has other relationships, she was prone to experience IPV, such as sexual coercion. According to Ntaganira (2008),male partners experience a sense of comfortability using infidelity to justify perpetrating violence against their female counterparts.

Women with partners who use alcohol were also more likely to experience IPV. This finding is not new, given that substance use disorders are highly correlated with IPV (Iqbal & Fatmi, 2018). Multiple research studies across a vast array of cultures and populations have demonstrated that IPV is strongly associated with substance use (Ackerson et al., 2008; Iqbal & Fatmi, 2018; Sunmola et al., 2019; Tenkorang et al., 2013). As mentioned previously, men may

use violence to vent frustrations or educate their wives. Substance use may disinhibit this behavior, making them more likely to perpetrate IPV.

5.2 Study limitations and strengths

Despite the policy implications of our findings, there are some limitations worth acknowledging. The DHS data are cross-sectional; thus, causality cannot be established between the exposure variables and the outcome variable. The data collected within the framework of the violence module could have been the source of underreporting. The questionnaire was completed by the respondents and included the characteristics of their partner. Additionally, Respondents might have been likely to provide answers that do not reflect reality (Tlapek, 2015a).

Moreover, the target population of our study only considered women of reproductive age. The sampling method used for the survey could have failed to take into account all possible women victims of abuse from their male partners (Lawry et al., 2011). Further, the sub-sample used for the violence module could have missed capturing some responses leading to bias if it excluded women more likely to have IPV. A relevant example could include women without any disclosure during the interview. Finally, the sample size excluded women who reported living without their partner.

Despite the limitations mentioned earlier, this study also recognizes some strengths that are worth mentioning. DHS studies are globally recognized and valid by all. Additionally, they offer the possibility of studying several health parameters on a national scale. The quality of the data collection process and the method used are a testament to the rigor employed mainly for the violence module (Kpozehouen et al., 2018a). Another strength of this study is the number of variables based on various layers of the ecological model included improving the study's findings.

5.3 Policy implications and recommendations

Our study findings indicate substantial research and policy implications. First, IPV is a significant public health problem in Cote d'Ivoire especially during a post-conflict period. The country must address the issue of violence against women to achieve growth and development goals, including the fifth sustainable development goal (SDG), which addresses gender equality and the empowerment of women. This paper also presents an opportunity for policymakers, program designers, and other concerned bodies to develop strong measures and strategies to protect women, especially in the aftermath of military-political crises. Additionally, our research provided evidence that IPV is associated with both women's and their partners' characteristics. Therefore, there is a need to provide educational opportunities to strengthen and empower women to tackle deep-rooted patriarchal values that jeopardize their well-being.

Furthermore, policies could focus on male education by integrating in-school IPV programs into the curriculum. The idea is to address one of the root causes of female IPV at an early age by involving boys (Rue et al., 2014). Strategies to support this goal could be found in using health in all policies whereby health indicators are integrated across different sectors. Besides, the findings create an awareness of the use of alcohol, which was the most influential predictor associated with IPV, although the study did not demonstrate a causal pathway. However, interventions that target alcohol use may help to reduce the matter in later years.

5.4 Conclusion

This study is the first known to use nationally representative data to examine the relationship between IPV and the variables of interests while performing a three-step hierarchical modeling approach. The findings contribute to filling the gap in post-conflict African countries.

Our research cannot prove a causal pathway; however, it provides evidence that IPV was significant among women between the ages of 20-49, of Muslim religion, middle wealth index, and among those residing in urban areas. Other risk factors identified were educational attainment -specifically relating to those with primary and secondary level of education- and respondent partners' characteristics, which included drinking alcohol and having other wives.

Therefore, it is imperative that these factors are considered when tailoring interventions aimed at remedying this public health problem.

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7. APPENDICES

Table III: Distribution of women who experienced any of the three types of IPV, Côte d'Ivoire, 2011-2012

Characteristics	Total	Currently experienced any of the three types of IPV N (%)	Chi2 (P-value)
Respondents' age (years)	**3,494**	**1,094 (31.32)**	
15-19	218	51 (23.32)	
20-29	559	428 (32.90)	9.47
30-39	743	374 (31.22)	(0.20)
40-49	696	241 (31.06)	
Respondents' educational level	**3,494**	**1,094 (31.32)**	
No education	2,308	696 (30.16)	
Primary	814	289 (35.53)	**12.55**
Secondary	315	97 (30.78)	**(0.06[+])**
Highest	57	12 (21.18)	
Region	**3,494**	**1,094 (31.32)**	
Abidjan	598	208 (34.83)	
South without Abidjan	784	240 (30.68)	
Center	1,075	304 (28.25)	15.12
West	416	147 (35.21)	(0.22)
East	81	20 (24.8)	
North	540	175 (32.44)	
Residency	**3,494**	**1,094 (31.32)**	
Urban	1,394	477 (34.25)	**10.63**
Rural	2,100	617 (29.38)	**(0.04*)**
Religion	**3,445**	**1,080 (31.32)**	

Characteristics	Total	Currently experienced any of the three types of IPV N (%)	Chi2 (P-value)
No religion	429	126 (29.34)	
Muslim	1,543	476 (30.81)	
Catholic	546	178 (32.6)	4.19
Methodist	80	23 (28.75)	(0.88)
Evangelical	594	189 (31.87)	
Other Christian	148	53 (36.30)	
Animist	106	36 (33.96)	
Wealth Index	**3,494**	**1,094 (31.32)**	
Poorest	741	208 (28.03)	
Poorer	682	198 (29.01)	12.45
Middle	692	240 (34.64)	(0.21)
Richer	741	249 (33.64)	
Richest	638	200 (31.30)	

$^+p < 0.10$, $^*p < 0.05$, $^{**}p < 0.01$

N: number

Table IV: logistic regression of currently experienced any of the three types of IPV

| Variables | Currently experienced any of the three types of IPV | | |
| | Model 1 | Model 2 | Model 3 |
	aORs [95% CI]	aORs [95% CI]	aORs [95% CI]
Respondents' age			
15-19	1	1	1
20-29	**1.629[*]**	**1.628[*]**	**1.635[*]**
	[1.101,2.409]	**[1.109,2.390]**	**[1.115,2.398]**
30-39	**1.518[*]**	**1.478[+]**	**1.426[+]**
	[1.010,2.280]	**[0.996,2.193]**	**[0.953,2.134]**
40-49	**1.524[*]**	**1.478[+]**	**1.442[+]**
	[1.009,2.302]	**[0.980,2.227]**	**[0.949,2.192]**
Respondents' education level			
Higher	1	1	1
No education	1.878	1.820	1.149
	[0.806,4.374]	[0.823,4.024]	[0.438,3.015]
Primary	**2.381[*]**	**2.355[*]**	1.417
	[1.010,5.613]	**[1.055,5.258]**	[0.538,3.734]
Secondary	1.811	1.834	1.157
	[0.707,4.617]	[0.756,4.448]	[0.423,3.166]

Variables	Currently experienced any of the three types of IPV		
	Model 1	Model 2	Model 3
	aORs [95% CI]	aORs [95% CI]	aORs [95% CI]
Region			
East	1	1	1
Abidjan	1.503[+]	1.539*	1.472[+]
	[0.992,2.277]	[1.011,2.343]	[0.958,2.262]
South	1.403*	1.458*	1.338
	[1.002,1.964]	[1.040,2.044]	[0.945,1.893]
Center	1.238	1.304	1.262
	[0.890,1.721]	[0.929,1.830]	[0.892,1.784]
West	1.824**	1.881*	1.766*
	[1.194,2.787]	[1.217,2.907]	[1.128,2.764]
North	1.611**	1.630**	1.743**
	[0.694,1.654]	[1.134,2.342]	[1.204,1.861]
Residency			
Rural	1	1	1
Urban	1.369[+]	1.388[+]	1.533[*]
	[0.982,1.910]	[0.997,1.932]	[1.083,2.169]
Religion			

Variables	Currently experienced any of the three types of IPV		
	Model 1	Model 2	Model 3
	aORs [95% CI]	aORs [95% CI]	aORs [95% CI]
No religion	1	1	1
Muslim	0.985	0.969	**1.484***
	[0.716,1.355]	[0.704,1.332]	**[1.052,2.094]**
Catholic	1.133	1.119	1.218
	[0.807,1.592]	[0.799,1.566]	[0.857,1.730]
Methodist	0.954	0.949	1.017
	[0.478,1.903]	[0.465,1.940]	[0.475,2.175]
Evangelical	1.074	1.081	1.232
	[0.793,1.456]	[0.798,1.465]	[0.893,1.701]
Other Christian	1.284	1.298	1.405
	[0.794,2.091]	[0.801,2.103]	[0.864,2.285]
Animist	1.261	1.242	1.343
	[0.641,2.472]	[0.633,2.439]	[0.667,2.707]
Wealth Index			
Richest	1	1	1
Poorest	1.080	1.084	1.116
	[0.664,1.756]	[0.664,1.770]	[0.655,1.901]

Variables	Currently experienced any of the three types of IPV		
	Model 1	Model 2	Model 3
	aORs [95% CI]	aORs [95% CI]	aORs [95% CI]
Poorer	1.110 [0.708,1.739]	1.097 [0.702,1.714]	1.146 [0.712,1.845]
Middle	1.379[+] [0.947,2.007]	**1.396[+] [0.954,2.042]**	**1.468[+] [0.983,2.194]**
Richer	1.184 [0.838,1.674]	1.210 [0.855,1.714]	1.253 [0.866,1.813]
Household decision maker			
Respondent alone		1	1
Respondent and husband/partner		0.718 [0.467,1.106]	0.760 [0.501,1.152]
Husband/partner alone		0.880 [0.592,1.309]	0.921 [0.625,1.357]
Someone else		2.201 [0.420,11.54]	2.738 [0.500,14.98]
Other		3.912 [0.681,22.47]	3.557 [0.778,16.26]

Variables	Currently experienced any of the three types of IPV		
	Model 1	Model 2	Model 3
	aORs [95% CI]	aORs [95% CI]	aORs [95% CI]
Occupation			
No		1	1
Yes		1.205	1.209
		[0.946,1.536]	[0.950,1.538]
Partners' education level			
Higher			1
No education			1.385
			[0.824,2.328]
Primary			**1.614[+]**
			[0.971,2.682]
Secondary			**1.977[**]**
			[1.210,3.231]
Don't know			0.928
			[0.416,2.070]
Partners' alcohol consumption			
No			1

	Currently experienced any of the three types of IPV		
	Model 1	Model 2	Model 3
Variables	aORs [95% CI]	aORs [95% CI]	aORs [95% CI]
Yes			**2.085**[**]**
			[1.660,2.618]
Partner has other wives			
No			1
Yes			**1.368**[**]**
			[1.086,1.722]
Don't know			1.495
			[0.647,3.453]

Exponentiated coefficients; 95% Confidence Intervals (CI) in brackets; adjusted Odds Ratios (aORs)

[+] $p < 0.10$, [*] $p < 0.05$, [**] $p < 0.010$