Original Manuscript

HEALTH EDUCATION & BEHAVIOR

Health Education & Behavior
1–12

DOI: 10.1177/10901981231152425
journals.sagepub.com/home/heb
SAGE

Intimate Partner Violence and Health Outcomes Among Women Living With HIV/AIDS in Ghana: A Cross-Sectional Study

Eric Y. Tenkorang, PhD[1], Adobea Y. Owusu, PhD[2], Mariama Zaami, PhD[2], Susan Langmagne, PhD[2], and Sylvia Gyan, PhD[2]

Abstract

Intimate partner violence (IPV) is known to have negative health consequences for victims. For women living with HIV/AIDS, whose health may be compromised, exposure to IPV can be devastating. Yet few (if any) studies have explored the health implications of exposure to IPV among HIV-positive women. We begin to fill this gap by examining the effects of various dimensions of IPV (physical, sexual, psychological/emotional, and economic) on the cardiovascular, psychosocial, and sexual reproductive health outcomes of HIV-positive women in Ghana. Data were collected from a cross-section of 538 HIV-positive women aged 18 years and older in the Lower Manya Krobo District in the Eastern Region. We used logit models to explore relationships between IPV and health. The findings indicate high prevalence of IPV in our sample: physical violence (61%), sexual violence (50.9%), emotional/psychological violence (79.6%), and economic violence (66.8%). Generally, participants with experiences of IPV reported cardiovascular health problems, unwanted pregnancies and pregnancy loss, and poor psychosocial health. Our findings suggest the importance of screening for IPV as part of HIV care in Ghana.

Keywords

IPV, HIV/AIDS, women, Ghana, health

IPV against women is a pervasive and significant public health problem. Although a global phenomenon, IPV against women is more pronounced in sub-Saharan Africa, where the lifetime prevalence has been estimated at 36.6% of the female population, much higher than North America (29.8%) or Europe (25.4%) (World Health Organization [WHO], 2013). In Ghana, about one third of women in intimate relationships have experienced physical and/or sexual violence (Bowman, 2003; Tenkorang et al., 2013). IPV is particularly high among women living with HIV/AIDS. Evidence from the United States and Canada shows IPV rates are higher for HIV-positive persons than the general population (Campbell et al., 2008; Gielen et al., 2000). While data on the prevalence of IPV among HIV-positive women in sub-Saharan Africa are scant, anecdotal evidence from Tanzania, Swaziland, and Uganda suggests similar trends. Data on Ghana are particularly scant (Mulrenan et al., 2015; Osinde et al., 2011). We suggest the dearth of scholarship can be partially explained by the fact that previous work in this area has tended to use IPV as a risk factor for HIV transmission rather than an outcome or consequence of HIV infection (Campbell et al., 2008). This omission in previous research in sub-Saharan Africa has limited our understanding of IPV risks among HIV-positive women—a group that is highly marginalized and susceptible to IPV risks. As a result, fewer initiatives have sought to meet the needs of HIV-positive women who are also victims of IPV in sub-Saharan Africa generally, and in Ghana specifically.

The relationship between IPV and HIV infection is reciprocal and complex. First, victims of IPV are known to have increased risk of HIV infection (Campbell et al., 2008; Osinde et al., 2011; Silverman et al., 2008; Van der Straten et al., 1998). There is a direct relationship between sexual violence and HIV infection, as victims may be exposed to cuts and lacerations during sexual intercourse (Van der Straten et al., 1998). There is also an indirect relationship; victims of IPV are arguably more likely to engage in risky sexual behaviors, with implications for HIV transmission (Maman et al., 2000;

[1]Memorial University of Newfoundland, St. John's, Newfoundland, Canada
[2]University of Ghana, Accra, Ghana

Corresponding Author:
Eric Y. Tenkorang, Department of Sociology, Memorial University of Newfoundland, St. John's, Newfoundland, Canada A1C 5S7.
Email: ytenko@yahoo.com

Van der Straten et al., 1998). Second, upon diagnosis and disclosure of the HIV status to their sexual partners, HIV-positive women may have an increased risk of experiencing IPV. Chappell (2015) and Hale and Vazquez (2011) argued that once diagnosed with HIV, women often face new situations involving violence; male partners' notification may create conditions for blame, with high risks of emotional and physical violence (Chappell, 2015; Colombini et al., 2016; Mulrenan et al., 2015).

Studies around the world have found IPV has deleterious health consequences for victims. Women with experiences of IPV are significantly more likely to report negative physical, sexual, and psychosocial health outcomes (Campbell et al., 2008; Silverman et al., 2008; Silverman & Raj, 2014; Tenkorang, 2019). For women living with HIV/AIDS who are already vulnerable, the health impact of experiencing IPV may be particularly severe. Some evidence shows higher prevalence of mental health disorders among HIV-positive women with a history of intimate partner abuse than among those with no such history (Mitchell et al., 2016; Rose et al., 2010). Woollett and Hatcher (2016) identified IPV, HIV, and poor mental health as intersecting epidemics, with depression and post-traumatic stress disorder the most pervasive mental health consequences of IPV and HIV.

However, there is a paucity of research on the health consequences of IPV on HIV-positive women. Researchers have examined HIV-positive women's psychosocial/mental health, but paid limited attention to their physical and sexual reproductive health outcomes (see Mitchell et al., 2016; Woollett & Hatcher, 2016). Moreover, most studies have focused on pregnant women (see Lin et al., 2022; Yonga et al., 2022) and HIV-related health outcomes, including medication adherence and CD4 count (Schafer et al., 2012). This study is one of very few to comprehensively investigate the health consequences of IPV on HIV-positive women by focusing on their physical, sexual, and psychosocial health outcomes. To the best of our knowledge, it is the first in Ghana to examine these outcomes in a demographic group that remains vulnerable and highly marginalized.

Health Consequences of IPV Among HIV-Positive Women

Previous studies have established theoretical and empirical pathways between IPV and health outcomes among HIV-positive persons (Fiorentino et al., 2019; Schafer et al., 2012; Wetzel et al., 2021). However, in determining the health consequences of IPV, the majority of these studies have examined HIV infection as the outcome (Durevall & Lindskog, 2014; Nyamayemombe et al., 2010; Rigby & Johnson, 2017), focused on HIV-related outcomes of selected samples, mostly pregnant women (Hatcher et al., 2014; Lin et al., 2022; Wetzel et al., 2021; Yonga et al., 2022), or explored the health-related consequences of IPV in the general population (Campbell, 2002; McKelvie et al., 2021; Potter et al., 2021; Tenkorang, 2019).

We focused on HIV-positive women given their unique vulnerabilities. Living with HIV/AIDS can have negative physical and psychosocial health consequences, even before factoring in the additional problem of IPV. For instance, because persons living with HIV/AIDS have a compromised or suppressed immune system, they may be exposed to opportunistic infections that affect physical health outcomes; they are also more likely to live with cardiovascular diseases, including diabetes, hypertension, and stroke (Alonso et al., 2019; Stone et al., 2017; Yang et al., 2019). Similarly, women living with HIV are more likely to suffer depression, anxiety, and other mental health problems due to the stigma and discrimination associated with the virus (Hoare et al., 2021; Mekonen et al., 2021; Waldron et al., 2021).

Experiencing IPV adds a layer of vulnerability, given the long-term negative health consequences. IPV can manifest as different types, including physical, sexual, psychological/emotional, and economic. Campbell (2002) argued women who experience physical abuse are more likely than others to report physical injuries, bruises, and cuts that can lead to physical deformities and mobility problems. For women living with HIV, the risk of physical abuse is high and occurs mostly after they have disclosed their HIV status to their partners (Aloyce et al., 2021; Maman et al., 2000; Mulrenan et al., 2015). Status disclosure, while important, may lead to negative emotional responses from the partner and withdrawal that if not checked can degenerate into physical violence. Gielen et al. (2000) noted that physical abuse following HIV diagnosis appears to occur frequently and tends to be severe. In addition to causing immediate physical injury, this type of abuse can negatively affect the health of HIV-positive persons by altering the red blood cells and reducing the T-cell function (Brokaw et al., 2002).

Like physical abuse, sexual abuse can have significant health consequences for women who experience it. Sexual abuse is a known risk factor for HIV infection (Jewkes et al., 2006), but the abuse does not end post-infection and can continue for a long time. This means women with such experiences, including those living with HIV, may suffer severe sexual and reproductive health problems, such as reduced sexual desire, genital irritation, and other known gynecological problems (Campbell, 2002). In his study on IPV and sexual and reproductive health outcomes in Ghana, Tenkorang (2019) found women with experiences of sexual abuse were more likely to report unwanted pregnancies and pregnancy loss. Some studies show unwanted pregnancy is high among women living with HIV due to limited contraceptive use (Alene & Atalell, 2018; Jarolimova et al., 2018). Others report that although anti-retroviral treatment (ART) reduces negative birth outcomes among women living with HIV, even when ART is effective, the risks of miscarriage and stillbirth remain high (Schwartz et al., 2012). Sexual violence can undermine HIV-positive women's sexual agency and their ability to negotiate safer sex and related birth outcomes. Knowledge of a female partner's HIV status, especially in serodiscordant relationships, may be used by male partners to intimidate and

establish dominance in ways that can undermine the sexual expression and autonomy of female partners, with implications for their sexual health outcomes. Finally, the stigma and trauma accompanying sexual abuse may be sufficient to suppress the immune system of women whose bodies are already compromised by the AIDS virus.

Non-physical types of abuse, including psychological/emotional and economic abuse, can also have serious health consequences for women living with HIV. Following diagnosis, HIV-positive women have to deal with the psychological trauma and mental health effects of living with a disease that is heavily stigmatized in Ghana and Africa. But disclosure to male partners eliciting a negative reaction has the greatest psychological impact on women. Research shows emotional/psychological abuse often follows women's disclosure of their serostatus (Chilemba et al., 2014; Medley et al., 2009). Knowledge of the female partner's HIV status may lead to insults, guilt, intimidation, and blame, and the violence ensuing from these behaviors can exacerbate the negative psychosocial and mental health effects associated with diagnosis and disclosure. Previous studies have found that HIV-positive women who experience emotional abuse frequently developed anxiety disorders, post-traumatic stress disorder, and depression (Merrill et al., 2022; Zunner et al., 2015).

Another type of non-physical abuse is economic abuse. Economic abuse refers to behaviors that threaten an individual's economic security and financial self-sufficiency (Fawole, 2008; Sedziafa et al., 2017). While women can be perpetrators, they are mostly victims because of their socio-economic marginalization, especially in patriarchal cultures (Sedziafa et al., 2017; Tenkorang & Owusu, 2018). For women living with HIV who are too sick to work or discriminated against in the labor market due to their HIV status, dependence on male partners is inevitable, making economic abuse almost inescapable. Male partners can abuse female HIV-positive women by neglecting or abandoning household economic needs. They may extort, steal, and prevent female partners from engaging in productive economic activities, thus sabotaging their financial independence. At the moment, few studies (if any) have explored the effects of economic abuse on the health outcomes of women living with HIV/AIDS. While the health impact of economic abuse on Ghanaian women more generally has been demonstrated in a study by Tenkorang and Owusu (2018), to the best of our knowledge, this is the first study to examine the impact of IPV and economic abuse on the health outcomes of women in Ghana.

Data and Methods

Study Context

This study was conducted in the Lower Manya Krobo District in Ghana. This district constitutes one of the 26 administrative districts in the Eastern Region of Ghana. Its major economic activities are farming and fishing. The district covers approximately 304.4 km^2 of the total land area of 18,310 km^2 in the Eastern Region of Ghana (Ghana Statistical Service, 2014). The administrative capital of the district is Odumase; major towns include Atua, Agormanya, Nuaso, Akuse, and Kpong (Ghana Statistical Service, 2014). The district serves a population of approximately 90,000 residents in the catchment area (Addo-Atuah et al., 2012).

We chose this district as our study site for several reasons. First, HIV prevalence in the district has remained the highest in Ghana since 1986, when the first case of the virus was found. HIV prevalence was estimated at 13% in 1999, 4 times higher than the national average of 3% at the time. Although a recent national HIV sentinel survey indicates a reduction in prevalence to 11%, the district continues to lead in AIDS morbidity and mortality (see NACP, 2003; Owusu, 2020). The high HIV prevalence in the Lower Manya Krobo District has often been traced to high levels of poverty in the area and the migration of local women to neighboring countries, such as Cote D'Ivoire (known to have one of the highest rates of infection in West Africa), where they engage in commercial sexual activities. After becoming infected, they return to continue the sex trade in Ghana (Fobil & Soyiri, 2006). Second, our own IPV studies in the area indicate high prevalence and severe forms of violence compared to other parts of Ghana. We attribute this to patrilineal norms and entrenched patriarchal values among the indigenes in the area.

Data Collection and Sampling

Data were collected from a cross-section of 538 HIV-positive women aged 18 years and older in the Lower Manya Krobo District. A sample of respondents was drawn from two hospitals serving the District (Atua Government Hospital and St. Martins de Porres Catholic Hospital located in Agormanya). The hospitals were selected because they treat almost all HIV-positive persons in the District. Both hospitals were chosen by the Ghana Ministry of Health and the Family Health International as pilot "learning centres" for the provision of comprehensive HIV/AIDS-related services (Addo-Atuah et al., 2012; Ritzenthaler, 2005). HIV/AIDS services provided by the hospitals include voluntary counseling and testing (VCT), prevention of mother-to-child transmission, clinical care, and home-based care (Addo-Atuah et al., 2012; Ritzenthaler, 2005).

Study participants were selected from those who came for check-ups at Antiretroviral Treatment Centres of the Atua government hospital and the St. Martin de Porres hospital. An average of about 25 HIV-positive women show up for such services daily at each hospital. Each arrival is handed a unique code number. This method ensured a random selection of 16 participants for our study (eight for each hospital a day). The assignment of unique code numbers meant we were able to track all participants, so they were not included in the same process the next day and not used twice in the study. Data were collected in face-to-face interviews, and research

assistants (RAs) conducting the interviews confirmed all participants were HIV positive. All RAs had received COVID vaccinations, wore face masks, and observed social distancing protocols. All participants wore face masks and observed all COVID-19 protocols during interviews.

Recruitment of participants began in August 2021 and ended in December 2021 after receiving ethics clearance from the Interdisciplinary Committee on Ethics in Human Research (ICEHR) at Memorial University of Newfoundland (where the first author is affiliated) and the Ghana Health Service (GHS) operating under the Ministry of Health (MOH). The first two authors and six RAs participated in data collection. Training sessions were held for all RAs at the Institute of Statistical, Social and Economic Research (ISSER), University of Ghana (where the second author is affiliated). Given the sensitive nature of the topic, they were trained to ensure the safety and confidentiality of participants. Counseling services in-person and over the phone were provided for participants who needed these services before and after the interview process. RAs were native Krobos who had excellent knowledge of other Ghanaian languages and could speak and interact fluently. Data were collected in Krobo and English. Before data collection, questionnaires were pretested with some participants (constituting about 5% of the sample) and modified as needed. Individuals used in the pre-testing phase did not participate in the final study.

Measures

We used three measures of health, given our interest in examining the impact of IPV on health outcomes: cardiovascular health, sexual health, and psychosocial health. Cardiovascular health was measured with four variables; participants were asked if they had been diagnosed with non-gestational hypertension, heart attack, high blood cholesterol, and non-gestational diabetes. Those who answered in the affirmative to at least one variable had a cardiovascular health problem; otherwise, they did not. Thus, the derived cardiovascular health variable was dichotomous. Sexual health was measured with two binary variables; participants were asked if they had experienced an unwanted pregnancy or a pregnancy loss. Psychosocial health was measured with 11 variables for emotional/psychological health (see Table 1). A weighted summative index was extracted (Anderson-Rubin factor scores) after principal component analysis (PCA). Cronbach's alpha for this scale was .970. Positive values on the scale indicate poor psychosocial health, and negative values indicate better psychosocial health. We used four main variables to measure respondents' experiences with IPV: physical, sexual, psychological/emotional, and economic abuse. These latent binary variables were derived from several indicators measuring the lifetime experiences of IPV (see Table 1). These lifetime measures of IPV were adapted from the 2015 Ghana Family Life and Health Survey (GFLHS; Institute of Development Studies, Ghana Statistical Services and Associates, 2016). GFLHS uses locally adapted measures of violence from various sources: WHO's survey for the Study of Women's Health and Violence against Women, domestic violence modules from Demographic and Health Survey and Multiple Indicator Cluster Survey (MICS), and the 2007 Ghana Domestic Violence Act (Institute of Development Studies, Ghana Statistical Services and Associates, 2016).

A series of control variables measured the socio-economic and demographic characteristics of participants: educational background (*no education* = 0, *primary education* = 1, *secondary education* = 2, *postsecondary education* = 3); employment status (*not employed* = 0, *employed* = 1); monthly income (*no income* = 0, *less than 1,000 Ghana Cedis* = 1, *more than 1,000 Ghana Cedis* = 1); ethnicity (*Ga Adangbe* = 0, *Ewe* = 1, *Akan* = 2); currently married (*no* = 0, *yes* = 1, *cohabiting* = 2); and age measured in complete years and as a continuous variable.

Data Analysis

The dependent variables had different measurement schemes, so we employed statistical techniques specific to those schemes. We used binary logistic regression for all the dichotomous/binary outcomes (cardiovascular and sexual health) and ordinary least squares (OLS) regression for the continuous outcome (psychosocial health). For the binary outcomes, we used different link functions, given the skewness of the distributions. For instance, a glance at Table 2 shows our sexual health outcomes were not evenly distributed, with cases heavily concentrated in a specific category. In such cases, using a logit link function, which is mostly suitable for symmetrically distributed cases, may be problematic and can lead to biased standard errors and statistical inferences. Thus, for our sexual health outcomes, we employed the log-log link function suitable for asymmetrical distributions and available in STATA 16 in the generalized linear model (GLM). The GLM is an umbrella of statistical techniques that allows flexibility in choosing different link functions appropriate for how outcomes are distributed. We estimated univariate, bivariate, and multivariate statistics to describe our data. We used bivariate and multivariate models for all three health outcomes (cardiovascular, sexual, and psychosocial health). Odds ratios and regression coefficients were used to describe the relationship between IPV and health outcomes. Odds ratios greater than one means participants are more likely to experience the outcome; less than one means they are less likely to do so. A positive regression coefficient in this research context means poor health, and a negative coefficient means good health.

Results

Table 2 shows the univariate distribution of the selected dependent and independent variables. The average age of the sample was about 45 years; unsurprisingly, the majority (79%) were Ga Adangbes. Very few women (9.2%) had postsecondary education, although the majority were employed.

Table 1. Description and Operationalization of Variables.

Intimate partner violence	Description and operationalization
Physical violence	A summative index derived from six questions that asked women whether their husbands/partners: pushed, shook, or threw something at them; slapped them; twisted their arm or pulled their hair; punched them with their fist; tried to choke and burn on purpose; and kicked, dragged, or beat them. All variables were coded "yes = 1" and "no = 0."
	All variables loaded on the same construct using PCA. Respondents experienced physical violence if they answered in the affirmative to at least one of the questions; otherwise, they did not experience physical violence.
Sexual violence	A summative index derived from four questions that asked women whether their husbands/partners: physically forced to have sex with them even when they did not want to; forced them to perform sexual acts they did not want to; made inappropriate sexual acts that made them feel uncomfortable; and penetrated them with an object against their will. All variables were coded "yes = 1" and "no = 0." All variables loaded on the same construct using PCA. Respondents experienced sexual violence if they answered in the affirmative to at least one of the questions; otherwise, they did not experience physical violence.
Psychological/emotional violence	A summative index derived from four questions that asked women whether their husbands/partners: said or did something to humiliate them in front of others; threatened to harm them or someone close to them; insulted them or made them feel bad about themselves; and threatened them with a knife, gun, or any other weapon. All variables were coded "yes = 1" and "no = 0." All variables loaded on the same construct using PCA. Respondents experienced psychological violence if they answered in the affirmative to at least one of the questions; otherwise, they did not experience psychological violence.
Economic violence	A summative index derived from eight questions that asked women whether their husbands/partners: refused to give enough housekeeping money even though he had enough money to spend on other things; taken cash or withdrawn money from their bank account or other savings without permission; controlled their belongings and/or their spending decisions; destroyed or damaged property they had material interest in; prohibited them from working or forced them to quit work; forced them to work against their will; prevented them from working in a paid job; and refused to give them or denied them food or other basic needs. All variables were coded "yes = 1" and "no = 0." All variables loaded on the same construct using PCA. Respondents experienced economic violence if they answered in the affirmative to at least one of the questions; otherwise, they did not experience psychological violence.
Health outcomes	
Cardiovascular health	A summative index derived from four questions that asked women whether they had been told by physician/doctor they had any of these diseases: non-gestational hypertension; heart attack; high blood cholesterol; and non-gestational diabetes. All variables were coded "yes = 1" and "no = 0." Respondents had a cardiovascular problem if they answered in the affirmative to at least one of the questions; otherwise, they did not have a cardiovascular health problem.
Psychosocial health	A weighted summative index derived from 11 questions that asked women to indicate how many times they felt the following in the last 30 days: hopeless; owned and controlled; had no control over their life and property; ashamed; like a prisoner; nervous; depressed that nothing could cheer them up; that everything was an effort; restless or fidgety; worthless; and thought of ending their lives. All variables were coded "none of the time = 0," "a little of the time = 1," "some of the time = 3," "most of the time = 4," "all the time = 5." All variables loaded on the same construct using PCA. The Anderson–Rubin factor scores were extracted and used as a scalar variable. Positive values on the scale means poor psychosocial health and negative values better psychosocial health.

Note. PCA = principal component analysis.

Approximately 34.5% lived with at least a cardiovascular health condition. About 17% and 12% reported unwanted pregnancies and pregnancy loss, respectively. On average, women reported poor psychosocial health. IPV was high among this sample of HIV-positive women. About 61% had experienced physical violence, 50.9% reported sexual violence, 79.6% mentioned emotional/psychological violence, and 66.8% reported economic violence.

Table 3 estimates the bivariate effects of IPV on health outcomes. Results indicate significant relationships between IPV and the three measures of health. HIV-positive women with experiences of physical abuse were 54% and 2.57 times more likely to report unwanted pregnancies and pregnancy loss, respectively, than those with no such experiences. Women with experiences of physical violence also reported poor psychosocial health. Similar to the findings for physical abuse, HIV-positive women with experiences of sexual violence had a greater likelihood to report unwanted pregnancy, pregnancy loss, and poor psychosocial health. Surprisingly, those who reported sexual abuse were less likely to report cardiovascular

Table 2. Distribution of Selected Dependent and Independent Variables.

Dependent variables	$n = 538$	%/mean
Cardiovascular health		
No	352	65.5
Yes	186	34.5
Sexual health		
Unwanted pregnancy		
No	448	83.2
Yes	90	16.8
Pregnancy loss		
No	472	87.7
Yes	66	12.3
Psychosocial health (mean score)	—	.179
Focal predictor		
Physical violence		
No	211	39.2
Yes	327	60.8
Sexual violence		
No	264	49.1
Yes	274	50.9
Emotional violence		
No	110	20.4
Yes	428	79.6
Economic violence		
No	179	33.2
Yes	359	66.8
Socioeconomic/demographic variables		
Educational background		
No education	139	25.8
Primary	96	17.9
Secondary	253	47.0
Postsecondary	50	9.2
Employment status		
Not employed	167	31.0
Employed	371	69.0
Monthly income		
No income	252	46.8
Less than 1,000 Ghana Cedis	192	35.7
More than 1,000 Ghana Cedis	94	17.5
Ethnicity		
Ga Adangbe	426	79.2
Ewe	76	14.2
Akans	36	6.6
Currently married?		
No	298	55.5
Yes	123	22.8
Cohabiting	117	21.7
Average age of respondents	—	44.7

health problems. HIV-positive women with experiences of emotional violence were about 2 times more likely to report living with at least a cardiovascular health problem; they also reported poor psychosocial health. Finally, those who experienced economic abuse were significantly more likely to report unwanted pregnancies, pregnancy loss, and poor psychosocial health.

Although the bivariate findings are important, they only indicate the gross effects of our focal predictors on the outcomes. Table 4 shows multivariate results and the net effect of IPV on the three health outcomes after controlling for the socio-economic characteristics of the sample. The multivariate results are largely consistent with our bivariate findings. HIV-positive women who had experienced physical abuse were 42% more likely to report unwanted pregnancies than those who had not and about 2.5 times more likely to report pregnancy loss. We had similar findings for women who were sexually abused; they were more likely to report unwanted pregnancies (66%), pregnancy loss (59%), and poor psychosocial health. As in the bivariate results, HIV-positive women who experienced emotional abuse were about 2 times more likely to report living with a cardiovascular health problem; they also had poor psychosocial health. Finally, economically abused women reported unwanted pregnancy, pregnancy loss, and poor psychosocial health.

Discussion

IPV is an important global health and development concern that requires immediate attention from policy makers, especially in sub-Saharan Africa where patriarchy is rife, and this type of violence is commonplace. The literature is replete with studies that document its negative impact on women's health outcomes (Silverman & Raj 2014; Tenkorang, 2019). The effects are exacerbated for women living with HIV/AIDS, as they are already marginalized and their health may be compromised. Yet studies on the health consequences of IPV on women living with HIV are lacking. In Ghana and sub-Saharan Africa, we know little about the IPV experiences of HIV-positive women, and the health consequences of such experiences are conspicuously missing. This study begins to fill the gap by examining the effect of several dimensions of IPV on the cardiovascular, sexual, and psychosocial health of women living HIV/AIDS in the Lower Manya Krobo District of Ghana.

Our findings show high levels of intimate partner abuse against HIV-positive women in this District of Ghana. Emotional/psychological abuse was the most reported, followed by economic, physical, and sexual abuse. The prevalence of IPV in this sample was higher than has been reported in the general female Ghanaian population (see Institute of Development Studies, Ghana Statistical Services and Associates, 2016; Tenkorang, 2019; Tenkorang et al., 2013). This finding of a significantly higher prevalence of IPV against HIV-positive women is consistent with other studies in sub-Saharan Africa (Burgos-soto et al., 2014; Maman et al., 2000; Olowookere et al., 2015) and elsewhere (Orza et al., 2015). In a study comparing the lifetime prevalence of IPV against HIV-positive and HIV-negative women in Togo, Burgos-soto et al. (2014) estimated that about 63.1% and 69.7% of HIV-positive women had experienced physical and sexual violence,

Table 3. Bivariate Associations Between Intimate Partner Violence and Health Outcomes Among HIV+ Persons in Ghana, 2022.

			Sexual health					
	Cardiovascular health		Unwanted pregnancy		Pregnancy loss		Psychosocial health	
Focal predictors	*OR*	95% CI	*OR*	95% CI	*OR*	CI	*B*	95% CI
Physical violence								
No	1.00		1.00		1.00		0.000	
Yes	0.800	[0.555, 1.15]	1.54	[1.23, 1.93]***	2.57	[1.91, 3.46]***	0.826	[0.664, 0.988]***
Sexual violence								
No	1.00		1.00		1.00		0.000	
Yes	0.665	[0.463, 0.955]**	1.80	[1.44, 2.25]***	1.63	[1.30, 2.04]***	1.18	[1.04, 1.32]***
Emotional violence								
No	1.00		1.00		1.00		0.000	
Yes	2.19	[1.32, 3.61]***	1.21	[0.925, 1.59]	1.86	[1.33, 2.60]***	0.937	[0.735, 1.14]***
Economic violence								
No	1.00		1.00		1.00		0.000	
Yes	1.21	[0.823, 1.78]	1.36	[1.07, 1.71]***	1.69	[1.31, 2.18]***	0.485	[0.305, 0.665]***
Socioeconomic /demographic variables								
Educational background								
No education	1.00		1.00		1.00		0.000	
Primary	0.656	[0.383, 1.13]	1.23	[0.880, 1.72]	0.848	[0.599, 1.20]	–0.120	[–0.378, 0.138]
Secondary	0.516	[0.335, 0.797]***	1.64	[1.25, 2.15]***	1.12	[0.854, 1.46]	0.518	[0.315, 0.721]***
Postsecondary	0.302	[0.139, 0.654]***	0.843	[0.538, 1.32]	1.31	[0.867, 1.97]	0.543	[0.228, 0.858]***
Employment status								
Not employed	1.00		1.00		1.00		0.000	
Employed	0.588	[0.401, 0.861]***	0.853	[0.678, 1.07]	1.05	[0.827, 1.32]	0.019	[–0.169, 0.205]
Monthly income								
No income	1.00		1.00		1.00		.000	
Less than 1,000 Ghana Cedis	1.09	[0.714, 1.66]	0.357	[0.709, 1.15]	1.19	[0.930, 1.51]	–0.963	[–1.13, –0.797]***
More than 1,000 Ghana Cedis	2.68	[1.63, 4.41]***	0.457	[0.317, 0.658]***	0.856	[0.619, 1.18]	–1.25	[–1.46, –1.05]***
Ethnicity								
Ga Adangbe	1.00		1.00		1.00		0.000	
Ewe	0.687	[0.395, 1.20]	0.927	[0.678, 1.27]	0.989	[0.720, 1.36]	0.569	[0.323, 0.816]***
Akans	0.670	[0.303, 1.48]	0.837	[0.529, 1.32]	0.734	[0.448, 1.20]	0.334	[–0.014, 0.682]
Currently married?								
No	1.00		1.00		1.00		0.000	
Yes	0.326	[0.199, 0.533]***	0.578	[0.432, 0.773]***	0.598	[0.440, 0.811]***	–0.010	[–0.220, 0.204]
Cohabiting	0.269	[0.159, 0.456]***	1.06	[0.772, 1.38]	0.968	[0.737, 1.27]	0.512	[0.298, 0.726]
Average age of respondents	1.06	[1.04, 1.07]***	0.973	[0.964, 0.982]***	0.988	[0.979, 0.997]***	–0.036	[–0.042, –0.030]***

Note. Unadjusted odds ratios (*OR*s) and coefficients (*B*) are reported with confidence intervals (CIs) in brackets.
**$p < .05$. ***$p < .01$.

Table 4. Multivariate Associations Between Intimate Partner Violence and Health Outcomes Among HIV+ Persons in Ghana, 2022.

			Sexual health					
	Cardiovascular health		Unwanted pregnancy		Pregnancy loss		Psychosocial health	
Focal predictors	*AOR*	95% CI	*AOR*	95% CI	*AOR*	95% CI	*AB*	95% CI
Physical violence								
No	1.00		1.00		1.00		.000	
Yes	0.878	[0.519, 1.48]	1.42	[0.988, 2.05]**	2.48	[1.57, 3.90]***	.030	[–0.168, 0.174]
Sexual violence								
No	1.00		1.00		1.00		.000	
Yes	0.903	[0.528, 1.54]	1.66	[1.19, 2.30]***	1.59	[1.13, 2.23]***	.592	[0.421, 0.763]***
Emotional violence								
No	1.00		1.00		1.00		.000	
Yes	2.31	[1.18, 4.51]***	0.636	[0.401, 1.01]	0.793	[0.450, 1.39]	.360	[0.152, 0.568]***
Economic violence								
No	1.00		1.00		1.00		.000	
Yes	0.829	[0.506, 1.36]	1.43	[1.03, 1.99]**	1.66	[1.15, 2.41]***	.216	[0.060, 0.372]***
Socioeconomic/demographic variables								
Educational background								
No education	1.00		1.00		1.00		.000	
Primary	1.21	[0.637, 2.31]	1.22	[0.815, 1.84]	0.761	[0.467, 1.24]	–.137	[–0.346, 0.072]
Secondary	1.08	[0.603, 1.94]	1.22	[0.840, 1.78]	0.891	[0.608, 1.31]	–.025	[–0.210, 0.159]
Postsecondary	0.822	[0.315, 2.14]	0.494	[0.249, 0.980]**	1.15	[0.639, 2.17]	.061	[–0.219, 0.342]
Employment status								
Not employed	1.00		1.00		1.00		.000	
Employed	1.22	[0.679, 2.19]	0.667	[0.460, 0.968]**	0.748	[0.508, 1.10]	.068	[–0.112, 0.248]
Monthly income								
No income	1.00		1.00		1.00		.000	
Less than 1,000 Ghana Cedis	0.751	[0.412, 1.37]	1.44	[0.989, 2.10]	1.84	[1.25, 2.70]***	–.539	[–0.723, –0.354]***
More than 1,000 Ghana	0.779	[0.621, 2.59]	0.829	[0.471, 1.46]	1.22	[0.693, 2.16]	–.504	[–0.733, –0.275]***
Cedis								
Ethnicity								
Ga Adangbe	1.00		1.00		1.00		.000	
Ewe	1.08	[0.564, 2.07]	0.697	[0.463, 1.05]	0.944	[0.636, 1.40]	.097	[–0.097, 0.292]
Akans	0.779	[0.325, 1.87]	0.755	[0.415, 1.37]	0.781	[0.421, 1.44]	.160	[–0.099, 0.419]
Currently married?								
No	1.00		1.00		1.00		.000	
Yes	0.394	[0.223, 0.695]***	0.538	[0.369, 0.782]***	0.634	[0.422, 0.952]**	.072	[0.246, 0.101]
Cohabiting	0.403	[0.218, 0.744]***	0.751	[0.532, 1.06]	0.823	[0.577, 1.17]	.063	[–0.113, 0.238]
Average age of respondents	1.04	[1.02, 1.07]***	0.973	[0.958, 0.987]***	0.987	[0.970, 1.00]	–.016	[–0.023, –0.009]***

Note. Adjusted odds ratios (*AOR*s) and coefficients (*AB*) are reported with confidence intervals (CIs) in brackets.
**$p < .05$. ***$p < .01$.

respectively. They did not measure emotional/psychological violence, but other studies have found emotional violence is the most common type of abuse among women living with HIV (Fiorentino et al., 2019; Meskele et al., 2021). It was not particularly surprising that emotional abuse was common in our sample, as disclosure of HIV serostatus is often met with shock by male partners. In their study on emotional abuse among women living with HIV/AIDS in Malawi, Chilemba et al. (2014) narrated experiences of abandonment, blame, humiliation, and lack of support following female partners' disclosure of their HIV status—behaviors that are either emotionally abusive or create conditions for abuse.

Economic abuse was the second most prevalent type of abuse in our sample. This is worth mentioning because economic abuse has rarely been studied among women living with HIV/AIDS. As HIV-positive women suffer emotional abandonment following disclosure, it is quite possible they will also experience economic abandonment, where male partners refuse to provide financially or economically.

Our results demonstrate that the various types of IPV have an impact on women's cardiovascular, sexual, and psychosocial health. For instance, emotional abuse was significantly associated with women's cardiovascular health outcomes. Research linking abuse to women's cardiovascular health is scant, but a few studies document links between the two (Alonso et al., 2019; Stone et al., 2017). Drawing on stress theory, Scott-Storey et al. (2019) identified lifetime emotional/psychological abuse as capable of generating chronic stress, and this, in turn, can lead to immunologic changes and increased blood pressure. Abuse can also trigger depression and changes in mood, both of which increase the risk of cardiovascular diseases. HIV-positive Ghanaian women have a high risk of cardiovascular disease, given the levels of stigma associated with HIV in Ghana and the depression resulting from social isolation. For this group of women, experiencing emotional abuse is triple jeopardy, and the consequences of chronic stress and cardiovascular diseases are severe.

Physical, sexual, and economic abuse were all significantly associated with the sexual health outcomes of our participants. Women who experienced these types of violence were more likely to report unwanted pregnancies and pregnancy loss. These findings have been corroborated by studies in Ghana (Tenkorang, 2019) and elsewhere (see Acharya et al., 2019; Ismayilova, 2010), although these studies focused on the general population. Research on abuse and sexual health using HIV-positive samples is scarce; however, such information is required to address the reproductive health needs of HIV-positive women. Physical and sexual violence undermine women's ability to assert their reproductive rights and autonomy. Economic abuse may create power imbalances that can enhance male power and dominance, while increasing sexual submissiveness and reducing women's ability to negotiate safer sex (Tenkorang, 2021). For women living with HIV/AIDS, whose risks of unplanned pregnancy and pregnancy loss are high (Adeniyi et al., 2018), the effects of violence can be severe, as demonstrated in our findings.

IPV also affects the psychosocial health of women living with HIV/AIDS. Living with HIV comes with its own psychosocial stressors. Cianelli et al. (2022) indicated, for instance, that depression may be a natural consequence of living with the virus given the common experience of social isolation, stigma, discrimination, and anxiety. Other contextual factors, including social class, may intersect to compound existing vulnerabilities, with consequences for psychosocial health. For example, IPV has been found to be negatively associated with the psychosocial health of those who are HIV positive (Filiatreau et al., 2020; Schwartz et al., 2014) and our findings corroborate this. Emotional/psychological abuse often manifests via insults, threats, and intimidation and can affect victims' self-esteem and confidence, while casting a shadow of fear over their lives. Meanwhile, sexual abuse has been documented to generate both emotional harm and post-traumatic stress disorder for HIV-positive women (Machtinger et al., 2012). Economic abuse may create financial pressures for Ghanaian HIV-positive women as well. Economic vulnerabilities can be stressful and may pose significant psychosocial health risks for victims.

Despite these findings, there are some limitations we should mention. First, we used cross-sectional data and thus cannot draw causal links between IPV and the health outcomes of women in Ghana. Second, survey research on sensitive topics including IPV may be subject to recall bias, and our study is no different. In particular, respondents may underreport their experiences with intimate partner abuse. Third, the questions on IPV capture lifetime experiences of violence not specific to a certain period. Nevertheless, to the best of our knowledge, this study provides the first known documented evidence of the impact of IPV on the health of HIV-positive Ghanaian women. As this study only focused on HIV-positive women, future research can compare the health consequences of IPV for HIV-positive and HIV-negative women.

Our findings point to some policy suggestions. First, it is important to consider screening for domestic and intimate partner abuse as part of HIV care for HIV-positive women at risk. Screening in health care settings may provide a unique opportunity to identify and intervene before domestic and intimate partner violence escalates (Boinville, 2013). Interventions should include providing immediate counseling services and subsequent referral to the Domestic Violence and Victim Support Unit (DOVVSU). This could become part of a national strategy toward dealing with HIV/AIDS. We are not aware of existing policies or programs that encourage or require the screening of IPV among HIV-positive persons in Ghana. Our findings offer evidence in support of such programs. Second, it is clear from our findings that a substantial proportion of women living with HIV in Ghana live with other co-morbid conditions as well. This makes screening for co-morbid conditions in HIV-positive women extremely important to enhance their quality of life. Third, our findings

point to the need for integrating psychosocial counseling and treatment in HIV care, especially given the impact of IPV on the psychosocial health of women living with HIV/AIDS in the Lower Manya Krobo Municipality, Ghana. Laurenzi et al. (2022) argue that psychosocial interventions are an important pathway to improving the health and other behavioral outcomes of HIV-positive persons. Comprehensive HIV care in Ghana includes providing psychosocial support for and follow-up visits for persons living with the virus (Tenkorang et al. 2017). However, these services need to be expanded to be sensitive to the needs of HIV-positive women who experience IPV.

Declaration of Conflicting Interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding

The author(s) received no financial support for the research, authorship, and/or publication of this article.

ORCID iD

Eric Y. Tenkorang https://orcid.org/0000-0001-6127-3799

References

Acharya, A., Weissman, A., Thapa, B., & Chen, M. (2019). Intimate partner violence and contraceptive use among married women in Nepal. *International Journal of Gynecology & Obstetrics*, *146*(3), 344–349.

Addo-Atuah, J., Gourley, D., Gourley, G., White-Means, S. I., Womeodu, R. J., Faris, R. J., & Addo, N. A. (2012). Accessibility of antiretroviral therapy in Ghana: Convenience of access. *SAHARA-J: Journal of Social Aspects of HIV/AIDS*, *9*(2), 74–87.

Adeniyi, O. V., Ajayi, A. I., Moyaki, M. G., Goon, D. T., Avramovic, G. A., & Lambert, J. (2018). High rate of unplanned pregnancy in the context of integrated family planning and HIV care services in South Africa. *BMC Health Services Research*, *18*, Article 140. https://doi.org/10.1186/s12913-018-2942-z

Alene, K. A., & Atalell, K. A. (2018). Contraceptive use and method preference among HIV-positive women in Amhara region, Ethiopia. *BMC Women's Health*, *18*, Article 97. https://doi.org/10.1186/s12905-018-0608-y

Alonso, A., Barnes, E. A., Guest, J. L., Shah, A., Shao, I. Y., & Marconi, V. (2019). HIV infection and incidence of cardiovascular diseases: An analysis of a large healthcare database. *Journal of American Heart Association*, *8*(14), Article e012441.

Aloyce, Z., Larson, E., Komba, A., Mwimba, A., Kaale, A., Minja, A., Siril, H., Kamala, J., Somba, M., Ngakongwa, F., Kaaya, S., & Fawzi, M. C. S. (2021). Prevalence and factors associated with intimate partner violence after HIV status disclosure among pregnant women with depression in Tanzania. *AIDS Care*, *33*(8), 1009–1015.

Boinville, M. (2013). *ASPE policy brief: Screening for domestic violence in health care setting*. https://aspe.hhs.gov/hsp/13/dv/pb_screeningDomestic.cfm

Bowman, C. G. (2003). Theories of domestic violence in the African context. *Journal of Gender, Social Policy & the Law*, *11*(2, 847–863.

Brokaw, J., Fullerton-Gleason, L., Olson, L., Crandall, C., McLaughlin, S., & Sklar, D. (2002). Health status and intimate partner violence: A cross-sectional study. *Annals of Emergency Medicine*, *39*(1), 31–38.

Burgos-Soto, J., Orne-Gliemann, J., Encrenaz, G., Patassi, A., Woronowski, A, Kariyiare, B., Lawson-Evi, A. K., Leroy, V., Dabis, F., Ekouevi, D. K., & Becquet, R. (2014). Intimate partner sexual and physical violence among women in Togo, West Africa: Prevalence, associated factors, and the specific role of HIV infection. *Global Health Action*, *7*(1), 23456. https://doi.org/10.3402/gha.v7.23456

Campbell, J. C. (2002). Health consequences of intimate partner violence. *The Lancet*, *359*, 1331–1336.

Campbell, J. C., Baty, M. L., Ghandour, R. M., Stockman, J. K., Francisco, L., & Wagman, L. (2008). The intersection of intimate partner violence against women and HIV/AIDS: A review. *International Journal of Injury Control and Safety Promotion*, *15*(4), 221–231.

Chappell, S. (2015). Reducing the risk of domestic violence against HIV-positive women: The application and efficacy of New York's partner notification deferral mandate. *Duke Journal of Gender & Law*, *22*(241), 241–261.

Chilemba, W., van Wyk, N., & Leech, R. (2014). Experiences of emotional abuse among women living with HIV and AIDS in Malawi. *Health Care for Women International*, *35*(7–9), 743–757.

Cianelli, R., Villegas, N., De Oliveira, G., Sailsman, S., Montano, N. P., Martinez, A. S., Toledo, C., Sandalaula, M., & Sanchez, H. (2022). Exploring the psychosocial impact of living with HIV on minority older women. *Journal of American Psychiatric Nurses Association*, *28*(3), 216–224.

Colombini, M., James, C., & Ndwiga, C. (2016). The risks of partner violence following HIV status disclosure, and health service responses: Narratives of women attending reproductive health services in Kenya. *Journal of the International AIDS Society*, *19*(1), Article 20766.

Durevall, D., & Lindskog, A. (2014). Intimate partner violence and HIV in ten sub-Saharan African countries: What do the demographic and health surveys tell us? *The Lancet Global Health*, *3*(1), E34–E43.

Fawole, O. I. (2008). Economic violence to women and girls: Is it receiving the necessary attention? *Trauma, Violence, & Abuse*, *9*(3), 167–177.

Filiatreau, L. M., Giovenco, D., Twine, R., Gomez-Olive, F. X., Kahn, K., Haberland, N., & Pettifor, A. (2020). Examining the relationship between physical and sexual violence and psychosocial health in young people living with HIV in rural South Africa. *Journal of the International AIDS Society*, *23*, Article e2325654. https://doi.org/10.1002/jia2.25654

Fiorentino, M., Sagaon-Teyssier, L., Ndiaye, K., Suzan-Monti, M., Mengue, M. T., Vidal, L., Kuaban, C., March, L., Laurent, C., Spire, B., Boyer, S., & EVOLCam Study Group. (2019). Intimate partner violence against HIV-positive Cameroonian women: Prevalence, associated factors and relationship with antiretroviral therapy discontinuity-results from the ANRS-12288 EVOLCam survey. *Womens Health*, *15*. https://doi.org/10.1177/1745506519848546

Fobil, J. N., & Soyiri, I. N. (2006). An assessment of government policy response to HIV/AIDS in Ghana. *SAHARA-J: Journal of Social Aspects of HIV/AIDS Research Alliance*, *3*(2), 457–465.

Ghana Statistical Service. (2014). *2010 population & housing census: District analytical report—Lower Manya Krobo Municipality*.

Gielen, A. C., McDonnell, K. A., Burke, J. G., & O'Campo, P. (2000). Women's lives after an HIV-positive diagnosis: Disclosure and violence. *Maternal and Child Health Journal*, *4*(2), 111–120.

Hale, F., & Vazquez, M. (2011). *Violence against women with HIV/AIDS: A background paper*. A publication for the International Community of Women Living with HIV/AIDS (ICW Global). http://salamandertrust.net/resources/VAPositiveWomenBkgrdPaperMarch2011.pdf

Hatcher, A. M., Woollett, N., Pallitto, C. C., Mokoatle, K., Stockl, H., MacPhail, C., Delany-Moretlwe, S., & García-Moreno, C. (2014). Bidirectional links between HIV and intimate partner violence in pregnancy: Implications for prevention of mother-to-child transmission. *International Journal of AIDS Society*, *17*, Article 19233.

Hoare, J., Sevenoaks, T., Mtukushe, B., Williams, T., Heany, S., & Phillips, N. (2021). Global systematic review of common mental health disorders in adults living with HIV. *Current HIV/AIDS Reports*, *18*, 569–580.

Institute of Development Studies, Ghana Statistical Services and Associates. (2016). *Domestic violence in Ghana: Incidence, attitudes, determinants and consequences*. Institute of Development Studies. https://www.ids.ac.uk/publication/domestic-violence-in-ghana-incidence-attitudes-determinants-and-consequences

Ismayilova, L. (2010). *Intimate partner violence and unintended pregnancy in Azerbaijan, Moldova, and Ukraine* (DHS working papers no. 79). ICF Macro.

Jarolimova, J., Kabakyenga, J., Bennett, K., Muyindike, W., Kembabazi, A., Martin, J. N., Hunt, P. W., Boum, Y., Haberer, J. E., Bangsberg, D. R., Kaida, A., & Matthews, L. T. (2018). Contraceptive use following unintended pregnancy among Ugandan women living with HIV. *PLOS ONE*, *13*(10), Article e0206325. https://doi.org/10.1371/journal.pone.0206325

Jewkes, R., Dunkle, K., Mduna, M., Levin, J., Jama, N., Khuzwayo, N., Koss, M., Puren, A., & Duvvury, N. (2006). Factors associated with HIV serostatus in young South African women: Connections between intimate partner violence and HIV. *International Journal of Epidemiology*, *35*, 1461–1468.

Laurenzi, C., Ronan, A., Phillips, L., Nalugo, S., Mupakile, E., Operario, D., & Toska, E. (2022). Enhancing a peer supporter intervention for young mothers living with HIV in Malawi, Tanzania, Uganda, and Zambia: Adaptation and co-development of a psychosocial component. *Global Public Health*. https://doi.org/10.1080/17441692.2022.2081711

Lin, D., Zhang, C., & Shi, H. (2022). Adverse impact of intimate partner violence against HIV-positive women during pregnancy and post-partum: Results from a meta-analysis of observational studies. *Trauma, Violence & Abuse*. Advance online publication. https://doi.org/10.1177/15248380211073845

Machtinger, E. L., Wilson, T. C., Haberer, J. E., & Weiss, D. S. (2012). Psychological trauma and PTSD in HIV-positive women: A meta-analysis. *AIDS & Behavior*, *16*(8), 2091–2100.

Maman, S., Campbell, J., Sweat, M. D., & Gielen, A. C. (2000). The intersections of HIV and violence: Directions for future research and interventions. *Social Science & Medicine*, *50*(4), 459–478.

McKelvie, S., Stocker, R., Manwo, M., Manwo, A., Sala, T., Leodoro, B., Than, T., & Figsher, J. (2021). Intimate partner violence and health outcomes experienced by women who are pregnant: A cross-sectional survey in Sanma Province, Vanuatu. *The Lancet Regional Health: Western Pacific*, *16*, Article 100272. https://doi.org/10.1016/j.lanwpc.2021.100272

Medley, A. M., Kennedy, C. E., Lunyolo, S., & Sweat, M. D. (2009). Disclosure outcomes, coping strategies, and life changes among women living with HIV in Uganda. *Qualitative Health Research*, *19*(12), 1744–1754.

Mekonen, T., Belete, H., & Fekadu, W. (2021). Depressive symptoms among people with HIV/AIDS in Northwest Ethiopia: Comparative study. *British Medical Journal Open*, 11, Article e048931. https://doi.org/10.1136/bmjopen-2021-048931

Merrill, K. G., Campbell, J. C., Kennedy, C. E., Burke, V. M., Miti, S., Frimpong, C., Decker, M. R., Abrams, E. A., Mwansa, J. K., & Denison, J. A. (2022). So hurt and broken: A qualitative study of experiences of violence and HIV outcomes among Zambian youth living with HIV. *Global Public Health*, *17*(3), 444–456.

Meskele, M., Khuzwayo, N., & Taylor, M. (2021). Mapping the evidence of intimate partner violence among women living with HIV/AIDS in sub-Saharan Africa: A scoping review. *British Medical Journal Open*, *11*, Article e041326. https://doi.org/10.1136/bmjopen-2020-041326

Mitchell, J., Wight, M., Van Heerden, A., & Rochat, T. J. (2016). Intimate partner violence, HIV, and mental health: A triple epidemic of global proportions. *International Review of Psychiatry*, *28*(5), 452–463.

Mulrenan, C., Colombini, M., Howard, N., Kikuvi, J., & Mayhew, S. H. (2015). Exploring risk of experiencing intimate partner violence after HIV infection: A qualitative study among women with HIV attending postnatal services in Swaziland. *BMJ Open*, *5*, Article e006907.

National AIDS/STI Control Programme. (2003). Ghana initiates antiretroviral therapy program. *NACP Bulletin*, *1*(2), Article 16.

Nyamayemombe, C. V., Mishra, S., Rusakaniko, C., Benedikt, M., Gwazane, P., & Mukweza, P. (2010). *The association between violence against women and HIV: Evidence from a national population-based survey in Zimbabwe* (Zimbabwe working papers no. 4). ICF Macro.

Olowookere, S. A., Fawole, O. I., Adekanle, D. A., Adeleke, N. A., & Abioye-Kuteyi, E. A. (2015). Patterns and correlates of intimate partner violence to women living with HIV/AIDS in Osogbo, Southwest Nigeria. *Violence Against Women*, *21*(11), 1330–1340.

Orza, L., Bewley, S., Chung, C., Crone, E. T., Nagadya, H., Vazquez, M., & Welbourn, A. (2015). "Violence. enough already": Findings from a global participatory survey among women living with HIV. *Journal of International AIDS Society*, *18*(6 Suppl. 5), Article 20285.

Osinde, M. O., Kaye, D. K., & Kakaire, O. (2011). Intimate partner violence among women with HIV infection in rural Uganda: Critical implications for policy and practice. *BMC Women's Health*, *11*(1), 1–7.

Owusu, A. Y. (2020). A gendered analysis of living with HIV/AIDS in the Eastern Region of Ghana. *BMC Public Health*, *20*, Article 751. https://doi.org/10.1186/s12889-020-08702-9

Potter, L. C., Morris, R., Hegarty, K., Garcia-Moreno, C., & Feder, G. (2021). Categories and health impacts of intimate partner violence in the World Health Organization multi-country study on women's health and domestic violence. *International Journal of Epidemiology*, *5*(2), 652–662.

Rigby, S. W., & Johnson, L. F. (2017). The relationship between intimate partner violence and HIV: A model-based evaluation. *Infectious Disease Modeling*, *2*, 71–89.

Ritzenthaler, R. (2005). *Delivering antiretroviral therapy in resource-constrained settings: Lessons from Ghana, Kenya and Rwanda*. Family Health International, Institute for HIV/AIDS. Arlington, USA. https://pdf.usaid.gov/pdf_docs/Pnadf674.pdf

Rose, R. C., House, A. S., & Stepleman, L. M. (2010). Intimate partner violence and its effects on the health of African American HIV-positive women. *Psychological Trauma: Theory, Research, Practice, and Policy*, *2*(4), 311–317. https://doi.org/10.1037/a0018977

Schafer, K. R., Brant, J., Gupta, S., Thorpe, J., Winstead-Derlega, C., Pinkerton, R., Laughon, K., Ingersoll, K., & Dillingham, R. (2012). Intimate partner violence: A predictor of worse HIV outcomes and engagement in care. *AIDS Patient Care and STDs*, *26*(6), 356–365.

Schwartz, R. M., Weber, K. M., Schechter, G. E., Connors, N. C., Gousse, Y., Young, M. A., & Cohen, M. H. (2014). Psychological correlates of gender-based violence among HIV-infected and HIV-uninfected women in three U.S. cities. *AIDS Patient Care & STDs*, *28*(5), 260–267.

Schwartz, S. R., Rees, H., Mehta, S., Venter, W. D. F., Taha, T. E, & Black, V. (2012). High incidence of unplanned pregnancy after antiretroviral therapy initiation: Findings from a prospective cohort study in South Africa. *PLoS One*, *7*(4), e36039.

Scott-Storey, K. A., Hodgins, M., & Wuest, J. (2019). Modeling lifetime abuse and cardiovascular disease risk among women. *BMC Cardiovascular Disorders*, *19*, Article 224. https://doi.org/10.1186/s12872-019-1196-y

Sedziafa, A. P., Tenkorang, E. Y., Owusu, A. Y., & Sano, Y. (2017). Women's experiences of intimate partner economic abuse in the eastern region of Ghana. *Journal of Family Issues*, *38*(18), 2620–2641.

Silverman, J. G., & Raj, A. (2014). Intimate partner violence and reproductive coercion: Global barriers to women's reproductive control. *PLoS Med*, *11*(9), 1–4.

Silverman, J. G., Decker, M. R., Saggurti, N., Balaiah, D., & Raj, A. (2008). Intimate partner violence and HIV infection among married Indian women. *Journal of the American Medical Association*, *300*(6), 703–710.

Stone, L., Looby, S. E., & Zanni, M. V. (2017). Cardiovascular disease risk among women living with HIV in North America & Europe. *Current Opinion in HIV and AIDS*, *12*(6), 585–593.

Tenkorang, E. Y. (2019). Intimate partner violence and the sexual reproductive health outcomes of women in Ghana: Individual and community level determinants. *Health Education & Behavior*, *46*(6), 969–980.

Tenkorang, E. Y. (2021). Economic abuse and women's sexual autonomy: Evidence from Ghana. In T. Shackelford (Ed.), *The SAGE handbook of domestic violence* (pp. 113–128). SAGE. https://doi.org/10.4135/9781529742343

Tenkorang, E. Y., & Owusu, A. Y. (2018). Does economic abuse affect the health outcomes of women in Ghana? *Health Education & Behavior*, *46*(2), 340–348.

Tenkorang, E. Y., Owusu, A. Y., Laar, A. K., & Yeboah, E. H. (2017). Housing, psychosocial and adherence counseling among HIV+ persons in Ghana. *Health Promotion International*, *34*(2), 204–214.

Tenkorang, E. Y., Yeboah, E. H., Adobea, Y. O., & Bannerman, R. (2013). Factors influencing domestic and marital violence against women in Ghana. *Journal of Family Violence*, *28*(8), 771–781.

Van der Straten, A., King, R., Grinstead, O., Vittinghoff, E., Serufilira, A., & Allen, S. (1998). Sexual coercion, physical violence, and HIV infection among women in steady relationships in Kigali, Rwanda. *AIDS and Behavior*, *2*(1), 61–73.

Waldron, E. M., Burnett-Zeigler, I., Wee, V., Ng, Y. W., Koenig, L. J., Pederson, A. B., Tomaszewski, E., & Miller, E. S. (2021). Mental health in women living with HIV: The unique and unmet needs. *Journal of the International Association of Providers of AIDS Care,* 20,1–18.

Wetzel, E. C., Tembo, T., Abrams, E. J., Mazenga, A., Chitani, M. J., Ahmed, S., Yu, X., & Kim, M. H. (2021). The relationship between intimate partner violence and HIV outcomes among pregnant women living with HIV in Ghana. *Malawi Medical Journal*, *33*, 242–252.

Woollett, M., & Hatcher, A. M. (2016). Mental health, intimate partner violence and HIV. *South Africa Medical Journal*, *106*(10), 969–972.

World Health Organization. (2013). *Global and regional estimates of violence against women: Prevalence and health effects of intimate partner violence and non-partner sexual violence*.

Yang, H., Beymer, M. R., & Suen, S. (2019). Chronic disease onset among people living with HIV and AIDS in a large private insurance claims dataset. *Scientific Reports*, *9*, Article 18514. https://doi.org/10.1038/s41598-019-54969-3

Yonga, A. M., Kiss, L., & Onarheim, K. H. (2022). A systematic review of the effects of intimate partner violence on HIV-positive pregnant women in sub-Saharan Africa. *BMC Public Health*, *22*, Article 220. https://doi.org/10.1186/s12889-022-12619-w

Zunner, B., Dworkin, S. L., Neylan, T. C., Bukusi, E. A., Oyaro, P., Cohen, C. R., Abwok, M., & Meffert, S. M. (2015). HIV, violence and women: Unmet mental health care needs. *Journal of Affective Disorders*, *174*, 619–626.