

# The Influence of Witnessing Inter-parental Violence and Bullying Victimization in Involvement in Fighting among Adolescents: Evidence from a School-based Cross-sectional Survey in Peru

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**Background:** Witnessing inter-parental violence and bullying victimization is common for many children and adolescents. This study examines the role of witnessing inter-parental violence and bullying victimization in involvement in physical fighting among Peruvian adolescents.

**Methods:** A cross-sectional study was conducted among 1,368 randomly selected adolescents in 2015. We conducted logistic regression analyses to obtain crude and adjusted odds ratios with 95% confidence intervals for involvement in fighting among male and female adolescents.

**Results:** Among all adolescents, 35.8% had been involved in fighting in the last 12 months, 32.9% had been victim of verbal bullying and 37.9% had been the victim of physical bullying. Additionally, 39.2% and 27.8% of adolescents witnessed violence against their mother and father, respectively, at least once in their lives. Multivariate logistic regression analyses found that late adolescence, participation in economic activities, being the victim of verbal bullying, stress, and witnessing violence against the father among male adolescents, and self-rated academic performance and being the victim of physical or verbal bullying among female adolescents were associated with higher odds of being involved in fighting.

**Conclusion:** Verbal bullying victimization and witnessing violence against the father in males and bullying victimization in females were associated with greater odds of adolescents being involved in fighting. Creating a non-violent environment at both home and school would be an effective strategy for reducing fighting among the adolescent population.

**Key Words:** Fighting, Violence, Bullying, Adolescents, Peru

## INTRODUCTION

Physical aggression among adolescents is increasingly being considered as a serious global issue rooted within multiple socio-environmental risk factors. One study based on data from 79 countries indicated that 30% of adolescents had reported bullying victimization, while 10.7% and 2.7% of males and females, respectively, were involved in frequent physical fighting [1]. Evidence suggests that a child witness-

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ing violence is a contributing factor to aggressive behaviors, as well as psychosocial and academic difficulties [2-4]. Considering the apparent importance of this issue, a number of Sustainable Development Goals (SDGs) have been formulated to reduce rates of such violence. Specifically, SDGs target 16.1 and 16.2 state that it is necessary to reduce all forms of violence and all forms of violence against children, respectively, while SDG target 4.a refers to creating a non-violent, inclusive, and effective learning environment for individuals [5].

Maltreatment, abuse, and neglect among children under 18 years of age are global problems that have serious long-term consequences for victimized children. Witnessing intimate partner violence can be similarly considered as a form of child maltreatment [6]. Witnessing violence at home can influence children's physical and emotional well-being, behavior, cognitive and academic development, and social adjustment. These problems may contribute to an increased likelihood of children using violence in their own relationships [7]. Studies have shown that children who witness violence perpetrated by their parents are more likely to be involved in physical aggression compared with those who did not witness such violence [2,8]. Furthermore, witnessing inter-parental violence has diverse effects on adolescents, such as on adolescent self-perceived health, satisfaction with life, family relationships, and involvement in school bullying [4]. Bullying is a broad term that varies notably among cultures, although it most often comprises physical violence, verbal violence, or social exclusion [9]. Notably, sibling violence occurs more frequently than does other forms of child abuse, and is significantly related to higher rates of delinquency and aggression [10]. Furthermore, bullying victimization has been found to be positively associated with violent behavior, whereas helpful peers and understanding parents are negatively associated with such behavior [11].

Fighting, bullying, and bullying victimization are serious problems among in-school adolescents in Latin American countries [12-15]. Furthermore, the results of a Demographic Health Survey indicated that, in Peru, 38.9% of women have been physically abused by their intimate partners [16]. Bullying victimization among adolescents was found to be associated with significant emotional and mental stress [17].

In addition, involvement in fights and being physically attacked were associated with higher rates of suicidal ideation and suicide attempts among adolescents [18].

Based on the above background, we hypothesized that witnessing inter-parental violence and physical and verbal bullying victimization would be related to involvement in fighting among adolescents. As evidence indicated that male adolescents are more likely to be involved in physical fighting [13,14,19,20], we analyzed the effects of the independent variables on involvement in fighting separately for male and female adolescents. Thus, the study aimed to assess the role of witnessing inter-parental violence and bullying victimization in involvement in fighting among Peruvian adolescents.

## MATERIALS AND METHODS

### 1. Study setting, design and sampling

This study utilized information collected as a health survey among secondary school students in Lima, Peru. The survey was performed by Yonsei Global Health Centre in November 2015, collaborating with the Korea International Cooperation Agency (KOICA), Peru Office. This cross-sectional survey was conducted with a sample of 1,368 Peruvian secondary school students. The first sampling unit was six public high schools located in Comas and Callao. Then, we used stratified random sampling to select participants from the 4,462 students across these six schools. The stratified unit (classroom) was determined for each school, and students were selected using systematic selection with random start from each stratum. A total of 1,377 students were randomly selected; nine students were excluded from the analyses because of incomplete information. Thus, 1,368 participants were analyzed for the study.

### 2. Data collection and measurement

Participants completed an anonymous self-report questionnaire assessing their socio-demographic variables and the various violence-related variables, including involvement in fighting, witnessing inter-parental violence, and experience of bullying victimization. Questionnaires were administered to the selected students in their classrooms by trained enumerators. Enumerators provided a brief orientation on

the objective of the study and ways of providing responses before completing the questionnaire. Table 1 provides the information on the measurements of variables used in the study. The dependent variable was involvement in fighting. Five sociodemographic variables, three variables related to violence victimization and stress, and six variables related to witnessing inter-parental violence were analyzed in this

study. Family economic status was assessed by asking adolescents about their perception of this status. Although this is not a precise method for determining economic status, it does provide a rough indicator. Regarding physical bullying perpetration for siblings and others, we removed the response options of “do not want to answer” or “do not remember” from the analysis to make the dependent variable

**Table 1.** Measurement of variables

Variables	Categorization	Question asked
<i>Sociodemographic</i>		
Sex	Male Female	What is your sex?
Age	11-14 years 15-19 years	How old are you? (in years)
Participation in economic activity	Yes No	Are you participating in any activity that helps to earn money for your family, personal expenses or any other end, after school?
Perceived economic status	High Above average Average Below average Low	What is your family’s economic status?
Self-reported academic performance	High Above average Average Below average Low	In the last 12 months, how would you rate your academic performance?
<i>Involvement in fighting</i>		
Involvement in fighting	None Once or more	In the last 12 months, how many times were you involved in a physical fight? (frequency was measured)
<i>Violence victimization and stress</i>		
Physically bullied	Yes No	Has someone ever beaten, slapped, kicked, or otherwise physically mistreated you?
Verbally bullied	None Once or twice Three times or more	In the last 30 days, how many times were you intimidated or humiliated?
Stress level	Too much/much Little Very little/none	In general, what is your level of stress? (too much, much, little, very little, or none)
<i>Witnessing inter-parental violence</i>		
Physical violence against mother	Yes No	As far as you know, has your father ever beaten, slapped, kicked, or otherwise physically mistreated your mother?
Verbal violence against mother	Yes No	As far as you know, has your father ever insulted/offended or otherwise verbally disrespected your mother?
Physical violence against father	Yes No	As far as you know, has your mother ever beaten, slapped, kicked, or otherwise physically mistreated your father?
Verbal violence against father	Yes No	As far as you know, has your mother ever insulted/offended or otherwise verbally disrespected your father?
Violence against mother	Yes No	Physical, verbal, or both (derived from questions on physical and verbal violence)
Violence against father	Yes No	Physical, verbal, or both (derived from questions on physical and verbal violence)

dichotomous. We similarly removed the “do not remember” option from the items assessing witnessing inter-parental violence and violence victimization.

### 3. Data analysis

Data were entered, cleaned, and analyzed using SPSS for Windows, version 21 (IBM Corp.: Armonk, NY, USA). A frequency distribution was prepared for the dependent and all the independent variables. Then, a bivariate analysis was performed to determine the relationships between the dependent variable and all the independent variables, both for the total sample and for male and females, separately. Multivariate logistic regression analyses were performed, separately by gender, including the variables that were significant in the bivariate analyses as shown in the Fig. 1. The significance level was set at 5% for both the bivariate and multivariate analyses. Before computing the binary logistic regression models, we assessed the correlations among the independent variables and the goodness of fit of the model. The effect of multicollinearity in the model was checked using variance inflation factors; however, no effect was observed. As the Hosmer–Lemeshow test result was not significant ( $>0.05$ ), the model was considered to fit the variables well.

### 4. Ethical considerations

Ethical approval for this study was obtained from the

Institutional Review Board of Wonju Campus, Yonsei University (1041849-201410-BM-048-02) and the DIRESA Callao (local government of Peru). Prior consent was obtained from each school and parents or guardians. Informed assent was obtained from individual participants, and an anonymous questionnaire was used.

## RESULTS

Table 2 shows that out of the total respondents, 61.6% were female and 38.4% were male; 55.3% and 44.7% were in their early and late adolescence, respectively. Approximately three-fifths of the respondents (61.7%) reported that they were from a family of average economic status, 76.6% of adolescents participated in some kind of economic activity after school and almost half (48.4%) reported that their academic performance was average. With regard to violence-related variables, 35.8% of adolescents had been involved in fighting one or more time in the last 12 months. In total, 32.9% had been verbally bullied at least once in the last 30 days, and 37.9% had been victims of physical bullying; 27.5% reported they experienced much stress. In addition, 27.7% and 38.5% of respondents reported having witnessed their fathers engaging in physical and verbal violence, respectively, against their mothers. Similarly, 16.5% and 26% of respondents reported witnessing their mothers engaging in physical and verbal violence, respectively,

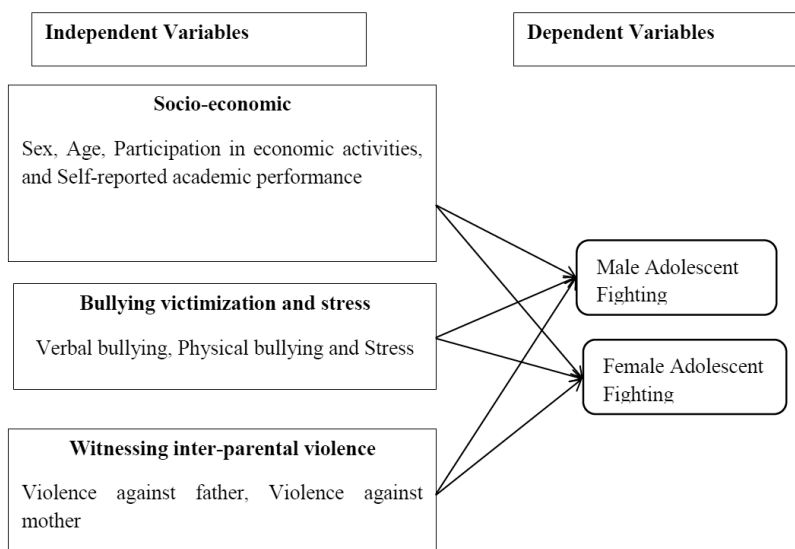


Fig. 1. Analysis model for involvement in fighting.

**Table 2.** Characteristics of the study population

Variables	n	%
<i>Sociodemographic</i>		
Sex		
Male	525	38.4
Female	843	61.6
Age group		
11-14 years	756	55.3
15-19 years	612	44.7
Participation in economic activity		
Yes	1042	76.6
No	319	23.4
Perceived economic status		
High	96	7.0
Above average	274	20.1
Average	841	61.7
Below average	119	8.7
Low	32	2.3
Self-reported academic performance		
High	169	12.4
Above average	312	22.9
Average	659	48.4
Below average	157	11.5
Low	64	4.7
Involvement in fighting		
One or more times	487	35.8
None	875	64.2
<i>Violence victimization and stress</i>		
Verbally bullied		
None	904	67.1
1 or 2 days	305	22.6
3 or more days	139	10.3
Physically bullied		
Yes	453	37.9
No	742	62.1
Stress		
Very little/none	491	36.0
Little	497	36.5
Too much/much	374	27.5
<i>Witnessing inter-parental violence</i>		
Physical violence against mother		
Yes	341	27.7
No	891	72.3
Verbal violence against mother		
Yes	467	38.5
No	746	61.5
Physical violence against father		
Yes	202	16.5
No	1025	83.5
Verbal violence against father		
Yes	314	26.0
No	892	74.0
Violence against mother		
None	700	60.8
Verbal or physical	162	14.1
Both physical and verbal	289	25.1
Violence against father		
None	833	72.2
Verbal or physical	169	14.7
Both physical and verbal	151	13.1

against their fathers. In total, 39.2% and 27.8% of respondents had witnessed physical, verbal, or both types of violence against their mothers and fathers, respectively, in their lives.

As shown in Table 3, male early adolescents were less likely to be involved in fighting compared with male late adolescents. However, we found no association between age and involvement in fighting among female adolescents. Similarly, self-perceived economic status had no association with involvement in fighting among either sex. However, we found that involvement in economic activity after school had a significant association with the odds of being involved in fighting in the total sample as well as among both sexes; specifically, those involved in economic activity had greater odds of being involved in fighting. Individuals with higher self-reported academic performance were less likely to be involved in fighting, but only among female adolescents. Physical and verbal bullying victimization were both associated with higher odds of being involved in fighting. Similarly, both male and female adolescents with higher stress levels had greater odds of involvement in fighting. Both physical and verbal violence against the mother or father were associated with greater odds of being involved in fighting among male adolescents; this same pattern was observed among female adolescents, except for physical violence against the mother, which was non-significantly related to the odds of involvement in fighting.

Table 4 shows the adjusted odd ratios (AORs) for involvement in fighting among male and female adolescents according to the various sociodemographic and violence related variables. Early adolescent respondents had lower odds of being involved in fighting relative to those in late adolescence (AOR 0.58, CI 0.36-0.94), and participation in economic activity after school was significantly associated with greater odds of being involved in fighting only among male adolescents (AOR 2.29, CI 1.36-3.83). Self-reported academic performance remained significantly associated with fighting among female adolescents in the adjusted model. Physical and verbal bullying victimization among female adolescents and verbal bullying victimization among male adolescents were associated with greater odds of being involved in fighting. Male and female adolescents who had been verbally bullied three or more times in the last 30 days

**Table 3.** Crude odds ratios for involvement in fighting according to the results of a logistic regression analysis

Variables	COR (95% CI)		
	Total	Male	Female
<i>Sociodemographic</i>			
Sex			
Male	3.67 (2.90-4.63)***	-	-
Female	1	-	-
Age group			
11-14	0.87 (0.70-1.09)	0.66 (0.46-0.93)*	0.85 (0.62-1.18)
15-19	1		
Participation in economic activity			
Yes	1.91 (1.48-2.47)***	1.78 (1.21-2.61)**	1.53 (1.04-2.24)*
No	1		
Perceived economic status			
High/above average	0.93 (0.63-1.39)	1.18 (0.60-2.33)	0.66 (0.39-1.11)
Average	1.03 (0.72-1.49)	1.22 (0.65-2.29)	0.752 (0.474-1.19)
Below average/poor	1	1	1
Self-reported academic performance			
High/above average	0.62 (0.45-0.86)**	1.04 (0.60-1.78)	0.36 (0.23-0.56)***
Average	0.64 (0.47-0.87)**	0.81 (0.48-1.35)	0.48 (0.32-0.72)***
Below average/poor	1	1	1
<i>Violence victimization and stress</i>			
Verbally bullied			
1-2 days	2.19 (1.67-2.86)***	2.31 (1.46-3.64)***	2.94 (2.03-4.26)***
≥3 days	3.52 (2.44-5.09)***	4.24 (1.98-9.08)***	5.11 (3.21-8.12)***
None	1	1	1
Physically bullied			
Yes	2.34 (1.83-2.98)***	2.46 (1.63-3.71)***	3.13 (2.22-4.42)***
No	1	1	1
Stress			
Too much/much	1.64 (1.23-2.18)**	2.47 (1.47-4.15)**	2.34 (1.56-3.51)***
Little	1.55 (1.18-2.02)**	1.53 (1.04-2.24)*	1.68 (1.11-2.56)*
Very little/none	1	1	1
<i>Witnessing inter-parental violence</i>			
Physical violence against mother			
Yes	1.18 (0.91-1.53)	1.87 (1.17-3.01)**	1.28 (0.90-1.81)
No	1	1	1
Verbal violence against mother			
Yes	1.38 (1.08-1.76)**	2.19 (1.43-3.35)***	1.66 (1.18-2.32)**
No	1	1	1
Physical violence against father			
Yes	1.54 (1.13-2.09)**	3.19 (1.69-6.015)**	1.52 (1.02-2.28)*
No	1	1	1
Verbal violence against father			
Yes	1.45 (1.11-1.89)**	2.22 (1.36-3.63)**	1.68 (1.18-2.39)**
No	1	1	1

\*\*\*p &lt; 0.001, \*\*p &lt; 0.01, \*p &lt; 0.05.

had a 3.8 and 4.7 times greater odds, respectively, of being involved in fighting as compared to those who had not been verbally bullied. Female adolescents who were victims of physical bullying also had greater odds of being involved

in fighting (AOR 2.41, CI 1.53-3.82). Male adolescents who witnessed violence (both verbal and physical) against their father had greater odds of being involved in fighting (AOR 2.98, CI 1.10-8.04). In addition, stress levels also had a sig-

**Table 4.** Adjusted odds ratios for involvement in fighting among male and female adolescents

Variables	AOR (95% CI)	
	Male	Female
<i>Sociodemographic variables</i>		
Age group (in years)		
11-14	0.58 (0.36-0.94)*	-
15-19	1	
Participation in economic activity		
Yes	2.29 (1.36-3.83)**	1.03 (.62-1.72)
No	1	
Self-reported academic performance		
High/above average	-	0.37 (0.20-0.68)**
Average	-	0.518 (0.29-0.90)**
Below average/low		1
<i>Violence victimization</i>		
Verbally bullied		
1-2 days	1.67 (0.93-2.99)	2.76 (1.67-4.55)***
≥3 times	3.82 (1.22-11.96)*	4.78 (2.57-8.88)***
None	1	1
Physically bullied		
Yes	1.60 (0.947-2.708)	2.41 (1.53-3.82)***
No	1	1
Stress		
Too much/much	2.33 (1.11-4.89)*	1.03 (0.59-1.81)
Little	1.48 (0.89-2.45)*	1.16 (0.68-1.99)
None/very little	1	1
<i>Witnessing inter-parental violence</i>		
Violence against mother		
Physical or verbal	0.62 (0.27-1.39)	1.34 (0.72-2.50)
Both physical and verbal	1.15 (0.54-2.44)	1.07 (0.61-1.87)
None	1	1
Violence against father		
Physical or verbal	1.43 (0.64-3.23)	1.08 (0.58-2.00)
Both physical and verbal	2.98 (1.10-8.04)*	0.93 (0.496-1.74)
None	1	1

\*\*\*p < 0.001, \*\*p < 0.01, \*p < 0.05.

nificant association with fighting among male adolescents.

## DISCUSSION

The magnitude of involvement in fighting in the study area (35.8%) was similar to the finding of the Global School-based Student Health Survey conducted in 2010 in Peru (37.8% and, 52.9% of male and 22.2 of female) [21]. Furthermore, being victims of physical and verbal bullying and witnessing inter-parental violence were both common. More specifically, 32.9% had been verbally bullied one or more times in the last 30 days, and 37.9% had been physi-

cally bullied in the last 12 months, a finding very similar to the national average found in the Global School-based Student Health Survey in Peru (37.8%) [21].

In a previous study, 40.7% of Chilean adolescents reported having been involved in a physical fight in the 12 months prior to the study; furthermore, male adolescents were more likely to have been involved in a physical fight than were female adolescents, consistent with the present study and Peruvian Global School-based Student Health Survey [14,21]. These rates were higher in Namibia, where 50.6% reported having been involved in a physical fight in the past 12 months, with males being more vulnerable than

females [22]. Male adolescents younger than 15 years old were less likely to be involved in fighting in this study. In contrast, US adolescents aged 17 years or older were less likely to report physical fighting than were those aged 14 years or younger [23]. In the current study, female adolescents with higher self-reported academic performance were less likely to be involved in fighting; however, no such association existed among male adolescents. Among both genders, a statistically significant association was found between physical fighting and grade retention among Portuguese adolescents [19]. Similarly, a study in 16 Latin American countries found that students who suffered from peer victimization had significantly lower academic performance [12].

We also found that being a victim of verbal bullying was significantly associated with fighting between both sexes; however, physical bullying victimization was significant only among female adolescents. Bullying victimization was also found to be positively associated with involvement in fighting among adolescents from Chile, Malaysia, Egypt, and the US [11,14,23,24]. Furthermore, a dose-response relationship between bullying victimization and physical fighting has been found [13], which indicates that the more frequent the bullying, the more the aggressive behavior.

We measured witnessing of inter-parental violence separately by parent (i.e., violence against the mother or the father), and found that witnessing verbal and physical violence against the mother was more frequent (39.2% and 27.8%, respectively) than was witnessing such violence against the father (16.5% and 26%, respectively). These results are in accord with those of another study in Italy [8]. More than half of secondary school students witnessed domestic violence between their parents in a study conducted in Iran [25]. However, perhaps the most interesting finding of the study was that violence against the mother was not significantly associated with increased odds of involvement in fighting or in physical bullying perpetration in either sex in an adjusted model. A study by Baldry et al. in Italy found that witnessing a mother's violence against the father significantly predicted bullying among adolescents [8]. We also found that violence against the father was associated with significantly greater odds of involvement in fighting among male adolescents. This may be because violence against

women has been accepted by both genders as normal. However, further studies are required to investigate the reasons why witnessing violence against fathers and mothers have differential effects on involvement in fighting. We also found that higher level of stress among male adolescents was associated with higher odds of being involved in fights. Depressive symptoms were positively associated with violent behavior in Egypt [11]. Our results indicate that the prevention of violent behavior among adolescents should involve ensuring a violence-free environment both at home and school. Family, peer, and school social environments have been found to serve as both risk and protective factors that have significant cumulative effects on physical aggression [19,26]. Involvement in fighting among adolescents in the study area was similar to the national average of Peru; male adolescents were more likely to fight relative to females. Late adolescence, participation in economic activities after school, being victims of verbal bullying, stress and witnessing inter-parental violence against the father were significantly associated with greater odds of involvement in fighting among male adolescents. Self-reported poor academic performance and being a victim of physical and verbal bullying were associated with greater odds of involvement in fighting among female adolescents. Based on the findings of the study, to prevent the fighting among adolescents, interventions should focus on late adolescence, reducing verbal bullying victimization, stress and inter-parental violence against father for males, and minimizing physical and verbal bullying victimization for females. Involvement of parents in school health education programs may contribute to reduce inter-parental violence and adolescent bullying victimization. In the study area, creating a non-violent environment for children and adolescents at home and school is essential.

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