



From fathers to peers: Association between paternal violence victimization and peer violence perpetration among youth in Malawi, Nigeria, and Zambia

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ABSTRACT

Interpersonal violence against children and youth, including parental violence and peer violence, are major global health concerns. However, the majority of the parental violence and peer violence literature examines each separately from one another. In this study, we specifically investigate the role of fathers and whether paternal violence victimization is associated with peer violence perpetration, above and beyond maternal violence victimization. We used nationally-representative data from three sub-Saharan African country surveys of the Violence Against Children Surveys, which comprised a pooled sample of 8184 youth aged 13–24 years in Malawi (conducted in 2013), Nigeria (2014), and Zambia (2014). We used multivariable logistic regression models to estimate the association between paternal violence victimization and peer violence perpetration, controlling for maternal violence victimization, witnessing violence, and other covariates. We also tested a structural equation model to determine whether the direct association between paternal violence victimization and peer violence perpetration was mediated through youth mental distress or alcohol use, controlling for other violence exposures and covariates. In the pooled sample, 22.8% of youth reported paternal violence victimization, and 18.8% of youth reported peer violence perpetration in their lifetime. Youth who experienced paternal violence had a greater odds of perpetrating peer violence (OR = 1.74, 95% CI: 1.50–2.02), compared with youth who did not experience paternal violence and after controlling for maternal violence victimization and other covariates. Structural equation model results revealed that approximately a quarter of the total association between paternal violence victimization and peer violence perpetration was mediated by youth mental distress and alcohol use. Our study underscores the role of fathers in the context of parental violence against youth and highlights the need for multicomponent and two-generation violence prevention interventions that address paternal violence and support youth psychosocial wellbeing to prevent cycles of violence perpetration against youth in sub-Saharan Africa.

Globally, parents are the most common perpetrators of violence against children and youth (Devries et al., 2018; Stöckl et al., 2017). Evidence from nationally representative surveys indicates that the majority of children in low- and middle-income countries (LMICs) experience parental violence. In sub-Saharan Africa, 81% of children aged 1–14 years experienced emotional and/or physical violence by an adult caregiver in the past month (UNICEF, 2019). A large body of research has documented the negative consequences of parental violence on

children and youth, including increased mental health problems, risky behaviors, and susceptibility to additional types of violence victimization from other perpetrators in contexts beyond the home environment (Calvete et al., 2018; Hillis et al., 2017; Norman et al., 2012).

In addition, child and youth survivors of violence are disproportionately more likely to perpetrate violence against others across their life – for example in the context of adult intimate partner relationships and as future parents themselves (Abrahams and Jewkes, 2005; Fulu et

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al, 2013, 2017; Islam et al., 2017) – thereby continuing cycles of violence. Violence perpetration against peers often begins during adolescence and youth (Devries et al., 2018). Consequently, investigating the association between parental violence victimization and peer violence perpetration before children transition to adulthood may offer new insights for understanding and preventing cycles of interpersonal violence, particularly in LMIC contexts where violence is highly prevalent (Han et al., 2019; Kidman and Kohler, 2020; UNICEF, 2014).

Child developmental theories motivate the importance of examining links between parental violence victimization and violence perpetration. Social learning theory (Bandura, 1977) suggests that when children repeatedly observe or experience parental violence, they may believe that violence is normal or acceptable in social relationships, which in turn increases the likelihood of imitating and perpetrating aggressive behaviors in their own social and peer relationships. Stress theory (Mistry et al., 2002) proposes that continued exposures to violence can increase psychopathologies such as psychological distress, mood and anxiety disorders, risk behaviors, and alcohol and other substance use to cope with negative emotions, which can increase the risk of subsequent violence perpetration. Experiences of parental violence victimization may have unique relations with violence perpetration during adolescence and young adulthood, considering the sensitive developmental period of adolescence, heightened onset of internalizing and externalizing disorders, and precocious transitions (e.g., early sex, school dropout, early marriage) that may begin to occur during this developmental stage from a lifecourse perspective (Elder, 1998).

Although a few studies have documented cross-sectional associations between parental emotional, sexual, and physical violence victimization and peer violence perpetration among adolescents and youth in LMICs (Kidman and Kohler, 2020; VanderEnde et al., 2016), there are two major gaps in this literature more broadly. The majority of the evidence base has investigated the relation between parental violence victimization during childhood and violence perpetration in samples of adults (Chirwa et al., 2018; Ringwald et al., 2020; Wirtz et al., 2018; Yount et al., 2014; Zietz et al., 2020). Apart from the few exceptional studies, little is known about the association between parental violence victimization and violence perpetration during adolescence and young adulthood, when youth first begin to decrease their reliance on parents and form increasingly significant relationships with peers and romantic partners (Juárez and Gayet, 2014).

Further, fathers are overlooked in the family violence literature (Adhia and Jeong, 2019; Jeong et al., 2020). While some studies in sub-Saharan Africa have highlighted how paternal sociodemographic characteristics, such as their presence in the household and paternal employment, are protective factors against child abuse (Meinck et al., 2015), little is known about fathers' direct roles as perpetrators of violence against children and youth, including with respect to peer violence perpetration among youth. This is largely due to the fact that the majority of prior research, especially in LMICs, has measured parental violence based on measures that broadly ask about violence perpetrated by *any parent or caregiver in the household* (Lansford et al., 2020; UNICEF, 2010); or specifically only regarding violence perpetrated by the *reporting caregiver*, who tend to be mothers exclusively in the vast majority of surveys (Cluver et al., 2016; Falb et al., 2017).

However, fathers in addition to mothers have great influence in the lives of children and youth across global contexts (Jeong et al., 2016; Yogman and Garfield, 2016). Parent gender may play a role in the association between parental violence victimization and peer violence perpetration considering how gender norms, masculinity, and social norms about the acceptability of violence differ between mothers and fathers, which contribute to unique parent-child relationship dynamics (Barker et al., 2010; Fischer et al., 1995). For example, although several studies have found that mothers engage in more acts of physical punishment than fathers, these gender-based differences have been largely attributed to gender norms that regard mothers as the primary caregiver and the fact that mothers typically spend more time with their children

than fathers (Fulu et al., 2017; Lokot et al., 2020). Notwithstanding, a few studies from high-income countries have jointly investigated maternal and paternal harsh discipline and revealed that fathers' harsh discipline was associated with increased adolescent conduct problems and depressive symptoms (Wang and Kenny, 2014) and internalizing and externalizing behavior problems (Melançon and Gagné, 2011), above and beyond mothers' harsh discipline.

In this paper, we investigate the associations between paternal violence victimization and peer violence perpetration among youth using nationally representative cross-sectional data in three sub-Saharan African countries. Given the relatively larger body of research on mothers, we particularly focus on the role of fathers' violence and examine the independent association of paternal violence above and beyond maternal violence. To explore stress theory as a possible explanation of this direct association, we additionally test whether youth mental health and alcohol use mediate the direct association between paternal violence victimization and peer violence perpetration.

1. Methods

1.1. Data

For this analysis, we used data from the Violence Against Children Surveys (VACS). VACS is a nationally representative cross-sectional household survey of 13- to 24-year-old adolescents and young adults, which has been completed in almost 20 LMICs. It is designed to measure experiences of physical, emotional, and sexual violence during childhood, adolescence, and young adulthood, as well as risk and protective factors and consequences of violence (Nguyen et al., 2019a). VACS is implemented through collaborations between the Centers for Disease Control and Prevention (U.S.-based Headquarters and Country Offices), national governments, UNICEF, and other partners.

VACS used a multi-stage cluster sampling design to select 13- to 24-year-old male and female youth. In the first stage of sampling, primarily sampling units were selected with probability proportional to size based on each country's latest population census. To minimize the likelihood that a perpetrator and victim would both be interviewed in the same community a "split sample" approach was used: enumeration areas were randomly assigned to either include all male or all female respondents. In the second stage, a complete list of all households within each enumeration area was constructed, and approximately 25–30 households were randomly selected. Finally, the head of household and one respondent aged 13–24 years in each household was randomly selected for an interview. Nguyen et al. (2019a) provide further details regarding the study design, response rates, and final samples across countries.

Face-to-face structured questionnaires were administered by trained same-sex interviewers in a private location. The survey had two components: a short demographic interview with the head of household, and a comprehensive interview with the youth respondent covering questions about experiences of violence. Caregiver consent and informed assent were obtained for respondents under 18 years of age, and informed consent was obtained for respondents over 18. Protocols and procedures were established in each country to protect the safety of respondents and refer them to services as needed. All respondents were provided with a list of free local services and resources. Respondents who experienced violence in the last 12 months, requested help, became upset in the interview, and/or reported feeling unsafe in their current living situation were offered direct referrals to a counselor or social worker (Nguyen et al., 2019a). The study received ethical approval from the U.S. CDC as well as national ethics review committees in each country.

To date, a total of nine VACS country surveys have been made publicly available (Together for Girls, 2020). This analysis included only those surveys that asked youth to report the specific caregiver who used each type of violence against them and also included questions about peer violence perpetration. A final subset of three country surveys –

Malawi (2013), Nigeria (2014), and Zambia (2014) – were included and the variables used were similar and comparable across countries.

1.2. Measures

Exposure: Paternal violence victimization. Youth aged 13–24 years reported on experiences of physical violence, emotional violence, or sexual violence by an adult caregiver. For each type of violence, youth were asked to recall (a) their first experience and (b) a recent experience in the past 12 months as well as their relationship to the adult caregiver who harmed them. Prior studies have used this measure to operationalize violence victimization (Chigji et al., 2018; Palermo et al., 2019). Youth could select one of the following adult caregivers: father, stepfather, brother, stepbrother, uncle, mother, stepmother, sister, stepsister, aunt, other male caregiver, or other female caregiver. In this study, we used youth reports of their first and most recent experience of violence to create four indicator variables for whether the father (i.e., father or stepfather) perpetrated physical, emotional, sexual, or any type of violence against the youth. Physical violence victimization was defined as having experienced any of the following three items: (a) punched, kicked, whipped, or beat with an object, (b) choked, smothered, tried to drown, or burned intentionally, or (c) used or threatened with a knife, gun or other weapon. Emotional violence victimization was defined as having experienced any of the following three items: (a) told that you were not loved, or did not deserve to be loved, (b) said they wished you had never been born or were dead, or (c) ridiculed or put down, for example said that you were stupid or useless. Sexual violence victimization was defined as having experienced any of the following four items: (a) unwanted sexual touching (e.g., touching in a sexual way, kissing, grabbing or fondling), (b) attempted unwanted sexual intercourse (attempted intercourse but penetration did not occur), (c) pressured intercourse (unwanted sex was completed through use of threats or non-physical pressure), or (d) physically forced sex (unwanted intercourse completed through physical force).

Outcome: peer violence perpetration. Youth aged 13–24 years reported on whether they had ever perpetrated physical or sexual violence against a peer (i.e., current or previous romantic partner or a nonromantic peer). Physical violence was defined as ever perpetrating any of the following three items: (a) punched, kicked, whipped, or beat someone, (b) choked, smothered, tried to drown, or intentionally burned someone, or (c) used or threatened to use a knife, gun or other weapon against someone. Sexual violence was defined as ever forcing someone else to have sex when they did not want to. We created a global indicator for lifetime perpetration of any type of peer violence.

Mediators: youth mental distress and alcohol use. Mental distress was measured using the 6-item version of the Kessler Psychological Distress Scale, which is a global measure of distress based on depressive and anxiety related symptoms (Prochaska et al., 2012). Youth reported how often in the past 30 days they felt: 1) nervous, 2) hopeless, 3) restless, 4) so sad that nothing could cheer them up, 5) that everything was an effort, and 6) worthless. Each item was scored on a 5-point Likert scale ranging from 0 (none of the time) to 4 (all of the time). The measure showed good internal consistency ($\alpha = 0.84$). Item responses were summed for a total possible score between 0 and 24. Consistent with other studies using the Kessler Psychological Distress Scale (Kessler et al., 2002; Prochaska et al., 2012), we categorized those with scores of 5 or greater as experiencing mental distress. For alcohol use, youth reported how many days in the past 30 days they drank alcohol to the point that they became drunk. We created an indicator variable for whether youth reported being drunk at least once in the past 30 days.

Covariates. All analyses adjusted for maternal violence victimization. We created the same four indicator variables for whether the youth had identified their mother (i.e., mother or stepmother) as a perpetrator of the first and/or most recent incident of physical, emotional, or sexual violence; as well as a global indicator for any type of maternal violence victimization. Models included a covariate for maternal violence

victimization in the same manner that paternal violence victimization was represented (e.g., primary exposure variable of any type of paternal violence included covariate for any type of maternal violence). We also controlled for whether or not the youth had witnessed physical violence in the home at any time in their life (i.e., violence perpetrated by one parent against the other parent or a sibling). In addition, we controlled for various youth- and household-level sociodemographic characteristics that are associated with the outcome and are consistent with covariates adjusted for in prior VACS analyses (Nguyen et al., 2019b; VanderEnde et al., 2016). Covariates included youth age (in years), sex (male or female), whether they were ever in a relationship, highest level of education completed (five categories: none, less than primary, primary, secondary, or higher than secondary), whether they currently live with their father, whether they currently live with their mother, and household wealth quintile.

1.3. Analysis

First, we used multivariate logistic regression models to determine the overall association between any paternal violence victimization and peer violence perpetration. Three models were estimated to assess the association of paternal violence victimization. Model 1 tested the association between paternal violence victimization and peer violence perpetration in the pooled sample, adjusting for witnessing violence in the home and the full set of sociodemographic covariates, but not controlling for maternal violence victimization. Model 2 further included maternal violence victimization. Model 3 represented a multigroup analysis that included all covariates, estimated the association of paternal violence victimization in each country, and formally tested whether the odds ratios differed by country. All logistic regression models used a maximum likelihood robust (MLR) estimator to obtain odds ratios for ease of interpretation.

Second, we conducted two separate multigroup analyses by age (13–17 year olds compared to 18–24 year olds) and sex (male compared to female youth) to explore the degree to which these youth demographic factors may moderate associations in the pooled sample. Third, we further investigated whether the association between paternal violence victimization and peer violence perpetration varied by type of paternal violence. We generated a categorical variable for types of paternal violence victimization: no violence (reference category), physical violence alone, emotional violence alone, or both physical and emotional violence. The same 4-category covariate was constructed for maternal violence victimization and included as a covariate in this model. Sexual violence was excluded from this categorical variable for types of violence because 0.1% of youth ever experienced sexual violence from a parent. We reestimated multivariate logistic regression models using this categorical variable as the predictor, again applying MLR estimation, and adjusting for other covariates. All standard errors were clustered at the primary sampling unit level within each country to account for the complex survey design, and any pooled sample analyses included country fixed effects (dummy variables).

Finally, we tested a structural equation model to determine whether the direct association between paternal violence victimization and peer violence perpetration was mediated through youth mental distress or alcohol use. We used a weighted least squares with missing values (WLSMV) estimator for the mediation model, which estimates probit regression coefficients. Each path of the structural equation model was also adjusted for the full set of covariates, and the model accounted for clustered standard errors. We tested the significance of the indirect effects using the delta method (MacKinnon et al., 2002) to evaluate whether youth mental distress or alcohol use mediated the direct effect. Satisfactory model fit was indicated by a comparative fit index score ≥ 0.90 , a root mean squared error of approximation < 0.08 , and a standardized root mean squared < 0.08 (Hu and Bentler, 1999). Additionally, we conducted a sensitivity analysis of the path model, and in particular the significance of the indirect effects, using bias corrected

(BC) bootstrapped standard errors with 5000 iterations (instead of clustered standard errors). Bootstrapping is more advantageous over the delta method in that it does not assume multivariate normality, can better account for potential misspecifications of the model, can better detect small effects, and estimate more accurate confidence intervals (Preacher and Hayes, 2008).

All analyses (logistic regression, multigroup, and path models) were conducted in Mplus version 8. The significance level for all analyses was set at $P < 0.05$. All analyses were unweighted because the sample weight structures were unclear for the pooled sample analyses. However, we conducted a sensitivity analysis applying survey weights in country-specific models to estimate descriptive statistics of sample characteristics and the primary adjusted association between paternal violence victimization and peer violence perpetration.

2. Results

The pooled sample included 8184 youth aged 13–24 years from three country surveys: Malawi (N = 2162), Nigeria (N = 4203), and Zambia (N = 1819).

Table 1
Sample characteristics.

	Pooled sample (N = 8184)	Malawi (N = 2162)	Nigeria (N = 4203)	Zambia (N = 1819)
Sociodemographic characteristics				
Youth age in years, mean (SD)	18.1 (3.5)	17.8 (3.5)	18.3 (3.6)	18.2 (3.4)
Youth is male	55.0%	52.4%	58.0%	51.0%
Youth has ever been in relationship	51.9%	64.6%	55.2%	29.2%
Youth highest education				
None	10.4%	4.5%	16.0%	4.4%
Less than primary	1.7%	0.3%	1.9%	3.0%
Primary	36.0%	67.8%	15.9%	44.5%
Secondary	45.1%	25.9%	55.6%	44.0%
Higher than secondary	6.8%	1.5%	10.7%	4.1%
Currently lives with father	54.0%	39.7%	64.1%	47.8%
Currently lives with mother	62.3%	53.7%	68.2%	58.8%
Household wealth quintile				
Poorest	20.0%	20.0%	20.0%	20.1%
Poor	20.2%	20.0%	20.3%	20.0%
Average	19.8%	20.0%	19.7%	19.9%
Rich	20.0%	20.0%	20.0%	20.0%
Richest	20.0%	20.0%	20.0%	20.0%
Violence variables				
Paternal violence victimization	22.8%	21.8%	26.3%	15.6%
Maternal violence victimization	21.2%	25.6%	19.1%	20.7%
Witnessing violence in household	57.8%	55.7%	61.9%	50.7%
Peer violence perpetration	18.8%	28.8%	15.6%	14.4%
Mediators				
Youth mental distress	33.8%	34.0%	31.5%	38.8%
Youth alcohol use	16.6%	13.7%	15.6%	22.1%

Note. Data were missing for the following variables (N [%] in pooled sample): youth relationship status (8 [0.1%]), youth education (15 [0.2%]), resides with father (12 [0.1%]), resides with mother (9 [0.1%]), household wealth (643 [7.9%]), paternal violence victimization (47 [0.6%]), maternal violence victimization (44 [0.5%]), witnessing violence in household (226 [2.8%]), youth peer violence perpetration (127 [1.6%]), youth mental distress (66 [0.8%]), and youth alcohol use (611 [7.5%]).

(N = 1819). Table 1 shows sociodemographic sample characteristics for the pooled sample as well as by each country. Overall, the mean age was 18.1 years (SD = 3.5), and slightly greater than half of youth were boys (55.0%).

Approximately one in five youth (22.8% in pooled sample) reported paternal violence victimization: 21.8% in Malawi, 26.3% in Nigeria, and 15.6% in Zambia. Specifically by types of paternal violence, 18.3% of youth experienced physical violence, 8.3% experienced emotional violence, and 0.1% experienced sexual violence victimization by their father. Similarly, one in five youth (21.2% in the pooled sample) reported maternal violence victimization: 25.6% in Malawi, 19.1% in Nigeria, and 20.7% in Zambia. Specifically by types of maternal violence, 15.5% of youth experienced physical violence, 9.1% experienced emotional violence, and 0% experienced sexual violence victimization by their mother. Bivariate tetrachoric correlations between paternal and maternal violence victimization were 0.19 for physical violence, 0.25 for emotional violence, and perfectly collinear for sexual violence. Weighted country-specific estimates are presented in Supplementary Table 1.

The prevalence of paternal violence victimization was twice as large for boys (29.2%) compared to girls (14.8%); but did not differ by current age (Supplementary Table 2). The majority of youth reported their first experience of paternal violence victimization during childhood (56% at age 6–11 years, and 11.6% before age 5 years) compared to adolescence or young adulthood (28.7% at age 12–17 years, and 3.6% at age 18 years or older).

Nearly one in five youth (18.8%) reported ever perpetrating peer violence in their lifetime: 14.4% in Zambia, 15.6% in Nigeria, and 28.8% in Malawi. The prevalence of peer violence perpetration was higher for youth aged 18–24 years (20.6%) than adolescents aged 13–17 years (16.3%); and higher for boys (21.2%) than girls (14.7%).

Table 2 presents the adjusted associations between paternal violence victimization and likelihood of peer violence perpetration using multi-variable logistic regression models. After controlling for covariates but not maternal violence victimization (Model 1), paternal violence victimization was associated with a higher likelihood of peer violence perpetration among youth in the pooled sample (OR = 1.86, 95% CI: 1.66–2.15). After additionally controlling for maternal violence victimization (Model 2), paternal violence victimization remained associated with a higher likelihood of peer violence perpetration (OR = 1.74, 95% CI: 1.50–2.02). The direction and magnitude of the fully adjusted association was consistent and did not differ across countries (Malawi: OR = 1.47, 95% CI: 1.15–1.88; Nigeria: OR = 1.98, 95% CI: 1.61–2.42; and Zambia: OR = 1.57, 95% CI: 1.11–2.21; Malawi versus Nigeria: $p = 0.12$; Malawi versus Zambia: $p = 0.88$, and Nigeria versus Zambia: $p = 0.30$). Country-specific analysis that applied survey weights are presented in Supplementary Table 3. Weighted odds ratios were generally similar in magnitude to unweighted results and significant in Malawi and Nigeria and marginally significant in Zambia ($p = 0.077$).

Table 3 presents the adjusted associations from two separate multi-group analyses using the pooled sample: (1) by youth age and (2) by sex. Paternal violence victimization was associated with a higher odds of peer violence perpetration among adolescents aged 13–17 years (OR = 1.69, 95% CI: 1.36–2.12), as well as older youth aged 18–24 years (OR = 1.79, 95% CI: 1.50–2.15). The association was similarly observed among boys (OR = 1.77, 95% CI: 1.49–2.10) as well as girls (OR = 1.64, 95% CI: 1.27–2.11). The associations in the pooled sample did not significantly differ by age or sex.

Table 4 presents the adjusted associations by types of paternal violence: physical violence victimization only, emotional violence victimization only, or both physical and emotional violence victimization. Compared to youth who did not experience any paternal violence victimization, those who experienced any type of paternal violence – paternal physical violence only, paternal emotional violence only, or joint physical and emotional violence by their fathers – were associated with higher odds of peer violence perpetration, of which the joint

Table 2
Adjusted associations between paternal violence victimization and peer violence perpetration among youth.

	Model 1		Model 2		Model 3					
	OR (95% CI)	p-value	OR (95% CI)	p-value	Malawi		Nigeria		Zambia	
					OR (95% CI)	p-value	OR (95% CI)	p-value	OR (95% CI)	p-value
Paternal violence victimization	1.86 (1.66–2.15)	<0.001	1.74 (1.50–2.02)	<0.001	1.47 (1.15–1.88)	0.002	1.98 (1.61–2.42)	<0.001	1.57 (1.11–2.21)	0.01
Maternal violence victimization	–	–	2.08 (1.79–2.42)	<0.001	1.99 (1.59–2.51)	<0.001	2.23 (1.94–2.98)	<0.001	1.79 (1.28–2.50)	0.001
Witnessing violence in the home	2.05 (1.80–2.33)	<0.001	1.83 (1.60–2.10)	<0.001	1.97 (1.58–2.45)	<0.001	1.46 (1.18–1.81)	0.001	2.49 (1.81–3.44)	<0.001
Youth age in years	0.99 (0.96–1.01)	0.36	0.99 (0.97–1.02)	0.58	0.99 (0.95–1.03)	0.71	0.99 (0.96–1.02)	0.42	1.04 (0.99–1.10)	0.12
Youth is male	1.86 (1.56–2.22)	<0.001	2.05 (1.73–2.43)	<0.001	2.88 (2.30–3.60)	<0.001	1.43 (1.17–1.75)	0.001	2.48 (1.82–3.39)	<0.001
Youth has ever been in relationship	2.44 (2.05–2.90)	<0.001	2.45 (2.05–2.93)	<0.001	2.22 (1.69–2.92)	<0.001	2.66 (2.09–3.39)	<0.001	2.58 (1.75–3.79)	<0.001
Youth highest education (reference: none)										
Less than primary	0.90 (0.51–1.60)	0.73	0.91 (0.51–1.61)	0.74	0.44 (0.05–3.89)	0.46	1.13 (0.53–2.40)	0.76	3.56 (0.63–20.09)	0.15
Primary	1.19 (0.91–1.55)	0.22	1.13 (0.86–1.48)	0.37	0.79 (0.48–1.28)	0.33	1.20 (0.82–1.76)	0.41	5.49 (1.25–24.05)	0.02
Secondary	1.41 (1.08–1.84)	0.01	1.35 (1.04–1.76)	0.03	0.81 (0.48–1.36)	0.42	1.68 (1.20–2.34)	<0.001	5.69 (1.32–24.49)	0.02
Higher than secondary	1.19 (0.85–1.67)	0.30	1.16 (0.83–1.62)	0.38	1.19 (0.49–2.93)	0.70	1.22 (0.79–1.87)	0.10	5.36 (1.09–26.27)	0.04
Lives with father	0.71 (0.61–0.83)	<0.001	0.75 (0.64–0.88)	<0.001	0.94 (0.71–1.23)	0.62	0.63 (0.50–0.80)	<0.001	0.72 (0.51–1.04)	0.08
Lives with mother	1.14 (0.97–1.33)	0.12	1.05 (0.89–1.23)	0.58	1.07 (0.81–1.41)	0.63	1.04 (0.81–1.34)	0.69	1.09 (0.75–1.56)	0.67
Household wealth quintile (reference: poorest)										
Poor	1.06 (0.87–1.30)	0.57	1.05 (0.86–1.29)	0.62	1.04 (0.75–1.43)	0.83	1.05 (0.73–1.50)	0.36	1.39 (0.90–2.16)	0.14
Average	1.08 (0.86–1.34)	0.51	1.05 (0.84–1.32)	0.65	1.37 (1.00–1.87)	0.05	0.91 (0.62–1.35)	0.03	1.07 (0.68–1.69)	0.77
Rich	1.13 (0.91–1.41)	0.28	1.10 (0.88–1.38)	0.40	1.46 (1.05–2.02)	0.02	0.98 (0.67–1.45)	0.03	1.37 (0.90–2.10)	0.14
Richest	1.35 (1.08–1.70)	0.01	1.27 (1.01–1.59)	0.04	1.48 (1.04–2.09)	0.03	1.18 (0.80–1.75)	0.44	1.64 (1.05–2.55)	0.03

Note. Model 1 was a multivariate logistic regression model that included all covariates with the exception of maternal violence victimization in the pooled sample, which also included country fixed effects (data not shown). Model 2 was a multivariate logistic regression model that included all covariates including maternal violence victimization in the pooled sample, which also included country fixed effects (data not shown). Model 3 was a multiple group model that estimated country-specific results. Results indicated that the odds ratio for paternal violence victimization did not significantly differ by country: in Malawi versus Nigeria ($p = 0.12$), Malawi versus Zambia ($p = 0.88$), and Nigeria versus Zambia ($p = 0.30$).

Table 3
Adjusted associations between paternal violence victimization and peer violence perpetration in pooled sample based on two separate multigroup analyses by (a) youth age and (b) sex.

	(a) Multigroup analysis by youth age groups			(b) Multigroup analysis by youth sex		
	13–17 yrs (N = 3514)	18–24 yrs (N = 4274)	p-value of difference between groups	Boys (N = 4294)	Girls (N = 3494)	p-value of difference between groups
Paternal violence victimization	1.69 (1.36–2.12)	1.79 (1.50–2.15)	0.70	1.77 (1.49–2.10)	1.64 (1.27–2.11)	0.63
	<0.001	<0.001		<0.001	<0.001	

Cells represent OR (95% CI) and p-value. Models adjust for: youth age, sex, relationship status, education, maternal violence victimization, witnessing violence in home, maternal and paternal residential status, household wealth quintile, and country fixed effects.

physical and emotional violence had the largest relative association (OR = 2.37, 95% CI: 1.79–3.13).

Lastly, we tested whether youth mental distress and alcohol use mediated the direct association between paternal violence victimization and peer violence perpetration. Descriptively one in three youth reported symptoms of mental distress (33.5% for boys and 34.1% for girls) and 16.6% reported alcohol use in the past 30 days (23.2% for boys and 9.1% for girls) (Table 1 and Supplementary Table 3). The path model showed satisfactory model fit statistics: comparative fit index score = 0.95; root mean squared error of approximation = 0.07; standardized

root mean squared residual = 0.02. Significant associations were observed for each of the direct paths (Fig. 1). After controlling for maternal violence victimization and other covariates, paternal violence victimization was directly associated with greater youth mental distress ($b = 0.25$, $SE = 0.04$, $P < 0.001$), which in turn was directly associated with an increased predicted probability of peer violence perpetration ($b = 0.14$, $SE = 0.03$, $P < 0.001$). A significant indirect path was observed via youth mental distress ($b = 0.04$, $SE = 0.01$, $P < 0.001$), which independently explained 12.8% of the total association. Additionally, paternal violence victimization was directly associated with increased

Table 4
Adjusted associations between types of paternal violence victimization and peer violence perpetration among youth in pooled sample.

	Pooled sample (N = 7832)	
	OR (95% CI)	p-value
Type of paternal violence victimization (reference: none)		
Physical only	1.74 (1.46–2.06)	<0.001
Emotional only	1.29 (0.98–1.70)	0.12
Physical and emotional	2.37 (1.79–3.13)	<0.001

Model adjust for: youth age, sex, relationship status, education, type of maternal violence victimization (i.e., none, physical only, emotional only, both physical and emotional), witnessing violence in the home, maternal and paternal residential status, household wealth quintile, and country fixed effects.

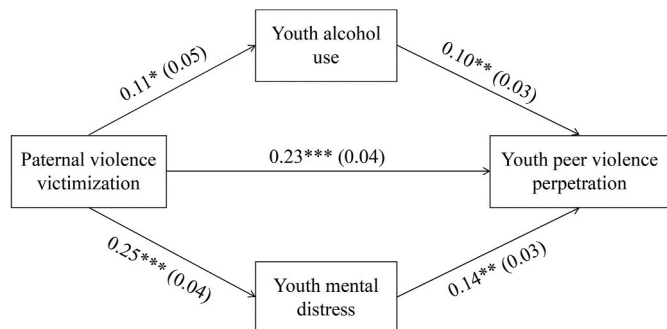


Fig. 1. Path model of the associations between paternal violence victimization, youth alcohol use, mental distress, and peer violence perpetration. Path model includes full set of covariates, but not shown. Coefficients represent unstandardized probit regression coefficients based on WLSMV model, with standard errors in parentheses. *P < 0.05; **P < 0.01; ***P < 0.001.

probability of youth alcohol use ($b = 0.11$, $SE = 0.05$, $P = 0.026$), which in turn was directly associated with increased probability of peer violence perpetration ($b = 0.10$, $SE = 0.03$, $P = 0.001$). The indirect path via youth alcohol use was marginally significant ($b = 0.01$, $SE = 0.01$, $P = 0.081$) and independently explained 4.3% of the total association.

The sensitivity analysis using BC bootstrapped standard errors provided more robust supporting evidence of mediation through these two pathways. A significant indirect path was observed via youth mental distress ($b = 0.05$, BC bootstrapped 95% CI: 0.03–0.08), which independently explained 15.8% of the total association. A significant indirect path was also observed via youth alcohol use ($b = 0.03$, BC bootstrapped 95% CI: 0.01–0.05), which independently explained 8.7% of the total association. Together, the indirect effects via youth mental distress and alcohol use explained 24.5% of the total effect.

3. Discussion

In this study, we used data from over 8000 youth aged 13–24 years to investigate the association between paternal violence victimization and peer violence perpetration in Malawi, Nigeria, and Zambia. We found that paternal violence victimization independently predicted peer violence perpetration among youth in the pooled sample and in country-specific analyses. Although prior evidence from LMICs has consistently documented how parental violence victimization predicts individuals' violence perpetration over the life course (Alangea et al., 2018; Wirtz et al., 2018; Yount et al., 2014), the existing evidence to date has largely focused on parental violence victimization from any unspecified caregiver, any adult in the household, or specifically by mothers.

Importantly, we also found consistent associations between maternal violence victimization and peer violence perpetration among youth, which is in line with prior evidence and consistent with roles of mothers as the primary caregivers who often spend the most time interacting

with their children (Cui et al., 2018). Still our analysis is one of the first studies from LMICs to reveal that fathers' use of violence, controlling for witnessing violence and maternal violence, predicts peer violence perpetration. Our findings extend a recent study by de Vries and colleagues using data from a large population-based cohort study in the Netherlands that similarly found that paternal harsh discipline predicts later bullying behaviors of children, after controlling for maternal harsh discipline and other characteristics (de Vries et al., 2018). In accordance with social learning theory, paternal violence victimization may signal to children that hostile and aggressive behaviors are acceptable means of interacting, thereby likely increasing youth endorsement and perpetration of violence for conflict resolution with their peers and intimate partners (de Vries et al., 2018; Simons and Wurtele, 2010). Our findings suggest that paternal violence should be addressed for preventing the cycle of violence perpetration for boys and girls (Hellmann et al., 2018).

We found that the association between paternal violence victimization and peer violence perpetration was similar between younger and older aged youth as well as between boys and girls. Our results extend prior studies on youth violence victimization and perpetration that have focused in samples of exclusively girls (Alangea et al., 2018; Falb et al., 2017) or boys (VanderEnde et al., 2016; Yount et al., 2014; Zietz et al., 2020). While our results indicate that the associations were consistent, and highlight the wide-ranging potential for strategies to address violence experienced and perpetrated by male and female youth aged 13–24 years, it is worth noting that we identified rates of paternal violence victimization and peer violence perpetration against a partner that were descriptively twofold larger among boys than girls in the pooled sample and consistently so across countries. Taken together, these findings emphasize the need for additional analyses disaggregated by sex and by caregiver to inform whether program adaptations may be needed to equitably and effectively engage and support caregivers and their sons and daughters in this area of parental violence and peer violence. Studies have underscored how gender and social norms influence family and peer violence with regards to parenting beliefs for sons versus daughters, the acceptability of male-perpetrated violence in households, and the value of men's power as authoritarians and decision-makers in relationships (Barker et al., 2010; Lokot et al., 2020).

Our mediation analysis revealed that youth alcohol use and mental distress explained a quarter of the total association between paternal violence victimization and peer violence perpetration. A growing body of research across LMICs has documented mental health and substance use as predictors of youth peer violence perpetration in Malawi (Kidman and Kohler, 2020), South Africa (Jewkes et al., 2006), the United States, South Africa, India, and China (Peitzmeier et al., 2016). Other studies using VACS data have also linked youth experiences of emotional violence to lifetime suicidal ideation (Seff and Stark, 2019). These findings are consistent with trauma theories that suggest survivors of abuse are more often exposed to other forms of violent experiences and process their experiences through symptoms of PTSD and less effective coping mechanisms in life (Bell and Orcutt, 2009). Still other unaccounted mechanisms remain to explain the large persisting association between paternal violence victimization and peer violence perpetration. Alternative pathways – such as attitudes about violence and gender norms (Peitzmeier et al., 2016), self-esteem (Calvete et al., 2018), and peer networks (Brendgen et al., 2002) – should be investigated in future research.

Our results highlight opportunities for engaging fathers in addition to mothers who have traditionally been the primary caregivers involved in primary and secondary prevention interventions to reduce violence against children and youth (Hillis et al., 2016). Although the majority of parenting programs in LMICs have focused particularly on increasing parental stimulation and learning activities during early childhood, a growing body of parenting support programs have shown effectiveness for promoting non-violent, age-appropriate alternatives to harsh discipline and negative parenting practices across childhood and adolescence (Cluver et al., 2020; Coore Desai et al., 2017; McCoy et al., 2020). In fact,

considering how the majority of youth in our study (54%) reported their earliest experience of paternal violence between ages 6 and 11 years, parenting interventions that extend beyond early childhood into middle childhood and adolescence and also address violence prevention are needed (Carlson et al., 2015).

There is emerging evidence for parenting interventions that have successfully engaged fathers to effectively reduce paternal violence against children in the sub-Saharan African context. For example, the REAL Fathers intervention in rural Uganda engaged fathers with children under age 3 years and delivered men's peer-groups including sessions on violence prevention against spouses and young children as well as on positive parenting practices. Program evaluation results revealed reductions in fathers' intimate partner violence perpetration and child maltreatment and increased paternal engagement with their children (Ashburn et al., 2017). In addition, a parenting program in Tanzania – focused on promoting parenting skills, child protection, and family budgeting – targeted caregivers of children under age 18 years (50% of whom were fathers) through existing community farmers groups and was effective for reducing parental violence against children (Lachman et al., 2020). Importantly however, neither intervention evaluation assessed child peer violence perpetration as an outcome. Future parenting programs should engage fathers to reduce intergenerational cycles of parental violence against children and youth while additionally considering a lifecourse perspective to prevent the potential negative consequences that child victims may carry forward and use against their peers. Effectively engaging fathers in parenting programs will require special considerations with regards to program delivery aspects such as timing, frequency, and duration of sessions (i.e., shorter sessions that do not clash with men's work commitments) and the gender composition of facilitators with participants per local sociocultural norms (i.e., fathers-only versus couples sessions; male facilitators for father sessions) (Panter-Brick et al., 2014). These program implementation features deserve attention in order to optimize the design and effectiveness of future parenting and violence prevention interventions for specifically fathers.

3.1. Limitations

There are several limitations worth noting. First, data from the VACS are cross-sectional, and causality in the observed associations cannot be established, especially with regards to the direct and indirect effects suggested from the path model. Detailed information on the timing of the exposure, outcome, and mediator variables is unavailable, and thus these experiences may be occurring in the same time period. As such, results should be interpreted with caution and may be best used to generate hypotheses to further explore using longitudinal data. Second, there is the possibility of selection bias and underestimating the prevalence of paternal and maternal violence victimization since the VACS are based on caregiver consent and there may be a pattern between those caregivers who refuse and family violence. In addition, the primary exposure variable of parental violence victimization captured whether the parent was identified as the perpetrator of the youth's first and/or most recent experiences of violence. The measure did not capture violence victimization that occurred between the time of the first and most recent experience, which would likely underestimate true paternal violence victimization. At the same time, this underestimation would likely bias our results toward the null, which suggests that the reported associations may in fact be meaningful. Moreover, reports of first incidents of violence victimization can be subject to recall bias, and the measure more generally did not capture frequency, duration, or severity of violence victimization. Third, the outcome measure for youth peer violence perpetration was limited to few items (i.e., three for physical and one for sexual violence), excluded emotional violence, and did not capture timing or frequency of perpetration. Finally, our selection of covariates was limited to the available data collected in the VACS, and we were unable to control for other variables, such as paternal

parenting, youth developmental outcomes, or community violence.

4. Conclusion

In conclusion, our study documents associations between paternal violence victimization and peer violence perpetration among youth aged 13–24 years in three sub-Saharan African countries. Our findings shed new light onto the role of fathers in family and youth violence and reveal links in the transmission of violence between and across key social and relational contexts of youth (i.e., parent-child and peer relationships). Taken together, our results provide novel future directions for violence prevention through multicomponent interventions that engage fathers and mothers to foster safe and supportive youth relationships and potentially address youth alcohol use and mental distress in the context of improving parent-child and peer relationships dynamics. Such two-generation approaches to violence prevention beginning during childhood and engaging both caregivers and adolescents are likely to prevent lifecourse and intergenerational cycles of violence by promoting safer, more nurturing, and equitable relationships in the most proximal family and peer contexts of children and youth, thereby contributing to improved population health and wellbeing.

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Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.socscimed.2021.113943>.

Author contributions

JJ conceptualized the study, managed the data, conducted the analyses, and drafted the manuscript. AB co-drafted part of the introduction. All authors (JJ, AB, SS, and AA) contributed to the interpretation of findings, revised the manuscript critically, approved the final manuscript as submitted, and agree to be accountable for all aspects of the work.

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