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# Prevalence of childhood exposure to intimate partner violence and associations with mental distress in Cambodia, Malawi and Nigeria: A cross-sectional study

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## ABSTRACT

**Background:** Research from high-income countries shows that witnessing intimate partner violence (IPV) between caregivers is experienced by up to a third of all children and is related to poor mental health outcomes. Much less is known about the burden of witnessing IPV in low- and middle-income countries.

**Objectives:** This study seeks to explore the magnitude of witnessing IPV between caregivers, its association with other types of violence and the relationship between witnessing IPV in the past and current mental distress.

**Participants and setting:** Representative data from the Violence against Children Surveys (VACS) from Cambodia (N = 2373), Malawi (N = 2147) and Nigeria (N = 4098) are employed.

**Methods:** Logistic regression was applied to assess the association between witnessing IPV in childhood and mental distress in adulthood.

**Results:** Between 22.4 % and 34.3 % of participants witnessed IPV between their caregivers during childhood. Respondents who witnessed IPV had higher odds of mental distress, compared to those who did not witness IPV in Cambodia (OR 2.73 [2.02, 3.72] for females, OR 2.38 [1.67, 3.41] for males) and Malawi (OR 2.48 [1.43, 4.28] for females, OR 1.66 [1.11, 2.48] for males). In Nigeria only male respondents who witnessed IPV had higher odds of mental distress (OR 2.12 [1.60, 2.80]), but females had no significant association (OR 0.91 [0.68, 1.20]).

**Conclusions:** The findings highlight the association of negative mental health consequences faced by children living in households with intimate partner violence for selected low- and middle-income countries. Children's exposure to IPV should be considered when providing support to survivors of IPV. Special considerations should be made to provide culturally and resource-appropriate support.

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## 1. Introduction

One in three women globally suffer intimate partner violence (IPV) in her life (García-Moreno et al., 2013). IPV not only leads to severe and long-lasting effects on the health of women, such violence often takes place in the presence of children. Population-based studies show that 8–25 % of children in high-income countries and 10–39 % of children in middle-income countries are witnessing IPV in their home (Fang et al., 2015; Gilbert et al., 2009).

Intimate partner violence is a behaviour within an intimate relationship that causes physical, sexual or psychological harm including acts of physical aggression, sexual coercion, psychological abuse and controlling behaviours (Krug, Dahlberg, Mercy, Zwi, & Lozano, 2002). It can include physical violence, such as hitting, kicking, or beating; psychological harm such as controlling behaviours including the forced isolation from family or friends or restricting access to services; and it can include sexual violence, such as forced intercourse (Feder & MacMillan, 2020). While children's exposure to IPV is often referred to as witnessing IPV, which implies the direct observation of violent behaviour, it is now increasingly recognized that harmful outcomes can result from being merely aware of violence between caregivers (MacMillan & Wathen, 2014). The majority of the existing surveys and items commonly used to measure witnessing IPV, however, operationalizes witnessing IPV as seeing or hearing violent behaviour. For this reason, we only include direct observation of violent behaviour by an intimate partner in our definition for the purpose of this study.

Witnessing IPV between caregivers as a child, hereafter referred to as "witnessing IPV", has been associated with a broad range of physical and mental health problems, health risk behaviours and social consequences in samples from North America and few other high-income countries. These include physical manifestations, such as eating and sleeping complaints and pain problems (Artz et al., 2014), delays in developmental milestones (Gilbert, Bauer, Carroll, & Downs, 2013), health risk behaviours such as the harmful use of tobacco and alcohol, substance use and sexual risk behaviours (Wood & Sommers, 2011), reduced cognitive ability and educational achievement (Fry et al., 2018), and increased risk of involvement in a violent marital relationship in adulthood (Wood & Sommers, 2011). Mental health consequences include increased risk of depression, anxiety, conduct disorder, adjustment problems, and post-traumatic stress disorder (Evans, Davies, & DiLillo, 2008; Vu, Jouriles, McDonald, & Rosenfield, 2016). A meta-analysis found that children who witnessed IPV had a similar risk for child behaviour problems as direct victims of child maltreatment (Sternberg, Baradaran, Abbott, Lamb, & Guterman, 2006).

Witnessing IPV in the home often overlaps with other types of violence against children. Data from population-based studies in the United States have shown that 31.1 % of children who witnessed IPV were victims of physical abuse, compared to 4.8 % of children who did not witness IPV (Hamby, Finkelhor, Turner, & Ormrod, 2010). A total of 5.3 % of children who witnessed IPV were sexually abused by an adult known to them, whereas only 0.4 % of those who did not witness IPV were sexually abused by somebody they knew. Witnessing IPV in the home is considered an Adverse Childhood Experience (ACE), which refers to potentially traumatic experiences happening between the ages of 0–17 years (Centers for Disease Control & Prevention, 2020). ACEs have been associated with premature death and a long-lasting impact on children's health, health risk behaviours, toxic stress and social development (Felitti et al., 1998; Garner et al., 2012). From the ACEs research on poly-victimization – the co-occurring exposure to several types of violence – we know that the more adversities a child experiences, the higher the likelihood of experiencing negative health consequences (Finkelhor, Ormrod, & Turner, 2007).

Little data exist on children's experiences of witnessing IPV from low- and middle-income countries. Most nationally representative studies measure witnessing IPV retrospectively in adults as part of a larger survey, such as the Demographic and Health Surveys, and the majority of these measure witnessing of such violence only in females (Antai, Braithwaite, & Clerk, 2016; Atteraya, Gnawali, & Song, 2015; Islam et al., 2017; Meekers, Pallin, & Hutchinson, 2013; Solanke, Bisiriyu, & Oyedokun, 2018; Speizer, 2010; Tenkorang, Owusu, Yeboah, & Bannerman, 2013; Thomson, Bah, Rubanzana, & Mutesa, 2015; Uthman, Moradi, & Lawoko, 2011). Studies that measure witnessing IPV in children, adolescents, and young adults are often characterized by small sample sizes or focus only on one or two regions of the country (Devries et al., 2017; Lakhdir et al., 2017; Neupane et al., 2018; Wahdan, El-Nimr, Kotb, & Wahdan, 2014). Due to differences in sampling strategies, included age groups, and measurement instruments, data on witnessing IPV between caregivers are rarely comparable between countries.

Worldwide 10–20 % of children and adolescents experience mental disorders (Kessler et al., 2007). Mental health conditions are the leading cause of disability in young people worldwide. If they are not recognized and addressed they can severely impact children's development, educational attainment and their potential to live fulfilling and productive lives (World Health Organization, 2020). In research from high-income countries strong associations between the exposure of witnessing IPV and various mental health problems were found (Evans et al., 2008; Vu et al., 2016). Only a few studies from low- and middle-income countries explored the associations between witnessing IPV and mental distress. One cross-sectional survey of schoolchildren in one district of Uganda found that the risk for having mental health difficulties was two times higher in students who experienced physical violence and even four times higher if they witnessed IPV in addition to experiencing violence themselves. This suggests an additive effect of witnessing IPV (Devries et al., 2017). A longitudinal study from a metropolitan area in the Philippines showed that both males and females who had witnessed IPV were significantly more likely to report depressive symptoms and suicidal ideation (Hindin & Gultiano, 2006).

The purpose of this study is to explore the associations between witnessing IPV in the past and current mental distress in three distinct low- and middle-income countries using comparable data from population-based surveys.

The specific aims of this study are to:

- 1 Determine the prevalence of witnessing IPV and examine how witnessing IPV is associated with other types of violence.
- 2 Assess the association between witnessing IPV and mental distress in the context of exposure to other forms of child maltreatment.

**Table 1**  
Sociodemographic characteristics of female and male youths aged 13–24 in Cambodia (2013), Malawi (2013), and Nigeria (2014), Violence Against Children Surveys.

Sociodemographic characteristic	Cambodia				Malawi				Nigeria			
	Females (n = 1121)		Males (n = 1255)		Females (n = 1029)		Males (n = 1133)		Females (n = 1766)		Males (n = 2437)	
	%	95 % CI	%	95 % CI	%	95 % CI	%	95 % CI	%	95 % CI	%	95 % CI
<b>Age-group</b>												
13–17 years	44.2	[41.0; 47.4]	46.8	[43.1; 50.4]	43.1	[37.2; 49.0]	47.3	[42.6; 52.0]	40.8	[37.7; 44.0]	45.4	[42.6; 48.1]
18–24 years	55.8	[52.6; 59.0]	53.2	[49.6; 56.9]	56.9	[51.0; 62.8]	52.7	[48.0; 57.4]	59.2	[56.0; 62.3]	54.6	[51.9; 57.4]
<b>Highest completed level of schooling</b>												
Never attended school	4.2	[2.7; 5.7]	2.7	[1.6; 3.8]	4.9	[2.9; 6.9]	3.2	[2.0; 4.4]	22.5	[18.0; 26.9]	13.0	[9.0; 17.1]
Less than primary	27.6	[22.8; 32.4]	35.8	[31.3; 40.2]	0.4	[0.0; 0.9]	0.0	[0.0; 0.1]	1.6	[0.7; 2.6]	2.1	[1.1; 3.2]
Primary	34.7	[31.3; 38.1]	41.5	[37.9; 45.1]	71.0	[63.8; 78.3]	67.5	[62.1; 72.9]	15.3	[12.4; 18.2]	14.5	[12.6; 16.3]
Secondary	21.0	[17.5; 24.4]	16.7	[13.6; 19.8]	22.2	[15.6; 28.8]	27.6	[22.3; 33.0]	50.4	[46.1; 54.6]	58.9	[54.8; 63.0]
Higher than secondary	12.6	[9.1; 16.0]	3.3	[1.4; 5.3]	1.5	[0.3; 2.7]	1.7	[0.1; 3.2]	10.2	[7.3; 13.1]	11.4	[9.3; 13.6]
<b>Parents</b>												
Live with biological mother <sup>1</sup>	84.2	[81.5; 86.6]	88.1	[86.0; 89.9]	44.2	[40.0; 48.9]	63.0	[59.3; 66.6]	57.5	[53.4; 61.5]	78.8	[76.8; 80.7]
Live with biological father <sup>1</sup>	72.3	[68.5; 75.8]	80.6	[77.7; 83.2]	31.2	[27.9; 34.7]	48.3	[44.4; 52.2]	54.0	[50.2; 57.8]	75.0	[72.5; 77.4]

Notes:

All estimates have been calculated with weighted data taking into account complex survey designs.

CI = Confidence interval.

<sup>1</sup> Lived with biological mother or father at the time of the survey interview.

**Table 2**

Prevalence estimates for different types of victimization and mental distress in female and male youth aged 13–24 in Cambodia (2013), Malawi (2013), and Nigeria (2014), Violence Against Children Surveys.

	Cambodia				Malawi				Nigeria			
	Females		Males		Females		Males		Females		Males	
	%	(95 % CI)	%	(95 % CI)	%	(95 % CI)	%	(95 % CI)	%	(95 % CI)	%	(95 % CI)
Witnessed IPV (lifetime) <sup>1</sup>	22.4	[19.0; 26.3]	23.5	[20.7; 26.6]	30.6	[25.6; 36.1]	31.2	[27.2; 35.5]	34.3	[30.3; 38.4]	26.6	[23.5; 30.0]
Witnessed IPV (past 12 months) <sup>2</sup>	7.6	[5.9; 9.8]	6.3	[4.7; 8.5]	14.7	[9.5; 22.2]	10.9	[7.9; 14.9]	17.5	[14.0; 21.6]	12.4	[9.5; 16.1]
Physical abuse <sup>3</sup>	50.2	[45.5; 54.9]	48.8	[45.1; 52.6]	33.8	[30.1; 37.7]	48.7	[43.7; 53.8]	41.0	[37.3; 44.9]	39.1	[35.6; 42.8]
Sexual violence <sup>4</sup>	8.0	[6.1; 10.5]	7.2	[5.5; 9.4]	33.4	[28.7; 38.5]	20.8	[17.4; 24.6]	35.5	[32.3; 38.8]	19.6	[17.4; 21.9]
Moderate and severe mental distress	42.7	[39.0; 46.5]	31.3	[28.1; 34.6]	34.9	[31.2; 38.8]	35.2	[31.4; 39.1]	34.6	[31.1; 38.3]	34.1	[31.0; 37.4]

## Notes:

All estimates have been calculated with weighted data taking into account complex survey designs.

CI = Confidence interval.

<sup>1</sup> Seeing or hearing parent being punched, kicked or beaten up by the other parent, their boyfriend or girlfriend in their lifetime prior to the age of 18.

<sup>2</sup> Past 12-months prevalence was assessed only in 13–17 year-olds.

<sup>3</sup> Physical abuse includes slapping, pushing or punching, kicking, whipping, beating with an object, choking, smothering, trying to drown, burning, using or threatening to use a gun, knife or other weapon by a caregiver.

<sup>4</sup> Sexual violence includes unwanted sexual touching, unwanted attempted sex, physically forced sex, and pressured (threats, harassment, luring, or tricking) sex in their lifetime up to age 24.

**Table 3**

Association between physical violence, sexual violence, and witnessing IPV in female and male youths aged 13–24 in Cambodia (2013), Malawi (2013), and Nigeria (2014), Violence Against Children Surveys.

Sex	Witnessed IPV <sup>1</sup>	Experienced physical violence <sup>2</sup>			Experienced sexual violence <sup>3</sup>		
		%	[95 % CI]	<i>p</i>	%	[95 % CI]	<i>p</i>
<b>Cambodia</b>							
Females	yes	73.6	[64.9; 80.7]	<.001	15.7	[10.8; 22.2]	<.001
	no	43.4	[39.0; 47.9]		5.9	[4.0; 8.6]	
Males	yes	68.0	[61.5; 73.9]	<.001	9.5	[6.1; 14.4]	.073
	no	42.8	[38.5; 47.2]		6.4	[4.8; 8.6]	
<b>Malawi</b>							
Females	yes	41.7	[34.0; 49.8]	.033	38.9	[32.7; 45.6]	.021
	no	30.1	[25.2; 35.6]		31.2	[26.3; 36.6]	
Males	yes	63.9	[56.1; 71.1]	<.001	28.9	[21.5; 37.7]	.003
	no	41.8	[36.2; 47.6]		17.0	[13.9; 20.7]	
<b>Nigeria</b>							
Females	yes	42.3	[36.3; 48.6]	.738	38.1	[33.0; 43.5]	.383
	no	41.0	[36.2; 45.9]		35.3	[31.3; 39.4]	
Males	yes	56.0	[49.6; 62.1]	<.001	30.2	[25.8; 34.9]	<.001
	no	32.9	[29.4; 36.7]		16.0	[13.6; 18.7]	

**Notes:**

All estimates have been calculated with weighted data taking into account complex survey designs.

CI = Confidence interval.

*P* = Chi-square *p* value.

<sup>1</sup> Seeing or hearing parent being punched, kicked or beaten up by the other parent, their boyfriend or girlfriend in their lifetime prior to the age of 18.

<sup>2</sup> Physical violence includes slapping, pushing or punching, kicking, whipping, beating with an object, choking, smothering, trying to drown, burning, using or threatening to use a gun, knife or other weapon by a caregiver.

<sup>3</sup> Sexual violence includes: unwanted sexual touching, unwanted attempted sex, physically forced sex, and pressured (threats, harassment, luring, or tricking) sex.

**2. Methods****2.1. Design**

We analysed data from the Violence Against Children Surveys (VACS) from Cambodia, Malawi and Nigeria. These cross-sectional surveys were developed by the United States Centers for Disease Control and Prevention (CDC), the United Nations Children's Fund (UNICEF) and host country partners to produce comparable nationally representative estimates on all types of violence against children. They were administered in 2013 and 2014 to children and youth aged 13–24 years via face-to-face interviews by survey workers recruited in the host country and trained by CDC.

**2.2. Sampling**

To produce nationally representative estimates in each of the three countries, a three-stage, cluster sampling strategy was applied. In a first step, primary sampling units were selected based on existing enumeration areas from national census data. The enumeration areas were stratified by region to ensure that urban and rural areas reflect the proportions within the country (Nguyen, Kress, Vil-laveces, & Massetti, 2019). A split sample approach was then applied. The survey for females was conducted in different enumeration areas than the survey for males, to avoid interviewing both victims and perpetrators of violence within the same areas, as recommended by international ethical standards for the research on violence against women (World Health Organization, 2001). In stage three, an equal number of households from all enumeration areas was selected by equal probability systematic sampling. One male or female participant was randomly selected from the list of eligible participants in each household using the Kish method (Kish, 1949). The VACS methodology is described in further detail elsewhere (Nguyen et al., 2019). Details about each country's sampling design are provided in the individual country reports (Ministry of Gender, Children, Disability and Social Welfare of the Republic of Malawi et al., 2014; Ministry of Women's Affairs Kingdom of Cambodia et al., 2014; National Population Commission of Nigeria, United Nations Children's Fund Nigeria, & United States Centers for Disease Control and Prevention, 2016).

**2.3. Data collection procedure**

Data for the VACS surveys were collected in 2013 in Cambodia and Malawi and in 2014 in Nigeria. All participants provided informed verbal consent to take part in the study, in compliance with the WHO guidelines for conducting community surveys on injuries and violence (World Health Organization, 2004). Ethical approval was obtained from the review board of CDC as well as from each host country's review board.

The survey administrators received comprehensive training on survey content and protocol, ethical aspects of research and

**Table 4**

Association between witnessing IPV and mental distress in female and male youths aged 13–24 in Cambodia (2013), Malawi (2013), and Nigeria (2014), Violence Against Children Surveys.

Country	Sex	Witnessed IPV <sup>1</sup>	Mental distress % <sup>2</sup>	OR	95 % CI	<i>p</i>	Adjusted OR <sup>3</sup>	95 % CI	<i>p</i>
Cambodia (n = 2373)	female	yes	61.8	2.73	[2.02, 3.72]	<.001	2.45	[1.79, 3.36]	<.001
		no	37.2	1.0 (ref.)		1.0 (ref.)		<.001	
	male	yes	46.4	2.38	[1.67, 3.41]	<.001	2.36	[1.65, 3.40]	<.001
		no	26.6	1.0 (ref.)		1.0 (ref.)		<.001	
Malawi (n = 2147)	female	yes	46.2	2.48	[1.43, 4.28]	.001	2.34	[1.36, 4.01]	.002
		no	29.0	1.0 (ref.)		1.0 (ref.)		.002	
	male	yes	45.8	1.66	[1.11, 2.48]	.014	1.33	[0.89, 1.98]	.162
		no	29.7	1.0 (ref.)		1.0 (ref.)		.162	
Nigeria (n = 4098)	female	yes	34.3	0.91	[0.68, 1.20]	.493	0.88	[0.67, 1.17]	.393
		no	36.0	1.0 (ref.)		1.0 (ref.)		.393	
	male	yes	48.8	2.12	[1.60, 2.80]	<.001	1.77	[1.32, 2.36]	<.001
		no	30.6	1.0 (ref.)		1.0 (ref.)		<.001	

**Notes:**

All estimates have been calculated with weighted data taking into account complex survey designs.

OR = Odds ratio.

CI = Confidence interval.

*P* = Chi-square *p* value.

<sup>1</sup> Seeing or hearing parent being punched, kicked or beaten up by the other parent, their boyfriend or girlfriend in their lifetime prior to age 18.

<sup>2</sup> Moderate to severe mental distress measured with the six item Kessler K6 scales. Scores  $\geq 5$  were classified as moderate to severe mental distress.

<sup>3</sup> Odds ratios were adjusted for physical and sexual violence victimization and age.

technology-facilitated data collection (Centers for Disease Control & Prevention, 2017). Survey administrators first interviewed the head of household about sociodemographic characteristics and the composition of the family prior to the interview with the survey participant. In the selected households, interviews were administered face-to-face in a private location. Female participants were interviewed by female survey administrators and male participants by male survey administrators. Participants could decide to opt out at any time or to skip questions that they did not feel comfortable answering. Answers were collected on laptop computers (Nguyen et al., 2019).

#### 2.4. Key variables

VACS are designed to measure the prevalence and circumstances around emotional, physical and sexual violence, including witnessing IPV. They also seek to identify risk and protective factors and consequences of violence (Chiang et al., 2016).

The lifetime prevalence of childhood exposure to parental IPV is assessed by asking participants aged 13–24 how many times they saw or heard their parent being punched, kicked or beaten up by their other parent or partner, irrespective of the gender of the victim or perpetrator (never, once, a few times, many times) prior to the age of 18. For the analysis, the responses were dichotomized: those who reported witnessing IPV between their caregivers at least once were considered witnesses of IPV; those who reported that they had never seen or heard IPV between their caregivers were categorized as not having witnessed IPV. In addition, 13–17 year-old participants were asked whether they witnessed IPV between their caregivers in the past 12 months.

Physical violence by a caregiver was measured through three items which enquired about different forms of severe physical violence (beaten with an object, choked, burned, threatened with a weapon). If any of these items was answered “yes”, the response was classified as having experienced physical violence by a caregiver. Similarly, responses were grouped into having experienced sexual violence if participants reported any type of sexual violence (sexual touching, unwanted attempted sex, physically forced sex, and pressured sex). The reference frame for exposure to physical and sexual violence was the lifetime.

To assess mental distress, the Kessler K6 mental health scale was applied (Kessler et al., 2003). The six-item scale was designed to detect nonspecific distress and includes items that assess anxiety and depression. Each item uses a Likert-type response format from 1 to 5, where 1 corresponds to experiencing a mental health symptom “all the time” and 5 corresponds to “never”. The reference time frame is the past 30 days. The scores of the individual items are reversed and added up into a unidimensional summary score of mental distress. The summary score ranges from 0 to 24 where 0 indicates a minimal and 24 a maximal level of distress. We used a cut-off of  $\geq 5$  to classify persons into the category of moderate or severe mental distress (Fan et al., 2017). The scale has been tested extensively for reliability and validity and has been integrated into several national household surveys and surveillance systems (Drapeau et al., 2010; Tesfaye, Hanlon, Wondimagegn, & Alem, 2010; Tiong et al., 2018). As sociodemographic variables, age, sex, the highest completed level of schooling and whether the young person lived with his or her biological mother at the time survey interview, were considered.

#### 2.5. Statistical analysis

Lifetime prevalence for witnessing IPV and physical and sexual violence victimization as a child was calculated separately for the

three countries and for females and males and are reported along with 95 % confidence intervals (Table 2). To explore whether those who witnessed IPV were more likely to experience physical or sexual violence, Chi<sup>2</sup> tests were performed (Table 3).

Prior to the analysis of the association between witnessing IPV and mental distress, the psychometric properties of the translated Kessler's K6 scale were verified. Confirmatory factor analyses were conducted for each of the sub-samples to test unidimensionality and construct validity of the scale and Cronbach Alpha were calculated for all sub-samples to test internal consistency.

To explore the association between witnessing IPV and moderate to severe mental distress, unadjusted and adjusted logistic regression models were applied. Prior to logistic regression analyses, bivariate correlations and potential collinearity between all variables in the model were examined. Logistic regression models were run separately by country and by sex (Table 4). The models were adjusted for physical violence victimization, sexual violence victimization and age. To explore whether odds ratios between males and females differed, a logistic regression model was applied on merged datasets for males and females, with sex and witnessing IPV as predictor variables, and an interaction term between sex and witnessing IPV. Goodness-of-fit of the models was tested with the Hosmer-Lemeshow-Test.

For the statistical analysis, STATA (Version 14.0; Stata Corp) was used. The analysis takes the complex survey design into account. Sample weights were applied to obtain nationally representative estimates. Observations where key information was missing (1.5 % of the observations) were excluded from the analysis and no missing values were imputed.

### 3. Results

#### 3.1. Demographic characteristics

In Cambodia, 1121 females and 1255 males completed the survey. The response rates were 93.7 % and 92.1 %, respectively. In Malawi the survey was completed by 1029 females (response rate 89.5 %) and 1133 males (response rate 87.4 %) and in Nigeria by 2437 males and 1766 females (response rate for males and females were identical at 93.7 %).

The demographic characteristics of male and female youth across the three countries are described in Table 1. These include the age-group, the highest completed level of schooling, and whether youths in the three countries lived with their biological mother or their biological father.

#### 3.2. Prevalence of different types of victimization and mental distress

Almost a quarter to a third of young people aged 13–24 in the three countries witnessed IPV prior to age 18 (Table 2). In Cambodia 22.4 % of females and 23.5 % of males aged 13–24 witnessed IPV prior to the age of 18. In Malawi 30.6 % of females and 31.2 % of males and in Nigeria 34.3 % of females and 26.6 % of males witnessed IPV. The past-year prevalence of witnessing IPV, which was only measured in those aged 13–17, ranged from 6.3 % (Cambodia females) to 17.5 % (Nigeria females). While we did not find statistical differences between males and females in Cambodia and Malawi, in Nigeria, females were more likely than males to witness IPV in their lifetime (Chi<sup>2</sup>  $p = 0.005$ ; 13–24 year-olds) and in the past year (Chi<sup>2</sup>  $p = 0.05$ ; 13–17 year-olds).

Between a third and half of the young people aged 13–24 experienced physical violence by the hands of a parent, adult caregiver, or adult relative. In Malawi males were more likely to experience physical abuse (Chi<sup>2</sup>  $p < 0.001$ ) compared to females, whereas in Cambodia and Nigeria no significant sex differences were found.

About a third of females and a fifth of the males aged 13–24 in Malawi and Nigeria experienced sexual violence. In both countries significantly more females experienced sexual violence compared to males (Chi<sup>2</sup>  $p = 0.005$  for Malawi; Chi<sup>2</sup>  $p = 0.005$  for Nigeria). In Cambodia 8.0 % of females and 7.2 % of males aged 13–24 experienced sexual violence.

The prevalence of moderate to severe mental distress ranged from 31.3% to 42.7% in young people aged 13–24 in the three countries. While in the two African countries there were no significant differences between males and females, in Cambodia, significantly more females (42.7 %) experienced moderate to severe distress (Chi<sup>2</sup>  $p < 0.001$ ) compared with males (31.3 %).

#### 3.3. Overlaps between witnessing IPV, physical violence, and sexual violence

A large proportion of adolescents and young people aged 13–24 who witnessed IPV was also a victim of physical or sexual violence (Table 3). Except for females in Nigeria, the proportion of young people who suffered physical violence was significantly higher among those who witnessed IPV in their home. A similar pattern emerged for sexual violence. The proportion of those who experienced sexual violence was higher among those who witnessed violence at home in females and males in all three countries. Except for males from Cambodia and females from Nigeria, all differences were statistically significant.

#### 3.4. Association of witnessing IPV and mental distress

Except for females in Nigeria, young people aged 13–24 who witnessed IPV were more likely to experience moderate to severe mental distress in the past 30 days than those who did not witness IPV (Table 4). Those who witnessed IPV during their lifetime had between 1.66 and 2.73 times the odds of experiencing moderate to severe mental distress. After controlling for sexual violence victimization, physical violence victimization, and age, young people who witnessed IPV in the home had between 1.33 and 2.45 times higher odds of experiencing moderate to severe mental distress. Except for males in Malawi and females in Nigeria, the adjusted odds ratios were statistically significant. Males in Malawi who witnessed IPV had 1.33 (CI 0.89, 1.98) times higher odds of experiencing

moderate to severe mental distress after controlling for sexual violence victimization, physical violence victimization, and age. While the odds ratio points in the same direction as in the populations mentioned previously, the 95 % CI includes 0, so there is more uncertainty about this estimate. There could be no difference or even a slight decrease of the odds. The proportion of females in Nigeria with moderate to severe mental distress was almost similar among those who witnessed violence (42.3 %) and who did not witness violence (41.0 %). The difference was statistically not significant ( $p = .383$ ).

#### 4. Discussion

Our research shows that witnessing IPV is experienced by a large proportion of adolescents and young adults in the three countries and that it is associated with higher levels of mental distress. The association between witnessing IPV and mental distress persisted after adjustment for other forms of victimization.

The prevalence of witnessing IPV was in between 22.4 and 34.3 %, in other words in between a quarter and a third of young people aged 13–24 witnessed IPV prior to turning 18. Overall, the prevalence estimates in the three countries were slightly higher than prevalence estimates from higher-income countries (Gilbert et al., 2009).

Except females in Nigeria, males and females who witnessed IPV had almost two to three times the odds of experiencing moderate to severe mental distress compared to those who did not witness IPV. Except for males in Malawi, the association remained stable after controlling for physical and sexual violence victimization and age. These results are similar to those of high-income countries, where witnessing IPV during childhood has been associated with mental health consequences that are comparable to the consequences faced by victims of child abuse and neglect (Evans et al., 2008; Sternberg et al., 2006; Vu et al., 2016). There are various pathways through which witnessing IPV can lead to mental distress. Witnessing IPV can have direct effects, such as trauma and distress resulting from being exposed to a violent situation. It can also have indirect effects, such as disruptions in care due to mental or physical impairment experienced by a caregiver who is a victim of IPV, or disruptions in daily routines due to instability of living arrangements, such as temporary stays in shelters. Families in which IPV is present often have other co-occurring problems that might influence mental health outcomes (Vu et al., 2016).

Of note is the lack of association between witnessing IPV and mental distress in females in Nigeria. It is possible that the presence of other stressors obscured the relationship between witnessing IPV and mental distress. Females in Nigeria had high prevalence levels of witnessing IPV and sexual violence victimization; they might be at particular risk of other adversities that were not captured in our study. Alternatively, young females in Nigeria may have developed coping strategies and thus have become resilient to witnessing IPV. Across all countries, exposure to physical and sexual violence victimization moderated the association between witnessing IPV and mental distress.

Similar to other regions of the world, there is substantial overlap between different types of violence (Cyr et al., 2013; Finkelhor, Turner, Shattuck, & Hamby, 2015; Guedes, Bott, Garcia-Moreno, & Colombini, 2016). In all countries, except females in Nigeria, the prevalence for physical violence was significantly higher for those who have witnessed IPV. IPV and physical child maltreatment commonly co-occur in the same household, often perpetrated by the same person (Appel & Holden, 1998). The overlap between witnessing IPV and sexual violence is almost as pronounced. In all countries, except females in Nigeria and males in Cambodia, a significantly larger proportion of youths that had witnessed IPV also experienced sexual violence. Risks for sexual violence are complex and involve the interaction of various risk factors at the individual, family and community level (Tharp et al., 2013). Risk factors such as a poor relationship with parents, poverty, parental unemployment, substance use, or lower levels of education are shared with witnessing IPV, which can explain the overlap between sexual violence and witnessing IPV (Herrenkohl, Sousa, Tajima, Herrenkohl, & Moylan, 2008).

Our study explores the association between witnessing IPV and moderate to severe mental distress at the population-level in selected low- and middle-income countries. It shows that exposure to parental violence has independent and unique effects on mental distress, after accounting for any co-occurring physical and sexual violence in young males and females. These effects were not found for females in Nigeria, which suggests that this association may not be generalized to all populations. It may be that contextual or cultural factors play a role. It will be important to examine the association between witnessing IPV in childhood and mental distress in samples from other countries to further examine this hypothesis.

##### 4.1. Limitations

In this study, participants up to the age of 24 were asked retrospectively about their exposure to parental violence prior to the age of 18. Reporting on childhood experiences retrospectively can be influenced by recall bias. Older participants might be less likely to recall incidents of violence in the home during their childhood. Furthermore, older participants are more likely to experience mental distress (Kessler et al., 2005). This can lead to an underestimation of the association between witnessing IPV and mental distress. Asking younger children about their current exposure to IPV could help reduce such bias, but there are ethical and developmental challenges associated with interviewing younger children about their experience of violence.

The study uses a cross-sectional design, therefore causality between exposure to parental IPV and moderate to severe mental distress cannot be determined. Longitudinal studies from high-income countries suggest that children's exposure to IPV is a risk factor for future mental distress and problem behaviours (Vu et al., 2016). There are, however, studies that suggest a bidirectional relationship in that mental health problems in children increase the risk for interparental conflict and IPV (Neiderhiser, Marceau, & Reiss, 2013).

The association between witnessing IPV and mental distress can also be confounded by additional variables, such as socio-economic

status and other social determinants. Children who experience more adversities have a higher risk for mental distress and mental disorders (Kessler et al., 2010; Lund et al., 2010) and a higher risk for growing up in families with violence (Capaldi, Knoble, Shortt, & Kim, 2012).

The VACS defines children's exposure to IPV as witnessing acts of physical aggression; the definition does not include other forms of IPV, such as psychological aggression. The question that was used only measured directly seeing or hearing violence between caregivers. Some researchers argue that the mere awareness of violence between parents can have equally negative effects on children as observing violent incidents directly (McTavish, MacGregor, Wathen, & MacMillan, 2016). This might lead to an underestimation of the prevalence of exposure to IPV.

#### 4.2. Implications

While countries in many parts of the world are increasingly delivering services to survivors of IPV, the impact of witnessing IPV on children and the co-occurrence with different types of violence are rarely addressed (Guedes et al., 2016). Services for adults exposed to IPV and health services for child victims of violence are often delivered through different parts of the health or social care systems. Poly-victimization – being simultaneously exposed to various types of violence – and the increased impact that these multiple exposures have on health, is often not taken into account.

Results of this study suggest that healthcare and social service providers should be aware of the impact that IPV can have on children and assess their need for relevant support services wherever these are available. In the future, comprehensive integrated services can help to support families affected by multiple forms of violence. Currently, however, we do not know enough about the effectiveness and potential limitations of comprehensive services that address wellbeing of adult victims and their children simultaneously (Chamberlain, 2014; Howarth et al., 2015), so further research examining the effectiveness of such services in low- and middle-income countries is needed. Future research should consider applying a broader definition of childhood exposure to IPV. A comprehensive approach to measuring childhood exposure to IPV would include measuring whether children were aware of violence between their caregivers, not only whether such violence was directly observed. Further detail about the type (physical, emotional) and the direction of such violence will help to better understand the problem.

The most direct way to prevent children witnessing IPV would be to invest more into preventing IPV in the first place. The evidence about what works to reduce IPV is rapidly growing (Heise, 2011; Niolon & Centers for Disease Control & Prevention, 2017). To date, however the evidence for the potential to reduce children's exposure to IPV by reducing IPV is still limited (Wathen & MacMillan, 2013) and mostly derived from high-income countries. One study in Uganda did however find that SASA!, a community-mobilization intervention that measurably reduced IPV, also reduced witnessing IPV by 66 %. One caveat is that the study did not measure IPV exposure in children directly, but in women, who reported whether a child was present or overheard instances of physical or sexual IPV (Kyegombe et al., 2015).

Witnessing IPV, physical and sexual abuse together with other indicators of instability in households, are considered important adverse childhood experiences, which have shown to have lasting, negative effects on health, well-being, and chances in future life. The study further contributes an important piece of evidence to support the association between ACEs and mental distress. It highlights the importance of raising awareness about and preventing ACEs more comprehensively.

#### 4.3. Conclusions

The results of this study confirm that witnessing IPV is a significant problem affecting the health and wellbeing of children. They show that despite elevated levels of exposure to other adversities such as physical and sexual violence, witnessing IPV is in itself associated with mental distress in adolescents and young adults in five of the six populations studied. Healthcare and social service providers should consider the effects that IPV has on children, although it remains to be proven that integrated interventions lead to better health outcomes for children, particularly in settings with limited human and financial resources. Given the magnitude of the problem, countries should increasingly focus on the primary prevention of IPV. Further research from low- and middle-income countries and in particular longitudinal studies can help to better understand the nature of the relationship between witnessing IPV and mental health and help to identify protective factors.

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## Declaration of Competing Interest

The authors report no declarations of interest.

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