







BMJ Open Physical violence during pregnancy in sub-Saharan Africa: why it matters and who are most susceptible?

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ABSTRACT

Objective The study assessed the prevalence of physical violence against pregnant women and its associated factors in sub-Saharan Africa (SSA).

Design We analysed cross-sectional data of 108971 women in sexual unions from the most recent Demographic and Health Surveys of 26 countries in SSA. The predictors of physical violence were examined using a multilevel binary logistic regression. All the results were presented as adjusted odds ratios (aORs) with their corresponding 95% confidence intervals (CIs).

Setting Twenty-six countries in SSA.

Participants 108971 women who had ever been pregnant.

Outcome measure Physical violence during pregnancy.

Results Physical violence was identified in 6.0% of pregnant women in SSA. The highest prevalence (14.0%) was reported in South Africa, while Burkina Faso recorded the lowest (2.1%). Women who had primary (aOR=1.26, 95% CI=1.15, 1.38) and secondary education (aOR=1.15, 95% CI=1.01, 1.32); those who were cohabiting (aOR=1.21, 95% CI=1.11, 1.32); those who were working (aOR=1.17, 95% CI=1.08, 1.28); and those whose partners had primary (aOR=1.15, 95% CI=1.04, 1.28) and secondary education (aOR=1.14, 95% CI=1.01, 1.28) were more likely to experience physical violence during pregnancy compared with those who had no formal education; those who were married; those who were not working, and those whose partners had no formal education, respectively. Moreover, women whose partners consumed alcohol (aOR=2.37, 95% CI=2.20, 2.56); those who had parity of four or more (aOR=2.06, 95% CI=1.57, 2.72); and those who perceived intimate partner violence (IPV) as a culturally accepted norm (aOR=1.55, 95% CI=1.44, 1.67) had higher odds of experiencing physical violence during pregnancy compared to those whose partners did not consume alcohol, those with parity zero, and those who did not perceive IPV as culturally accepted, respectively. On the contrary, women who were aged 35-39, those who were of the richest wealth index, and those in rural areas had reduced odds of experiencing physical violence during pregnancy.

Conclusion Based on the findings, community leaders are encouraged to liaise with law enforcement agencies to strictly enforce laws on gender-based violence by prosecuting perpetrators of IPV against pregnant women as a deterrent. Also, intensifying education on what

STRENGTHS AND LIMITATIONS OF THIS STUDY

- ⇒ The study's main strength was the use of recent nationally representative datasets of 26 countries.
- ⇒ The sample size used for the study also makes it possible to generalise the findings to pregnant women in the selected countries.
- ⇒ In ensuring the validity and reliability of the findings, rigorous statistical tools were used.
- ⇒ The cross-sectional nature of the study makes it impossible to draw causal inferences.
- ⇒ The sensitive nature of the questions related to physical violence might have caused respondents to under-report their experiences.
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constitutes IPV and the potential consequences on the health of pregnant women, their children, and their families will be laudable. Improving the socioeconomic status of women may also help to eliminate IPV perpetration against women at their pregnancy stage.

BACKGROUND

Intimate partner violence (IPV) remains a major concern of public health interest globally.¹⁻³ IPV is defined as any act that causes physical, sexual, emotional, or psychological harm to a partner or an ex-partner.^{4,5} Over the years, IPV has been identified as gender-based violence that has been observed across differences in race, nationality, class, religion, or beliefs.^{6,7} In 2021, the World Health Organization (WHO) projected that one in every three (30%) women in the world had experienced physical and/or sexual IPV or non-partner sexual violence at some point in their lives.⁸

Generally, IPV against women has negative effects on their physical and mental health. For instance, a study conducted among



first-time Australian mothers indicated that women who were physically abused reported worse mental and physical health relative to those who did not experience any IPV. Specifically, women who experienced IPV were more likely to experience anxiety, depressive symptoms, back pain, poor functional health status, incontinence, and post-traumatic stress disorder.⁹

Although the negative impact of IPV on women in general is great, IPV against pregnant women has serious health consequences including pregnancy-related complications, preterm delivery, miscarriage, and physical injuries.^{7 10–13} IPV has also been found as a factor that significantly contributes to the rate of maternal mortality.^{14 15} Additionally, pregnant women who lose their unborn babies as an outcome of experiencing IPV may be mentally affected.^{16–18}

Despite the disturbing effects of IPV perpetration on the general health of women and at the stage of pregnancy where it is also profound, IPV among pregnant women continues to be high in sub-Saharan Africa (SSA).^{19–21} For example, a study by Alebel *et al*²¹ revealed that IPV among pregnant women was 26.1% in Ethiopia. Some women in SSA have previously experienced and continue to experience IPV as a culturally accepted norm in their society,^{22–24} which should not be the case. Some studies have revealed that the mother's educational status, place of residence, intimate partner's educational status, intimate partner's alcohol use, cultural acceptance of IPV in intimate relationships, being in a polygamous union, and employment status are factors associated with experience of IPV among pregnant and non-pregnant women.^{21 23–26} For example, a country-based study in Ethiopia revealed that pregnant women who were not educated were more likely to experience IPV.²¹ Therefore, gaining a better understanding of the personal, social, and cultural factors associated with the experience of IPV during pregnancy can guide prevention and intervention efforts in SSA.

However, there is a gap in literature on the pooled prevalence and factors associated with IPV among pregnant women using most recent nationally representative data in SSA. This has made it difficult in designing and implementing public health interventions that help to reduce violence against pregnant women in SSA, considering the sociocultural variations among sub-Saharan African countries. Therefore, this study examined the prevalence and factors associated with physical violence during pregnancy in 26 countries in SSA using nationally representative data from the recent Demographic and Health Surveys (DHSs). Findings from the study could help direct policies towards the reduction of violence against pregnant women in SSA, an objective which is in conformity with the United Nations' Sustainable Development Goal 5 of realising gender equality and empowering women and female children by 2030.²⁷

METHODS

Data source and study design

We analysed data from the DHS of 26 countries in SSA. The countries were chosen based on the availability of the domestic violence module data and survey years ranging from 2010 to 2020. The data from the women's file were combined. DHS is a global survey done in over 85 low-and middle-income countries.²⁸ The United States (US) Agency for International Development (USAID) funds DHS. Additional funding for the survey comes from the US Centers for Disease Control and Prevention, United Nations Population Fund, United Nations Children's Fund (UNICEF), Irish Embassy (Irish Aid), United Nations Development Programme, WHO, United Nations Women (UN Women), and the Global Alliance for Vaccine and Immunization. The DHS Programme, a USAID-funded initiative that offers support and technical help in the execution of DHSs in several countries, is where Inner City Fund provides technical assistance.²⁸ The DHS is conducted periodically, usually 5 years in the participating countries. However, resources and technical constraints tend to prolong the conduct of the survey. The data were collected from the respondents using structured questionnaires. Trained research assistants conducted the interview in the local dialect of the respective country. The respondents for the DHS were recruited using a two-stage cluster sampling procedure. The first step was to choose sample locations (clusters) made up of enumeration areas (EAs). A systematic sampling of households was performed in the second step. In each of the selected EAs, a household listing was conducted, and households to be included in the survey were chosen at random from the list. A prior study revealed a precise sampling technique and data collection procedure.²⁹ A total of 108 971 women who had ever been pregnant constituted the sample size (see [table 1](#)). The datasets can be accessed online at: <https://dhsprogram.com/data/available-datasets.cfm>.

Outcome variable

The study's outcome variable was physical violence during pregnancy. Women were asked if they had ever suffered physical violence during pregnancy (ie, during any of their pregnancies anyone had ever hit, slapped, kicked or done anything else to hurt them physically?) and, if yes, who had perpetrated the violence.³⁰ We focused on partners/husbands as perpetrators in this study. As a result, women who said their partners/husbands ever hit, slapped, kicked or did anything else to hurt them physically during pregnancy were considered to have experienced physical violence during pregnancy, while those who said no did not experience physical violence during pregnancy.

Explanatory variables

This study included a total of 15 explanatory variables. These variables were chosen based on their association with IPV and their availability in the DHS dataset.^{31–35}

Table 1 Description of study sample

| Survey country | Survey year | Weighted sample size | Weighted percentage |
|-------------------------------------|-------------|----------------------|---------------------|
| 1. Angola | 2015–2016 | 7441 | 6.8 |
| 2. Benin | 2017–2018 | 3918 | 3.6 |
| 3. Burkina Faso | 2010 | 9461 | 8.7 |
| 4. Burundi | 2016–2017 | 5970 | 5.5 |
| 5. Cameroon | 2018 | 3781 | 3.5 |
| 6. Chad | 2014–2015 | 6093 | 5.6 |
| 7. Comoros | 2012 | 1739 | 1.6 |
| 8. Cote d'Ivoire | 2011–2012 | 4060 | 3.7 |
| 9. Democratic Republic of the Congo | 2013–2014 | 4552 | 4.2 |
| 10. Ethiopia | 2016 | 4007 | 3.7 |
| 11. Gabon | 2012 | 2668 | 2.4 |
| 12. Gambia | 2019–2020 | 1475 | 1.3 |
| 13. Kenya | 2014 | 3512 | 3.2 |
| 14. Liberia | 2019–2020 | 1620 | 1.5 |
| 15. Malawi | 2015–2016 | 4406 | 4.0 |
| 16. Mali | 2018 | 3126 | 2.9 |
| 17. Namibia | 2013 | 824 | 0.8 |
| 18. Nigeria | 2018 | 8206 | 7.5 |
| 19. Rwanda | 2014–2015 | 1506 | 1.4 |
| 20. Sierra Leone | 2019 | 3462 | 3.2 |
| 21. South Africa | 2016 | 110 | 0.1 |
| 22. Tanzania | 2015–2016 | 6173 | 5.7 |
| 23. Togo | 2013–2014 | 4569 | 4.2 |
| 24. Uganda | 2016 | 5874 | 5.4 |
| 25. Zambia | 2018 | 5583 | 5.1 |
| 26. Zimbabwe | 2015 | 4835 | 4.4 |
| All countries | | 108971 | 100.0 |

Individual-level factors

The individual-level variables were maternal age, partners' age, educational level of respondents and their partners, marital status, current working status, frequency of listening to radio, frequency of watching television, frequency of reading newspaper/magazine, partners' alcohol consumption, and justification of IPV. We maintained the existing coding for the age of the respondent, educational level of the respondent and their partners, current working status and partners' alcohol consumption as found in the DHS dataset. In the DHS, the alcohol consumption variable was derived from the question 'Does (did) your (last) (husband/partner) drink alcohol?'. The response options were 0=no and 1=yes. The marital status of the respondents was recoded as 'married' and 'cohabiting'. Parity was recoded into '0', '1', '2', '3' and '4 or more'. Partner's age was recoded as '15–24', '25–34', '35–44' and '45 and above'. For the frequency of

listening to radio, frequency of watching television and frequency of reading newspaper/magazine, respondents who answered 'not all' and 'less than once a week' were maintained and used in the analysis, whereas those who selected 'at least once a week' and 'almost every day' were classified as 'at least once a week'. For justification of IPV, each respondent was asked if they justified wife beating by a partner if a woman burns food, argues with the partner, goes out without telling the partner, neglects the children and refuses to have sexual contact with the partner. The response options for all five items were 'no', 'yes' and 'don't know'. The response options 'no' or 'don't know' were recoded as 'no', but the option 'yes' was maintained. The derived response option 'no' in all the five items was classified as 'not justify IPV', while the option 'yes' in any of the five items was considered as 'justifying IPV'.

Contextual-level factors

Wealth index, place of residence, and geographical subregions were the contextual-level variables. We maintained the original coding of wealth index and place of residence as was done in the DHS datasets. Wealth index was used as a proxy measure of socioeconomic status. It was assessed using component rankings derived from principal component analysis on the ownership of family goods, such as access to drinking water, kind of toilet, type of cooking fuel, and possession of a television and refrigerator. On the wealth index, households are divided into five categories based on individual rankings: poorest, poorer, middle, richer and richest. The study's 26 countries were divided into geographical subregions based on their location within the African continent and used as a covariate in the analysis. The subregions are classified as 'Central', 'Eastern', 'Western' and 'Southern' Africa.

Statistical analyses

Stata software V.16.0 (Stata Corporation, College Station, Texas, USA) was used to analyse the data. First, a spatial map was used to show the prevalence of physical violence during pregnancy. The relationship between the explanatory variables and physical violence during pregnancy was examined using a Pearson χ^2 test of independence. We used the best selection method by employing the Stata command "gvselect" to select the best set of variables for the regression model. Also, we controlled for the geographical sub-region variable in the regression analysis. Later, we used a four-model multilevel binary logistic regression to examine the relationship between the explanatory variables and physical violence during pregnancy. The clustering of the primary sample units were shown to be responsible for the variance in IPV in model 0. Individual-level characteristics were incorporated into model I. The contextual-level variables were included in model II. Finally, model III was fitted to include all explanatory variables. In fitting the four models, we used the Stata command 'melogit'. The analysis also included Akaike's Information Criterion tests to compare the models and to check for the fitness of the models. The

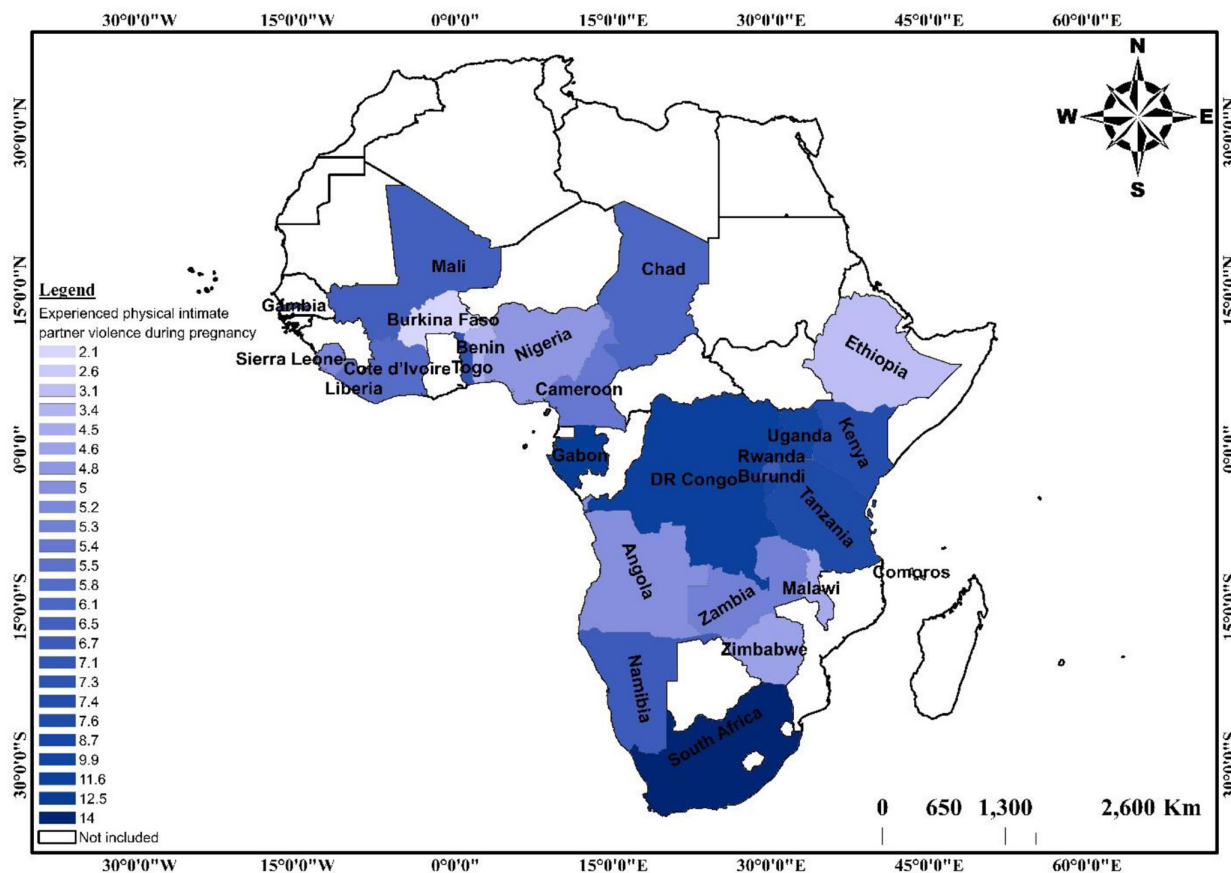


Figure 1 Prevalence of physical violence during pregnancy in sub-Saharan Africa

results of the multilevel binary logistic regression were given as adjusted odds ratios (aORs) with a 95% confidence interval (CI). To improve the generalisability of our findings, we weighted all the analyses to compensate for oversampling and undersampling, including the complicated survey design. In writing this work, we followed the Strengthening Reporting of Observational Studies in Epidemiology reporting criteria (online supplemental table 1).³⁶

Patient and public involvement

Patients and the public were not involved in the design and conduct of this research.

RESULTS

Prevalence of physical violence during pregnancy among women in sub-Saharan Africa

Figure 1 presents the prevalence of physical violence among women during pregnancy in SSA. The prevalence of physical violence during pregnancy in SSA was 6.0%. The highest prevalence was reported in South Africa (14.0%), whereas the lowest prevalence was recorded in Burkina Faso (2.1%).

Distribution of physical violence during pregnancy across the sociodemographic characteristics of women in sub-Saharan Africa

Table 2 presents the associations between the explanatory variables and physical violence during pregnancy in SSA. The study found that maternal age, maternal educational level, marital status, current working status, exposure to newspaper/magazine, exposure to radio, exposure to television, partner's age, partner's educational level, partner's alcohol consumption, IPV justification, parity, wealth index, and place of residence were significantly associated with physical violence among pregnant women in SSA. However, the results from the best set of variables considered for the regression analysis were maternal age, maternal educational level, marital status, current working status, partner's age, partner's educational level, partner's alcohol consumption, IPV justification, parity, wealth index, and place of residence.

Predictors of physical violence during pregnancy in sub-Saharan Africa

Women who had primary (aOR=1.26, 95% CI=1.15, 1.38) and secondary education (aOR=1.15, 95% CI=1.01, 1.32); those who were cohabiting (aOR=1.21, 95% CI=1.11, 1.32); those who were working (aOR=1.17, 95% CI=1.08, 1.28); and those whose partners had primary (aOR=1.15, 95% CI=1.04, 1.28) and secondary education (aOR=1.14, 95% CI=1.01, 1.28) were more likely to experience

Table 2 Distribution of physical violence during pregnancy across the sociodemographic characteristics of women in sub-Saharan Africa

| Variable | Weighted N | Weighted % | Experienced physical violence during pregnancy | P- value* |
|--|------------|------------|--|-----------|
| | | | Yes (%) | |
| Maternal age (years) | | | | 0.015 |
| 15–19 | 5850 | 5.4 | 6.7 | |
| 20–24 | 18542 | 17.0 | 6.4 | |
| 25–29 | 23536 | 21.6 | 6.2 | |
| 30–34 | 21119 | 19.4 | 6.3 | |
| 35–39 | 17684 | 16.2 | 5.4 | |
| 40–44 | 12770 | 11.7 | 5.6 | |
| 45–49 | 9470 | 8.7 | 5.5 | |
| Maternal educational level | | | | <0.001 |
| No education | 42506 | 39.0 | 5.1 | |
| Primary | 36642 | 33.6 | 7.6 | |
| Secondary | 25460 | 23.4 | 5.8 | |
| Higher | 4363 | 4.0 | 2.7 | |
| Marital status | | | | <0.001 |
| Married | 85750 | 78.7 | 5.5 | |
| Cohabiting | 23221 | 21.3 | 8.0 | |
| Current working status | | | | <0.001 |
| No | 33757 | 31.0 | 5.2 | |
| Yes | 75214 | 69.0 | 6.4 | |
| Frequency of listening to radio | | | | <0.001 |
| Not at all | 48122 | 44.2 | 6.4 | |
| Less than once a week | 20226 | 18.5 | 5.8 | |
| At least once a week | 40623 | 37.3 | 5.7 | |
| Frequency of watching television | | | | 0.004 |
| Not at all | 67327 | 61.8 | 6.3 | |
| Less than once a week | 12601 | 11.6 | 5.8 | |
| At least once a week | 29043 | 26.6 | 5.5 | |
| Frequency of reading newspaper or magazine | | | | 0.035 |
| Not at all | 90838 | 83.4 | 6.0 | |
| Less than once a week | 10147 | 9.3 | 6.5 | |
| At least once a week | 7986 | 7.3 | 6.1 | |
| Partner's age (years) | | | | <0.001 |
| 15–24 | 5904 | 5.4 | 6.9 | |
| 25–34 | 33393 | 30.6 | 6.5 | |
| 35–44 | 36015 | 33.1 | 6.2 | |
| 45+ | 33659 | 30.9 | 5.2 | |
| Partner's educational level | | | | <0.001 |
| No education | 34341 | 31.5 | 4.9 | |
| Primary | 33165 | 30.4 | 7.4 | |
| Secondary | 32782 | 30.1 | 6.5 | |
| Higher | 8683 | 8.0 | 3.5 | |
| Partner's alcohol consumption | | | | <0.001 |

Continued



Table 2 Continued

| Variable | Weighted N | Weighted % | Experienced physical violence during pregnancy | P- value* |
|--------------------|------------|------------|--|-----------|
| No | 70 824 | 65.0 | 4.0 | |
| Yes | 38 147 | 35.0 | 9.8 | |
| IPV justification | | | | <0.001 |
| Not justified | 57 941 | 53.2 | 4.7 | |
| Justified | 51 030 | 46.8 | 7.5 | |
| Parity | | | | <0.001 |
| Zero birth | 3089 | 2.8 | 5.0 | |
| One | 16 011 | 14.7 | 4.6 | |
| Two | 18 430 | 16.9 | 5.7 | |
| Three | 17 113 | 15.7 | 5.9 | |
| Four or more | 54 328 | 49.9 | 6.6 | |
| Wealth index | | | | <0.001 |
| Poorest | 21 224 | 19.5 | 6.7 | |
| Poorer | 22 304 | 20.5 | 7.2 | |
| Middle | 22 023 | 20.2 | 6.1 | |
| Richer | 21 952 | 20.1 | 5.9 | |
| Richest | 21 468 | 19.7 | 4.2 | |
| Place of residence | | | | 0.014 |
| Urban | 37 235 | 34.2 | 5.6 | |
| Rural | 71 736 | 65.8 | 6.2 | |

*P values are from X² test.

physical violence during pregnancy compared with those who had no education; those who were married; those who were not working, and those whose partners had no formal education, respectively. Moreover, women whose partners consumed alcohol (aOR=2.37, 95% CI=2.20, 2.56); those who had parity of four or more (aOR=2.06, 95% CI=1.57, 2.72); and those who perceived IPV as a culturally accepted norm (aOR=1.55, 95% CI=1.44, 1.67) had higher odds of experiencing physical violence during pregnancy than those whose partners did not consume alcohol; who had no parity and did not perceive IPV as a culturally accepted norm. On the contrary, women who were in 35–39 maternal age range (aOR=0.46, 95% CI=0.36, 0.58), those who were of the richest wealth index (aOR=0.72, 95% CI=0.61, 0.86), and those in rural areas (aOR=0.85, 95% CI=0.76, 0.95) had reduced odds of experiencing physical violence during pregnancy (table 3, model III).

DISCUSSION

Using nationally representative data from current DHSs, the study examined the prevalence of physical violence during pregnancy and its associated factors in 26 countries in SSA. Physical violence was identified in 6.0% of pregnant women in SSA. There were differences in prevalence across the countries studied. South Africa had the

highest prevalence (14.0%), while Burkina Faso had the lowest (2.1%). The findings compare and contrast with the findings of previous studies.^{37 38} The discrepancies in prevalence between the studies^{37 38} and the current study could be attributable to sample size, as the current study used a larger sample size. IPV has been found to be high among women in general in South Africa.³⁷ The low prevalence physical violence during pregnancy among women in Burkina Faso could be attributed to the societal perception of IPV as a normal practice. It could also be that Burkinabe women might have under-reported their experiences as a result of the sensitive nature of the questions and fear of being stigmatised by the interviewers to whom they are familiar with.

Physical violence during pregnancy was higher among women with at least primary level of education compared with those with no formal education. A finding that contradicts the observation of a previous study.²⁶ This finding also contradicts the role of education in the elimination and justification of IPV.³⁹ A possibility for this finding could be that educated women exert increased autonomy and tend to reject some sociocultural expectations (such as being submissive to their partners). Similarly, we found that pregnant women whose partners had at least primary education were more likely to experience physical violence compared with those whose partners were

Table 3 Mixed-effects analysis of predictors of physical violence during pregnancy in sub-Saharan Africa

| Variables | Model 0 | Model I Adjusted OR (95% CI) | Model II Adjusted OR (95% CI) | Model III Adjusted OR (95% CI) |
|-------------------------------|---------|---------------------------------|----------------------------------|--------------------------------------|
| Fixed-effect results | | | | |
| Maternal age (years) | | | | |
| 15–19 | | Reference category | | Reference category |
| 20–24 | | 0.76** (0.62, 0.92) | | 0.77** (0.63, 0.93) |
| 25–29 | | 0.59*** (0.48, 0.74) | | 0.61*** (0.49, 0.75) |
| 30–34 | | 0.53*** (0.43, 0.66) | | 0.55*** (0.44, 0.68) |
| 35–39 | | 0.45*** (0.35, 0.56) | | 0.46*** (0.36, 0.58) |
| 40–44 | | 0.46*** (0.36, 0.59) | | 0.47*** (0.37, 0.61) |
| 45–49 | | 0.46*** (0.35, 0.60) | | 0.47*** (0.36, 0.62) |
| Maternal educational level | | | | |
| No education | | Reference category | | Reference category |
| Primary | | 1.28*** (1.17, 1.40) | | 1.26*** (1.15, 1.38) |
| Secondary | | 1.15* (1.01, 1.30) | | 1.15* (1.01, 1.32) |
| Higher | | 0.85 (0.61, 1.19) | | 0.89 (0.63, 1.27) |
| Marital status | | | | |
| Married | | Reference category | | Reference category |
| Cohabiting | | 1.26*** (1.15, 1.37) | | 1.21*** (1.11, 1.32) |
| Current working status | | | | |
| No | | Reference category | | Reference category |
| Yes | | 1.15*** (1.06, 1.25) | | 1.17*** (1.08, 1.28) |
| Partner's educational level | | | | |
| No education | | Reference category | | Reference category |
| Primary | | 1.17** (1.06, 1.29) | | 1.15** (1.04, 1.28) |
| Secondary | | 1.14* (1.02, 1.29) | | 1.14* (1.01, 1.28) |
| Higher | | 0.83 (0.68, 1.01) | | 0.87 (0.71, 1.06) |
| Partner's age (years) | | | | |
| 15–24 | | Reference category | | Reference category |
| 25–34 | | 0.97 (0.81, 1.17) | | 0.99 (0.82, 1.19) |
| 35–44 | | 0.96 (0.79, 1.17) | | 0.99 (0.81, 1.20) |
| 45+ | | 0.85 (0.68, 1.06) | | 0.88 (0.71, 1.10) |
| Partner's alcohol consumption | | | | |
| No | | Reference category | | Reference category |
| Yes | | 2.41*** (2.24, 2.60) | | 2.37*** (2.20, 2.56) |
| Parity | | | | |
| Zero | | Reference category | | Reference category |
| One | | 0.99 (0.76, 1.30) | | 0.98 (0.75, 1.28) |
| Two | | 1.38* (1.05, 1.81) | | 1.34* (1.02, 1.77) |
| Three | | 1.59** (1.21, 2.10) | | 1.54** (1.17, 2.04) |
| Four or more | | 2.17*** (1.65, 2.86) | | 2.06*** (1.57, 2.72) |
| IPV justification | | | | |
| Not justified | | Reference category | | Reference category |
| Justified | | 1.57*** (1.46, 1.69) | | 1.55*** (1.44, 1.67) |

Continued



Table 3 Continued

| Variables | Model 0 | Model I Adjusted OR (95% CI) | Model II Adjusted OR (95% CI) | Model III Adjusted OR (95% CI) |
|---|-------------------|---------------------------------|----------------------------------|--------------------------------------|
| Wealth index | | | | |
| Poorest | | | Reference category | Reference category |
| Poorer | | | 1.06 (0.96, 1.17) | 1.04 (0.98, 1.20) |
| Middle | | | 0.88* (0.80, 0.97) | 0.93 (0.84, 1.03) |
| Richer | | | 0.80*** (0.71, 0.91) | 0.91 (0.81, 1.03) |
| Richest | | | 0.54*** (0.45, 0.63) | 0.72*** (0.61, 0.86) |
| Place of residence | | | | |
| Urban | | | Reference category | Reference category |
| Rural | | | 0.86** (0.77, 0.97) | 0.85** (0.76, 0.95) |
| Subregions | | | | |
| Southern | | | Reference category | Reference category |
| Eastern | | | 0.89 (0.67, 1.17) | 0.87 (0.65, 1.15) |
| Central | | | 0.99 (0.75, 1.30) | 0.87 (0.65, 1.17) |
| Western | | | 0.61*** (0.46, 0.81) | 0.79 (0.58, 1.06) |
| Random effects | | | | |
| Primary sampling unit variance (95% CI) | 0.12 (0.10, 0.15) | 0.12 (0.09, 0.15) | 0.12 (0.10, 0.16) | 0.12 (0.09, 0.15) |
| Intraclass correlation coefficient | 0.04 | 0.03 | 0.04 | 0.03 |
| Wald X ² | Reference | 1210.14*** | 185.01*** | 1231.92*** |
| Model fitness | | | | |
| Log-likelihood | -22525.11 | -21456.62 | -22314.81 | -21422.33 |
| Akaike's Information Criterion | 45 054.21 | 42 963.23 | 44 649.62 | 42 910.42 |
| Sample size | 108 971 | 108 971 | 108 971 | 108 971 |
| Number of clusters | 1594 | 1594 | 1594 | 1594 |
| Exponentiated coefficients; 95% CIs in brackets. *P<0.05, **p<0.01, ***p<0.001. IPV, intimate partner violence. | | | | |

not educated. Similar findings were found in a previous study.⁴⁰ However, the study contradicts the finding of a previous study.⁴¹ A plausible explanation for this finding could be the economic power exerted by educated men, which may predispose them to physically abuse their partners as a form of showing patriarchal power.⁴¹ Therefore, continuous education on the effects of IPV should be provided to both educated men and women to serve as a protective mechanism for IPV.

Akin to the observations of previous studies,^{35 40} the odds of experiencing physical violence during pregnancy was higher among cohabiting pregnant women than married women. Women who are cohabiting depend on their male intimate partners for their needs, making them less empowered and more prone to physical and sexual violence.⁴⁰ It could also be that there is greater

opportunity for the perpetration of physical violence when living together.

Physical violence during pregnancy was higher among women whose partners consumed alcohol than those whose partners did not consume alcohol. This discovery aligns with earlier research.^{35 42 43} This finding could be that the consumption of alcohol might have caused male spouses to neglect their family which may facilitate tensions in their marital or intimate relationships that may subsequently lead to physical, emotional or sexual violence against their spouses.^{35 42} Also, alcohol consumption may lead to reduced inhibitions, reduced functioning, and increased depressive symptoms which could increase the possibility of committing violence against pregnant women.⁴³ Some men also deliberately take alcohol to boost their desire to physically, emotionally, or sexually assault their spouses.^{42 43}

Similar to previous studies,^{41 42} pregnant women who had parity of four or more were more likely to experience physical violence than those with no births. This finding could be as a result of the additional burden that is placed on the couple amid high socioeconomic hardship and an increase in family size especially in sub-Saharan African countries where limited financial resources are endemic.⁴¹ When this happens, male spouses may be frustrated and assault their female spouses with the slight provocation whether physically, emotionally, or sexually.

Other results showed that pregnant women who justified IPV had higher tendency of experiencing physical violence than those who did not. From a sociocultural perspective, there is an accepted norm where some women believe that when they disrespect their male spouses or in-laws or do not provide their spouses with good food, they are inclined to accept being violence perpetrated against them.⁴⁴

Pregnant women who are in the 35–39 maternal age range were less likely to experience IPV compared with those aged 15–19 years, a finding that corroborates previous studies.^{35 45} Generally, older women are more likely to be autonomous than younger women, decreasing their probability of being physically or emotionally assaulted by their male spouses.^{35 45} Also, younger women may be more vulnerable and powerless compared with older women, making younger women more likely to be sexually abused.⁴⁶

Corroborating previous studies,^{40 47 48} the present study found that pregnant women who are of the richest wealth index were less likely to experience physical violence compared with those of the poorest wealth index. The negative relationship between wealth status of women and IPV experience suggests that women who are rich are more empowered to fight for their rights and that of other females compared with poor women.^{40 47}

The odds of experiencing physical violence during pregnancy were lower among women who lived in rural areas. This finding was confirmed by a previous study.³⁸ Our finding could be attributed to the relatively higher standard of living in urban areas which may trigger male spouses to be violent as a result of the additional economic burden.^{38 49} Another possible reason could be associated with the lower awareness of the phenomenon and their socioeconomic standing of rural dwellers, making them relatively receptive to abusive behaviours.³⁸

Strengths and limitations

The study's main strength was the use of nationally representative datasets of 26 countries. The sample size used for the study also makes it possible to generalise the findings to pregnant women in the selected countries. In ensuring the validity and reliability of the findings, rigorous statistical tools were used. Moreover, experienced field assistants were engaged to solicit respondents' opinions using carefully structured

questionnaires, which reflects a higher response rate. However, the study had some limitations. The cross-sectional nature of the study design limits causal inferences. Also, the sensitive nature of the questions might have caused respondents to either under- or over-report their opinions. Since respondents self-reported, the findings might have been influenced by recall or social desirability biases.

CONCLUSION

A 6.0% prevalence of physical violence during pregnancy was obtained in this study. The study also found country-specific variations in the prevalence of IPV during pregnancy. Predictors of IPV during pregnancy in the selected countries in SSA have also been highlighted. Hence, IPV preventive programmes could focus on those factors. Based of the findings, community leaders are encouraged to liaise with law enforcement agencies to strictly enforce the laws on gender-based violence by prosecuting perpetrators of IPV against pregnant women as a deterrent. Also, intensifying education on what constitutes IPV and the potential consequences on the health of pregnant women, their children and their families would be laudable. Improving the socioeconomic status of women may also help to eliminate IPV perpetration against women during pregnancy.

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