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# Intimate Partner Violence and Maternal Health in Nigeria: Implications for Coronavirus Disease (COVID-19) Lockdown Measure

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**Abstract**

A very recent article published in The Guardian (2020) reported on how the surge of domestic violence cases is a pattern being repeated A very recent article published in The Guardian (2020) reported on how the surge of domestic violence cases is a pattern being repeated very recent article published in The Guardian (2020) reported on how the surge of domestic violence cases is a pattern being repeated Among measures recommended by the World Health organization to stem the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) virus is the restriction of population movement (lockdown). With the lockdown, there appear to be a global surge in intimate partner violence (IPV) and how this impact on maternal health is the motivation for this study. Understanding IPV and how it influences maternal health, within an economic framework will be potentially relevant especially with the increasing use of lockdown to curb the surge of the virus. In this study, we identify factors of domestic violence against women within couples who were currently in marital or cohabiting partnerships. Also, we investigate whether domestic violence influences the decision of women to terminate pregnancies. We use data from the 2018 Nigeria Demographic and Health Survey (NDHS). Multivariate logistic regressions were used to model the predictors of domestic violence, and its influence on the decision to terminate pregnancies among married women. Of the 8,910 married women interviewed for domestic violence, 35.33% had ever experienced a form of domestic violence. We discover that having higher education, not being poor, and residing in urban areas reduce the odds of women experiencing domestic violence. Further, findings from the study indicate that women who own land, and whose husbands use alcohol have increased odds of experiencing domestic violence. Also, the results suggest that currently married women experiencing domestic violence have 1.25 times increased odds of terminating pregnancies compared with their counterparts that are not experiencing domestic violence. Our results suggest the implementation of short-term measures to address the issues of poverty and alcohol consumption during lockdown periods. Long-term measures could include legislations supporting compulsory girl-child education and criminalising all forms of domestic violence. Importantly, public actions to contain domestic violence in order to improve maternal health should be implemented in the context of the dynamics of a non-cooperative relationship existing between married couples.

**Keywords:** *Internal partner violence; Maternal Health; Coronavirus disease; Lockdown*

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**Background to the Study**

Intimate partner violence, which is described as the intentional use of physical force or power, threatened or actual, against oneself, another person that either results in or has a high likelihood of resulting in injury or death (Krug, Mercy, Dahlberg, and Zwi, 2002) could have severe effect on women in several ways. It can affect their physical, mental, sexual, and reproductive health as well as the health of their children (Garcia-Moreno, et al., 2006; WHO, 2013). More precisely, domestic violence may result in unwanted pregnancies, increase the risk of sexually transmitted infections among women, and during pregnancy, it can increase the risks of miscarriage, preterm labour, foetal distress, and low birth weight (Heise, Ellsberg and Gottenmoeller, 2002; Valladares, et al., 2002). Importantly, at the macroeconomic level, domestic violence is likely to prevent the expansion of women capabilities and can undermine the development progress of a country (Panda and Agarwal, 2005). This is because, violence or the threat of violence can constrain the choices women make and restrict their participation in development, thus, preventing them from realizing their full potential (ICRW, 2002).

Intimate partner violence occurs within the institution of marriage-an institution that is used for the negotiation and expression of gender roles and relations that are in support of patriarchy in developing countries. This is because the household structure is modelled along the collective framework, and in particular, the non-cooperative model.[1] Specifically, couples/partners in households are more likely to operate as autonomous sub-economies having different preferences. This appears to provide the framework for marriage that is not solely altruistic in nature but can be prone to domestic violence. Said differently, violence against women in these countries can be associated with the institution of marriage.

This paper answers the question of what the underlying factors of intimate partner's violence against women in Nigeria are. Also, we investigate the hypothesis whether intimate partner violence increases the likelihood of terminated pregnancies among Nigerian women. Since violence against women is a major public health and human rights problem, empirically identifying the risk factors, and exploring the pathways, through which such factors may influence women's vulnerability in marriage will be crucial in designing policies and programmes. Importantly, the outbreak of COVID-19, also a global public health problem, may be associated with a rise in domestic violence especially from the lockdown measure being adopted to curtail the spread of the virus (Bradbury-Jones and Isham, 2020; Graham-Harrison et al., 2020).[2] It is now common practice for severely affected countries to impose

[1]Household structure can be modelled along two paths: unitary models and collective models. In a generic sense, unitary models specify a homogeneous utility function which is maximised subject to a pooled income constraint. In contrast, collective models and in particular, the non-cooperative models strand, assume independence of household members in terms of preferences and decisions making on production and consumption given that resources are not pooled. A detailed review of these models has been done elsewhere (Atsiya, Pius, and Agbutu, 2019). There is evidence in the literature that the non-cooperative models, as opposed to unitary models, describe household structure in developing countries (Doss, 2001; Udry, 1996; Duflo and Udry, 2004; Rangel and Thomas, 2005; Akresh, 2008; and Bobonis, 2009).

[2]The COVID-19 virus, which is said to originate from Wuhan, China and has spread across the globe (Campbell, 2020) have seen countries adopting preventative measures such as lockdown, travel restriction, wearing of face mask, social distancing, closing of public places, to curtail the spread of the virus (Das, Das, and Mandal, 2020).

among other measure, a complete lockdown and travel restrictions. Thus, there may be increased vulnerability of women to domestic violence is the spread of the virus continues and this may impact on both their mental and physical health. It is established in the literature that women exposed to domestic violence may have suicidal thoughts (Kumar et al., 2012) or more likely to make decisions on terminating their pregnancy.

The contribution of this study to the domestic violence literature is twofold. First, it addresses the issue of domestic violence and maternal health as a consequence of the restriction of movements and lockdowns. There appear to be paucity of empirical evidence on the impact of lockdown on domestic violence and consequently, maternal health in Nigeria. Second, the study investigates the issue of domestic violence in a multicultural setting using a very recent individual level data released-the 2018 Nigeria Demographic Health Survey (NDHS). Nigeria is a multi-ethnic country with over 250 ethnic groups with divergent norms and cultural values. Cultures in Nigeria perceive domestic violence differently. For instance, while wife beating in the Tiv culture is considered as a show of affection (Oyediran and Isiugo-Abaniher, 2005; Odimegwu, 2001), Igbo women condone and are complacent with intimate partner violence, perceiving it as cultural and religious norms (Ilika, 2005). In general, the major ethnic groups in Nigeria-Yoruba, Igbo and Hausa-tend to support domestic violence (Kritz and Makinwa-Adebusoye, 2006), but disproportionately. Also, existent criminal provisions by the Nigerian law to curb domestic violence appear to be inconsistent. For instance, while the Penal Code which applies in the 19 Northern states, including the Federal Capital territory, specifically Section 55(1)(d) did not consider the chastisement of a wife by her husband as criminal provided it is supported by native law and custom and it does not cause grievous hurt, the Criminal Code which applies to the 17 southern states, on the other hand, does not refer to domestic violence at all (Aduba et al in Chikwanha, 2009; Ojigho, 2009). To address this endogeneity issue, we control for ethnicity in our specification. In the Nigeria Demographic Health Survey (NDHS) 2018, women were distributed into eleven ethnic groups: Ekoi, Fulani, Hausa, Ibibio, Igala, Igbo, Ijaw/Izon, Kanuri/Beriberi, Tiv, Yoruba, and Other. More precisely, we use a specification that controls for ethnicity fixed-effects to tease out less biased probability values of predictors.

Domestic violence in Nigeria can be explained using the Patriarchal Theory of Family violence and the Exchange Theory (Levinson, 1989). The Patriarchal Theory suggests that, males, historically have dominated societies with women treated as their possessions. In such societies, there are patriarchal norms that support men's ability to control their wives and justify their use of violence to do so. On the other hand, the Exchange Theory suggests that domestic violence is low in societies where the costs to perpetrators are low because of inadequate social controls and the emphasis on male aggressiveness that tend to encourage violence.

The literature identifies a variety of risk factors which may influence domestic violence within a marriage. In theory, women with more education are likely to find better jobs, receive a higher wage rate, be financially independent, and face a better marriage market with higher reservation utilities (Hidrobo and Fernald, 2013). Put differently, they are more likely to have better out-of-marriage options and this can affect their level of exposure to domestic violence.

However, awareness of women might increase with more education and this may be a source of stress for the husband who may resort to violence if his autonomy is challenged. The effect of women's employment on domestic violence in the literature is ambiguous (Bhattacharyya, Bedi, and Chhachhi, 2011). While an increase in the household economic resources attributable to the employment status of the husband is expected to reduce economic stress and consequently reduction in domestic violence as suggested by the Resource Theory (Goode, 1971), an increase in household economic resources attributable to the wife may introduce additional tension and struggle for power within the household. This may occur if the husband seeks to control the additional income in order to protect his status as the patriarchal bread winner of the family which may result in violence. In other words, the Resource Theory suggests that husbands are more likely to resort to violence if they contribute less resources to a relationship or when they lack education and job prestige.

Farmer and Tiefenthaler (1997) consider marital capital as a predictor of domestic violence. They represented marital capital with the number of children in a marital relationship but suggested that the effect of children on the level of violence may be ambiguous. In effect, marital capital offers the woman utility (positive or negative) only within a marriage contract. Women are likely to condole domestic violence if they believe that their children are better off in an intact family. On the other hand, if a woman believes that the domestic violence has adverse effect on her children, her marital utility is likely to fall below the reservation utility (minimum utility level required to guarantee the marriage contract), and this might reduce violence. Also, a woman's ties to her marital relationship are likely to be stronger if the children are younger (under-five years) and this may increase the level of domestic violence. Employment, marital dependency theory suggests that being economically dependent on a male partner increases women's risks of abuse, since it makes then less likely or able to exit the relationship (Vyas and Watts, 2009). Thus, the level of violence is likely to be lower for women who earn the same or higher than their husband/partner. This is because, the value of transfer to such women is likely is to be lower relative to women that earn less than their husbands/partners. Consequently, husbands are more likely to institute violence in a marital relationship that involves higher value of transfer to the woman. Additionally, the bargaining power (as well as alternative to violent marriages) of women with the same or higher earning status compared to their husbands/partner is expected to be higher relative to women with lower earning status.

The association between women's ownership of property (land and house) and domestic violence exist in the literature (Panda and Agarwal, 2005). In particular, women's land or house ownership in agrarian societies indicates their strength of a fall-back position and possibly tangible exit option (Agarwal, 1997), and this can influence the extent of their exposure to domestic violence. Indeed, land ownership can engender women's economic empowerment and sense of economic security and consequently, reduce their tolerance of violence (Agarwal, 1994; Panda and Agarwal, 2005). Husbands' excessive alcohol consumption can influence their resort to domestic violence (WHO, 2009; Boden, Fergusson, Horwood, 2012; Tumwesigye, Kyomuhendo, Greenfield, and Wanyenze, 2012). Alcohol can have direct effects on physical and cognitive performances, impairing judgment, reducing self-

control and the ability to recognize signs of danger and consequently contributing to violence (Gebara, et al., 2015). Alcohol is used as a reason to commit violence based on the cultural belief that it causes aggression (WHO, 2009).

Contributions in the public health and feminist economics literature, closer to this work in scope and methodologies, also consistently find the following characteristics to be associated with domestic violence: higher women education, working husbands and wives, fewer children, alcohol drinking husbands, and younger women age (Barnawa, 2017; Adjah and Agbemafle, 2016; Rapp, Zoch, Khan, et al., 2012; Bates, Schuler, Islam & Islam, 2004). Tumwesigye, Kyomuhendo, Greenfield and Wanyenze (2012) showed that women whose partners got drunk often were six times more likely to report physical intimate partner violence compared to those whose partners never drank alcohol. Studying Bhattacharyya, Bedi, and Chhachhi, (2011) showed that women's work status and property ownership are associated with reductions in violence. Finally, in a recent study on 10 developing countries that investigated key individual and couple characteristics associated with experiencing physical or sexual intimate partner violence, women's education was discovered to be protective in some countries but increases the risk of intimate partner violence in one country. Also, husband/partner characteristics were not consistently associated with women's experience of violence. In particular, while men working in agriculture are protective in Bangladesh and Malawi, it is a risk factor of violence against women in Kenya and Zimbabwe (Hindin, Kishor and Ansara, 2008). The above findings provide suggest that individual/couple characteristics might have ambiguous effects on intimate partner violence.

None of the previous studies, however, explicitly controls for the potential endogeneity of domestic violence supported by culture.
In the next section we describe the data and statistical technique. Section 3 presents the results and discussion of findings. The last section concludes.

**Method**

**Data**

We use the 2018 Nigerian Demographic and Health Survey (NDHS) dataset to identify the predictors of domestic violence among married women. This is because the NDHS have information from respondents on different forms of domestic violence, as well as, on a list of possible covariates, permitting robust investigation of the likely determinants of domestic violence. Our sample is limited to currently married women because violence against women appears to be more associated with the marriage institution which has cultural norms that tends to support domestic violence in Nigeria. The NDHS is a national sample survey that provides information on fertility levels, marriage, fertility preferences, awareness and the use of family planning methods, child feeding practices, nutritional status of women and children, adult and childhood mortality, awareness and attitudes regarding HIV/AIDS, female genital mutilation, and domestic violence. The NDHS data were sourced through a stratified two-stage cluster sample design using a sampling frame that consists of a list of 1,400 enumeration areas from the 2006 National Population Census for the first stage. In the second stage, a representative sample of 41,821 households was selected for the survey. Specifically, we use the women file for this study with De facto currently married woman interviewed as the unit of analysis.

## Variables

### *Dependent Variable (Domestic violence)*

In this study, we consider all types of domestic violence inflicted on a woman including physical, emotional, and sexual violence. Physical violence, defined as hitting, slapping, punching, choking, pushing, and other types of contact that result in physical injury to the victim (Saltzman, Fanslow, McMahon, and Shelley, 2002) was measured with the following questions in the NDHS: Did your (last) husband/partner ever i. push you, shake you, or throw something at you? ii. Slap you? iii. Twist your arm or pull your hair iv. Punch you with his fist or with something that could hurt you? v. kick you, drag you, or beat you up? vi. try to choke you or burn you on purpose? vii. threaten or attach you with a knife, gun, or other weapon? Emotional violence as defined by Saltzman, Fanslow, McMahon, and Shelley involve threatening, intimidation, undermining the victim's self-worth or self-esteem, or controlling the victim's freedom. In the NDHS, emotional violence is measured by asking women if their (last) husband/partner ever i. Said or did something to humiliate them in front of others? ii. Threatened to hurt or harm you or someone close to you? iii. Insulted you or made you feel bad about yourself? Finally, sexual violence defined as the use of force to obtain unwanted, unsafe, or degrading sexual activity (Saltzman, Fanslow, McMahon, and Shelley, 2002) is measured in the NDHS using two questions. Women were asked if their (last) husbands/partner ever i. physically force to have sexual intercourse even when they did not want to? ii. Forced to perform any sexual acts they did not want to? Physical violence is indicated if a woman answers "yes=1" to any of the questions on physical violence and zero otherwise. In similar pattern, emotional violence and sexual violence were indicated if a woman answers "yes=1" to any of the questions related to the types of violence and zero otherwise. We constructed a composite index of domestic violence by combining the three types of violence and a code of "1" assigned if any type of violence is indicated with zero otherwise.

## Key Independent Variables

We investigate the roles of individual/couple characteristics in predicting domestic violence including education, employment status, property ownership status, marital capital, earning and alcohol consumption. In this study, we measure women education using the four levels of educational attainment: no education (reference category), primary, secondary and higher education. Employment status of women is measured as a binary variable: (i) No employment=0 (ii) Employed=1. In contrast, we categorised husband employment into: (i) No employment=1 (ii) Employed=2 (iii) Employed in Agriculture=3. Marital capital was measured using the number of living children in a marital relationship. We measure the earning status of a woman using the survey question whether "a respondent earns more than husband/partner". We assigned 1=wife earns less than husband and 0=wife earns more/the same as the husband. Land ownership status is used as a proxy for property ownership. It is measured as a binary variable: (i) No land =0 (ii) Land Own=1. Whether a husband uses alcohol or not is measured as: (i) No Alcohol=0 (ii) Alcohol=1. We measure poverty using the wealth index. We dichotomized the wealth quintiles into: (i) Poor=0 (poorest and poorer quintiles) (ii) Not Poor=1 (middle, richer and richest quintiles). Said differently, population at the lower end of the wealth index is identified as poor and the population at the upper end as non-poor or wealthy. Effectively, the wealth index variable in the NDHS can provide a less

spurious effect of poverty on domestic violence because of its cross-cultural attribute-all the wealth index components are defined similarly across all the different ethnic groups consisting our sample making it comparable. Finally, we include other individual characteristics such as age, time lapse since last intercourse, religion, and locality of residence. The variables are given in Table 1.

**Statistical Method**

Two phases of analyses were conducted to answer the question of what are the factors that influence domestic violence among married women in Nigeria. First, we report the distribution of the variables (categorical) variables as frequency counts and test series of associations using the chi-square or fisher's exact test. Precisely, chi-square tests were performed to examine the bivariate association between domestic violence and its predictors. Second, logistic regression models were used to examine associations between domestic violence and the list of independent variables mentioned elsewhere. Rationale for the inclusion of the independent variables into the model is based on the literature review provided in the introduction and their being significant at alpha 5% from the bivariate analysis. To further explore the effect of domestic violence on terminated pregnancies (as a proxy for maternal health), we performed additional logistic regression analyses, which examined the relationship between terminated pregnancies and domestic violence as well as other key covariates including poverty, women health autonomy, education, age, employment, parity, locality, and marital capital. We check for multicollinearity using the variance inflation factor. This was done to ensure that none of the predictor variables in the models were highly associated with each other. Data were analysed using stata/MP 16.0 and all statistical tests were two tailed and a $p < 0.05$ was considered statistically significant.

**Results**

**Sample Characteristics**

Of the 28,888 women currently married, 8,910 women were eligible for the domestic violence module and these constitute the sample size for our analysis. While 32.4% of the sample had ever experienced at least one form of domestic violence, the most frequently reported form of violence is emotional violence (30.1%), followed by physical (8.11%) and sexual (6.85%). Majority of the currently married women that had ever experience at least one form of violence are within the age bracket of 26-35years (43.78%). In other words, younger (15-25 years) and older women (36-49 years) are less likely to experience or report domestic violence (See Table 1). However, a weak bivariate association between women age and domestic violence is apparent as indicated by the p-value of the Pearson chi-square test (p=0.084). For women who had experience a form of domestic violence, those without any basic formal education are in the majority (37.6%). In contrast, 59.65% of who had experience domestic violence had husbands with at least basic primary education. Husbands' education appears to be protective at higher levels (12.39%). Also, majority of women that are employed (69.12%) did not experience any form of domestic violence. Similarly, 75% of women that are employed experience domestic violence. The effect of women employment status on domestic violence appears to be ambiguous. The proportion of women who reported domestic violence and belong to the richest wealth quintile (13.37%) is less than the proportion of women in the

poorest quintile who had experience domestic violence (21.44%). Majority of women that reported violence resides in rural areas (64.18%) compared with 35.82% of their urban counterparts. Also, the proportion of women that reported domestic violence but have no land ownership is about three folds greater (79.88%) than those who reported domestic violence and hand land ownership status (20.12%). Majority of women whose husbands/partners drink alcohol (63.18%) reported domestic violence. Finally, only 2 % of women whose husbands are unemployed reported domestic violence compared to majority of women whose husband are either employed in a skilled occupation or agriculture (98%).

**Factors of Domestic Violence against Women in Nigeria**

Table 2 presents result of the predictors of domestic violence against currently married women in Nigeria. We uncover that attaining higher levels of education, residing in urban area, and not being poor are protective factors against marital domestic violence in Nigeria. On the other hand, partner/husband consumption of alcohol, employment status of couples, women land ownership and marital capital were identified as risk factors of domestic violence. More precisely, women with higher education have 44% reduction (OR=0.56; 95% CI 0.45 to 0.70) in the odds of facing domestic violence in their marriages compared with those without any form of basic education. Similarly, compared with women that are categorized as poor, women that are not poor have about 18% reduced odds (OR=0.82; 95% CI 0.73 to 0.94) of experiencing domestic violence. Also, women residing in urban areas have significantly lower odds (OR=0.85; 95% CI 0.76 to 0.95) of experiencing domestic violence compared with their counterparts in rural areas. Further, women whose partners/husbands drink alcohol have 2.8 times (OR=2.8; 95% CI 2.44 to 3.12) increased odds of experiencing domestic violence. Additionally, the result from Table 2 suggests that there is elevated likelihood of women experiencing domestic violence if they are employed (OR=1.16; 95% CI 1.034 to 1.29), or their partners are employed in skilled occupation (OR=1.8; 95% CI 1.29 to 2.49) compared to partners/husbands that are unemployed. When we consider women whose partners/husbands are employed in the agricultural sector compared with women whose husbands are unemployed, they former have 2.1 times (OR=2.07; 95% CI 1.49 to 2.88) increased odds of experiencing domestic violence. Finally, we discover that women with land ownership status are more likely to report domestic violence than women without land ownership in Nigeria (OR=1.2; 95% CI 1.06 to 1.37).

The above findings, on average, are robust to a different specification that controls for ethnicity fixed effects and the result is presented in Table 3. According to the specification, controlling for ethnicity fixed effects (along with the same list of individual/couple variables used in Table 2), women that are not poor have 14% reduction (OR=0.86; 95% CI 0.76 to 0.98) in their odds of experiencing domestic violence. Similar reduction in the odds of experiencing domestic violence exist for women with higher education compared to those without any form of education (OR=0.58; 95% CI 0.47 to 0.74), and for older women within the age bracket of 36-49years compared with younger women within the age bracket of 15-25years (OR=0.86; 95% CI 0.74 to 0.99). In contrast, results in Table 3 report elevated odds of women experiencing domestic violence if they are employed (OR=1.26; 95% CI 1.11 to 1.41), have marital capital (OR=1.22; 95% CI 1.09 to 1.35) or own land (OR=1.18; 95% CI

1.03 to 1.35). Also, we discover increased odds of women experiencing domestic violence whose husbands drink alcohol (OR=2.79; 95% CI 2.45 to 3.16) and are employed either in a skilled profession (OR=1.89; 95% CI 1.36 to 2.63) or in the agricultural sector (OR=2.00; 95% CI 1.44 to 2.79).

**Domestic Violence and Women's Decision to Terminate Pregnancies in Nigeria**

Findings from Table 4 indicate that, while domestic violence, women health autonomy, higher education, and age are risk factors, employment, higher parity, and having four and below number of under-five children are protective factors of terminated pregnancies among married women in Nigeria. Specifically, currently married women experiencing domestic violence in Nigeria have 1.25 times (OR=1.25; 95% CI 1.11 to 1.42) increased odds of terminating pregnancies compared with their counterparts that are not experiencing domestic violence. Similarly, women with health autonomy were found to be 1.43 times (OR=1.43; 95% CI 1.20 to 1.70) more likely to have terminated pregnancies. Also, women with higher education relative to those without formal education have 1.22 times increased odds of terminating pregnancies. Older women (26-35years) were found to have 1.58 times (OR=1.58; 95% CI 1.32 to 1.88) increase in the odds of terminated pregnancies, compared with women aged 15-25 years. Indeed, the odds of having terminated pregnancies increases with age. It is 1.79 times (OR=1.79; 95% CI 1.42 to 2.17) for women in the age range of 36-49 years compared with younger women (15-25 years). Further, our result in Table 3 suggests that employed women have 14% (OR=0.86; 95% CI 0.73 to 1.09) reduction in the odds of terminated pregnancies, compared with their counterparts that are unemployed. Similar protective effect exists for women with higher parity (total number of children ever given birth to by a woman). Effectively, women with higher parity-parity2-have, on average, 27% (OR=0.73; 95% CI 0.59-1.09) reduction in the odds of terminated pregnancies compared with women that have never given birth. Finally, our result indicates that women with number of under-five children below four have 22% (OR=0.78; 95% CI 0.66 to 0.92) reduction in the odds of terminating pregnancies, compared with women that have no children below five years in Nigeria.

**Discussion**

Findings from this study indicate that the odds of domestic violence are significantly lower for rich women, with higher education, and resident in urban area. In contrast, women that is: employed, own land, and have marital capital were discovered to have elevated odds of experiencing domestic violence. Similarly, women whose partner/husbands drink alcohol, and are employment either in skilled occupation or agriculture have increased odds of marital domestic violence. For education, the reduced odds of domestic violence were statistically significant only for women with higher level of education. This is because, women with higher education are more likely to find better jobs, earn higher wage, be financially independent and have a higher reservation utility. Such women are more likely to have better out-of-marriage options and can reduce the odds of domestic violence. Hence, higher education is expected to translate into the potential for employment, earnings or greater social status which serves as protection from domestic violence. Also, our finding on the association between education and domestic violence suggest that, on average, husbands/partners are less likely to be stressed with increased awareness of women due to higher education. The promotion of girl child

education beyond primary and secondary enrolments by the Nigerian government as well as non-governmental organizations would provide women with potential opportunities to be independent in marriage with favourable exit option.

Further, our finding that poor women are more likely to report domestic violence has support in the literature (Hotaling and Sugarman, 1990; Jewkes, 2002; Ellsberg, et al., 1999). This is because; women living in impoverished conditions are likely to have partners/husbands with high levels of stress and consequently, more prone to domestic violence than women with wealthy partners/husbands. Hence, women financial empowerment intervention can reduce their risk of domestic violence by increasing their statuses and power in the family. We discover that women residing in rural areas are likely to have increased risk of domestic violence and this can be attributed to certain aspects of rural culture that reinforce patriarchal beliefs which support domestic violence. In other words, a traditional gender role that reinforces male domination is likely to be more emphasized in rural areas. Thus, rural culture tends to support gender inequality more and this reduces women's ability to report domestic violence. There are possible barriers to women escaping violence in rural areas including absence of police and legal justice system, stigma attached to the public disclosure of violence, and financial insecurity and dependency on partners/husbands (Wendt, 2008). Increasing public awareness about domestic violence and its various forms in rural areas will be important in curbing the menace. Awareness about existent law against domestic violence and options for victims appear to be low in rural areas. Creating counselling centres in partnership with religious and traditional leaders across Local Government Areas wards can be vital as support network for rural women.

In this study, we identify employment of women, and their partners/husbands as risk factors of domestic violence. Effectively, our findings indicate that the odds of women experiencing domestic violence increase when they are employed and/or when their partners/husbands are employed. While the effect of women's employment on domestic violence is ambiguous in the literature (Bhattacharyya, Bedi, and Chhachhi, 2011), we expect partners/husbands' employment to be protective against domestic violence in line with Dekeseredy and Schwartz (2002). For women employment, we argue that the positive association is likely to be driven by unemployed partners/husbands who are stressed from being economically excluded and this can contribute to the odds of increased domestic violence. While an increase in the household economic resources attributable to the employment status of the husband is expected to reduce economic stress and consequently reduction in domestic violence, an increase in household economic resources attributable to the wife may introduce additional tension and struggle for power within the household. This may occur if the husband seeks to control the additional income in order to protect his status as the patriarchal bread winner of the family which may result in violence. We explain the elevated odds of domestic violence against women when their partners/husbands are employed using the Marital dependency theory which suggests that being economically dependent on a male partner increases women's risks of abuse, since it makes then less likely or able to exit the relationship (Vyas and Watts, 2009).

Further, we discover that women whose partners/husbands drink alcohol are more likely to report domestic violence. This finding has support in the literature (WHO, 2009; Boden, Fergusson, Horwood, 2012; Tumwesigye, Kyomuhendo, Greenfield, and Wanyenze, 2012). In line with Gebara, et al., (2015), we argue that alcohol could have direct effects on physical and cognitive performances, impairing judgment, reducing self-control and the ability to recognize signs of danger and consequently contributing to violence. Husbands are likely to abuse alcohol and use it as a reason to commit violence based on the cultural belief that alcohol causes aggression (WHO, 2009). Our finding on the association between women land ownership and domestic violence appears to be counterintuitive. In theory, women's land or house ownership in agrarian societies should indicate their strength of a fall-back position, tangible exit option and consequently reduces their exposure to domestic violence (Panda and Agarwal, 2005; Agarwal, 1997; Agarwal, 1994; Panda and Agarwal, 2005). Indeed, we expect land ownership status to engender women's economic empowerment and sense of economic security given that land is a crucial source of income generating asset in an agrarian society. It is unclear why women land ownership increases their odds of domestic violence, but a plausible explanation would be the likely stress and subsequent struggle for power created from enhanced status due to women land ownership. In addition, land ownership in many cultures across Nigeria is still considered an exclusive domain of the men (Ajala, 2017), hence women ownership of land is likely to be viewed as a contestation of power.

When we control for ethnicity, except for land ownership status, all the above identified factors retained their statistical significance. In other words, the relationship between domestic violence and the list of identified factors persist even when we controlled for variation in culture, indicating the robustness of predictors of domestic violence against women in Nigeria.

We investigate the relationship between domestic violence and pregnancy outcomes, such as termination of pregnancy and discover that women that experience domestic violence is more likely to terminate their pregnancies. This finding is like the outcome of a study in India where physically abused women were discovered to be almost twice as likely to experience foetal losses (Jejeeboy, 1998). The pathway through which domestic violence influences the decision to terminate pregnancy can be explaining in terms of the psychological or financial preparedness of women experiencing domestic violence to care for a child. Women may consider a chaotic marriage marred by domestic violence as an unhealthy environment for raising children. Also, our definition of domestic violence includes sexual assault which is likely to prevent the use of contraceptives and this often result in unintended pregnancies. Women may choose to terminate such unintended pregnancies out of fear that the partner/husband may abuse/neglect the child. Hence, screening for domestic violence during antenatal care visits will be a vital intervention point to reduce the prevalence of terminated pregnancies and consequently, improve maternal health. This will involve increasing awareness of domestic violence among doctors, nurses, mid-wives and other health practitioners engaged in the provision of antenatal care. It is important that medical professionals be able to identify domestic violence unambiguously and decide on the appropriate care for pregnant women. That is, creating support network for pregnant women experiencing domestic violence will be crucial in improving both maternal and child health.

These study findings are subject to several limitations. First, it is a cross-sectional design; hence establishing causality will require robust econometric techniques. However, our approach to analysing domestic violence is within the framework of intrahousehold bargaining power dynamics. This approach will broaden the discussion on the associations between domestic violence and its identified predictors. Second, there is the issue of reporting bias. The information on domestic violence was based on self-reported data provided by the women and this introduces misclassification bias. However, since the burden of domestic violence falls more on the woman, being the source of information on domestic violence, we consider the self-report data to be a rough reflection of the actual experience of women.

**Conclusion**

In this study, we identify the determinants of domestic violence in Nigeria within the context of marriage using the DHS data. We conclude that women that are poor, with low levels of education, reside in rural areas, having husbands who drink, and own lands are likely to experience domestic violence. Lockdowns could influence the means of likelihood, educational outcomes, social capital, and mental health. Households are likely to be poorer with reduced schooling attendance for children. It effects on mental health may influence the level of alcohol use for husbands. An implication of our finding is that lockdowns may impoverish households and increase the odds of alcohol abuse by husbands with consequences for domestic violence and maternal health. In the long run, it will affect school attendance disproportionately by gender for children. A poorer educational outcome for female is likely to ensue potentially due to lockdown and this may affect the odds of exposure to domestic violence. Additionally, our findings suggest that with increasing lockdowns, maternal health is likely to be affected. Our results indicate that women that have experienced domestic violence are more likely to terminate pregnancies compared to women with no experience of domestic violence. In general, our findings suggest the importance of understanding domestic violence in the context of the dynamics of marriage as defined by cultural structures and the strategies adopted by couples for their survival.

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**Table 1.**
**Summary Statistics (1)**

| **Variables** | **Domestic Violence** | | **P-value** |
|---|---|---|---|
| | No | Yes | |
| Eligible Married Women (8,910) | | | |
| Emotional Violence (2,688) | | | |
| Physical Violence (723) | | | |
| Sexual (611) | | | |
| *Age* | | | |
| 15-25yrs | 1,574(28.82) | 773(26.78) | |
| 26-35yrs | 2,272(41.60) | 1,264(43.78) | |
| 36-49yrs | 1,616(29.59) | 850(29.44) | |
| | | | 0.084 |
| *Education* | | | |
| No | 2055(37.62) | 1086(37.62) | |
| Primary | 865(15.84) | 560(19.4) | |
| Secondary | 1901(34.8) | 1050(36.37) | |
| Higher | 641(11.74) | 191(6.62) | |
| | | | <0.001 |
| *Education (Husband)* | | | |
| No | 1603(29.68) | 796(27.95) | |
| Primary | 761(14.09) | 509(17.87) | |
| Secondary | 2031(37.6) | 1190(41.78 | |
| Higher | 1006(18.63) | 353(12.39) | |
| | | | <0.001 |
| *Employment* | | | |
| No | 1684(30.83) | 710(24.59) | |
| Yes | 3778(69.17) | 2177(75.41) | |
| | | | <0.001 |
| *Wealth Index* | | | |
| Poorest | 1026(18.78) | 619(21.44) | |
| Poorer | 1024(18.75) | 628(21.75) | |
| Middle | 1099(20.12) | 676(23.42) | |
| Richer | 1134(20.76) | 578(20.02) | |
| Richest | 1179(21.59) | 386(13.37) | |
| | | | <0.001 |

## Summary Statistics (2)

| Variables | Domestic Violence | | P-Value |
|---|---|---|---|
| | Yes | No | |
| *Locality* | | | |
| Rural | 3183(58.28) | 1853(64.18) | |
| Urban | 2279(41.72) | 1034(35.82) | |
| | | | <0.001 |
| *Region* | | | |
| NC | 857(15.69) | 661(22.9) | |
| NE | 738(13.51) | 681(23.59) | |
| NW | 1489(27.26) | 460(15.93) | |
| SE | 629(11.52) | 433(15) | |
| SS | 568(10.4) | 404(13.99) | |
| SW | 1181(21.62) | 248(8.59) | |
| | | | <0.001 |
| *Religion* | | | |
| Islam | 2935(53.96) | 1268(43.95) | |
| Other | 2504(46.04) | 1617(56.05) | |
| | | | <0.001 |
| *Last Intercourse* | | | |
| One Week | 3472(63.57) | 1767(61.21) | |
| Two Weeks | 507(9.28) | 283(9.8) | |
| Three Weeks | 177(3.24) | 93(3.22) | |
| One Month Above | 1306(23.91) | 744(25.77) | |
| | | | 0.181 |
| *Alcohol (Husband)* | | | |
| No | 4509(82.55) | 1,824(63.18) | |
| Yes | 953 (17.45) | 1063(36.82) | |
| | | | <0.001 |
| *Employ (Husband)* | | | |
| Unemployed | 201(3.71) | 50(2) | |
| Employed | 3346(61.72) | 1589(55.29) | |
| Agric-Employ | 1874(34.57) | 1235(42.97) | |
| | | | <0.001 |

## Summary Statistics (3)

| Variables | Domestics | | P-Value |
|---|---|---|---|
| | Yes | No | |
| *Age (Husband)* | | | |
| 15-35 years | 2001(36.63) | 1053(36.47) | |
| 36-55years | 2879(52.71) | 1558(53.97) | |
| 56-75years | 566(10.36) | 269(9.32) | |
| 76-95years | 16(0.29) | 7(0.24) | |
| | | | 0.422 |
| Land Ownership | | | |
| No | 4691(85.88) | 2306(79.88) | |
| Yes | 771(14.12) | 581(20.12) | |
| | | | <0.001 |

**Table 2:** Factors of Domestic Violence in Nigeria among currently Married Women.

| Variables | (1)<br>Coeff | (2)<br>OR | (3)<br>95% CI |
|---|---|---|---|
| Poverty | -0.194*** | 0.824*** | (0.726 - 0.935) |
| | (0.489) | | |
| Alcohol | 1.015*** | 2.759*** | (2.440 - 3.119) |
| | (0.428) | | |
| Employ (Woman) | 0.147** | 1.159** | (1.034 - 1.299) |
| | (0.452) | | |
| Locality | -0.161*** | 0.851*** | (0.760 - 0.953) |
| | (0.489) | | |
| *Education* | | | |
| No Education | Ref | Ref | Ref |
| | (-) | (-) | (-) |
| Primary | -0.0423 | 0.959 | (0.823 - 1.116) |
| | (0.376) | | |
| Secondary | -0.139* | 0.871* | (0.747 - 1.015) |
| | (0.478) | | |
| Higher | -0.577*** | 0.561*** | (0.450 - 0.701) |
| | (0.299) | | |
| Num_Child | 0.212*** | 1.236*** | (1.117 - 1.367) |
| | (0.547) | | |
| *Age* | | | |
| 15-25 years | Ref | Ref | Ref |
| | (-) | (-) | (-) |
| 26-35 years | -0.0259 | 0.974 | (0.859 - 1.105) |
| | (0.494) | | |
| 36-49 years | -0.221*** | 0.802*** | (0.690 - 0.931) |
| | (0.456) | | |
| *Employ (Husband)* | | | |
| Unemployed | Ref | Ref | Ref |
| | (-) | (-) | (-) |
| Employed | 0.588*** | 1.800*** | (1.299 - 2.493) |
| | (0.491) | | |
| Agric employed | 0.729*** | 2.073*** | (1.494 - 2.875) |
| | (0.484) | | |
| Land Own | 0.186*** | 1.204*** | (1.058 - 1.370) |
| | (0.368) | | |
| Religion | 0.124* | 1.132* | (0.994 - 1.290) |
| | (0.500) | | |
| Constant | -1.621*** | 0.198*** | (0.141 - 0.278) |
| Observations | 8,270 | 8,270 | |

sd in parentheses for coefficients
*** p<0.01, ** p<0.05, * p<0.1

**Table 3:** Factors of Domestic Violence controlling for Ethnicity

| | (1) | (2) | (3) |
|---|---|---|---|
| Variables | Coeff | OR | 95% CI |
| Poverty | -0.147** | 0.864** | (0.759 - 0.983) |
| | (0.489) | | |
| Alcohol | 1.024*** | 2.785*** | (2.452 - 3.163) |
| | (0.428) | | |
| Employ (Women) | 0.227*** | 1.255*** | (1.116 - 1.411) |
| | (0.452) | | |
| Locality | -0.0122 | 0.988 | (0.878 - 1.112) |
| | (0.489) | | |
| *Education* | | | |
| No Education | Ref | Ref | Ref |
| | (-) | (-) | (-) |
| Primary | -0.00536 | 0.995 | (0.850 - 1.164) |
| | (0.376) | | |
| Secondary | -0.0651 | 0.937 | (0.798 - 1.100) |
| | (0.478) | | |
| Higher | -0.532*** | 0.588*** | (0.468 - 0.738) |
| | (0.299) | | |
| Num_Child | 0.195*** | 1.215*** | (1.097 - 1.346) |
| | (0.547) | | |
| *Age* | | | |
| 15-25 years | Ref | Ref | Ref |
| | (-) | (-) | (-) |
| 26-35 years | -0.000662 | 0.999 | (0.880 - 1.135) |
| | (0.494) | | |
| 36-49 years | -0.155** | 0.857** | (0.735 - 0.998) |
| | (0.456) | | |
| *Employ (Husband)* | | | |
| Unemployed | Ref | Ref | Ref |
| | (-) | (-) | (-) |
| Employed | 0.637*** | 1.890*** | (1.361 - 2.627) |
| | (0.491) | | |
| Agric Employed | 0.695*** | 2.004*** | (1.439 - 2.791) |
| | (0.484) | | |
| Land_Own | 0.168** | 1.183** | (1.034 - 1.352) |
| | (0.368) | | |
| Religion | 0.0163 | 1.016 | (0.867 - 1.191) |
| | (0.500) | | |
| *Ethnicity* | | | |
| Others | Ref | Ref | Ref |
| | (-) | (-) | (-) |
| Ekoi | -0.613* | 0.542* | (0.286 - 1.027) |
| | (0.0760) | | |
| Fulani | 0.124 | 1.132 | (0.915 - 1.400) |
| | (0.263) | | |
| Hausa | -0.519*** | 0.595*** | (0.505 - 0.702) |
| | (0.430) | | |
| Ibibio | -0.272 | 0.762 | (0.528 - 1.097) |
| | (0.131) | | |
| Igala | 0.352 | 1.421 | (0.903 - 2.237) |
| | (0.103) | | |
| Igbo | -0.519*** | 0.595*** | (0.502 - 0.705) |
| | (0.363) | | |
| Ijaw/Izon | -0.273* | 0.761* | (0.566 - 1.025) |
| | (0.163) | | |
| Kanuri/Beriberi | -0.594*** | 0.552*** | (0.382 - 0.798) |
| | (0.146) | | |
| Tiv | -0.150 | 0.860 | (0.633 - 1.170) |
| | (0.156) | | |
| Yoruba | -0.990*** | 0.372*** | (0.312 - 0.443) |
| | (0.361) | | |
| Constant | -1.412*** | 0.244*** | (0.168 - 0.354) |
| Observations | 8,262 | 8,262 | |

sd in parentheses for coefficients
*** p<0.01, ** p<0.05, * p<0.1

**Table 4:** Domestic Violence and Terminated Pregnancies in Nigeria

| | (1) | (2) | (3) |
|---|---|---|---|
| Variables | Coeff (sd) | OR | 95% CI |
| Violence | 0.225*** | 1.252*** | (1.105 - 1.418) |
| | (0.476) | | |
| Health Autonomy | 0.359*** | 1.432*** | (1.203 - 1.704) |
| | (0.450) | | |
| *Education* | | | |
| No Education | Ref | Ref | Ref |
| | (-) | (-) | (-) |
| Primary | -0.0600 | 0.942 | (0.785 - 1.129) |
| | (0.376) | | |
| Secondary | -0.0315 | 0.969 | (0.829 - 1.132) |
| | (0.478) | | |
| Higher | 0.195* | 1.215* | (0.977 - 1.512) |
| | (0.300) | | |
| *Age* | | | |
| 15-25yrs | Ref | Ref | Ref |
| | (-) | (-) | (-) |
| 26-35yrs | 0.456*** | 1.577*** | (1.324 - 1.879) |
| | (0.494) | | |
| 36-49yrs | 0.583*** | 1.792*** | (1.478 - 2.173) |
| | (0.456) | | |
| Employment | -0.153* | 0.858* | (0.727 - 1.012) |
| | (0.452) | | |
| Parity | | | |
| No Child | Ref | Ref | Ref |
| | (-) | (-) | (-) |
| Parity1 | -0.227 | 0.797 | (0.585 - 1.087) |
| | (0.346) | | |
| Parity2 | -0.312** | 0.732** | (0.550 - 0.974) |
| | (0.398) | | |
| Locality | 0.0395 | 1.040 | (0.911 - 1.188) |
| | (0.489) | | |
| Under-five | | | |
| No Child | Ref | Ref | Ref |
| | (-) | (-) | (-) |
| Four & below | -0.251*** | 0.778*** | (0.660 - 0.917) |
| | (0.397) | | |
| Five -Nine | 0.0720 | 1.075 | (0.635 - 1.819) |
| | (0.111) | | |
| Constant | -1.853*** | 0.157*** | (0.120 - 0.204) |
| Observations | 8,331 | 8,331 | |

sd in parentheses for coefficients
*** p<0.01, ** p<0.05, * p<0.1