

Pathways from witnessing parental violence during childhood to involvement in intimate partner violence in adult life: The roles of depression and substance use

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Abstract

Introduction and Aims. The aims of this study were to determine the prevalence of witnessing parental violence (WPV) during childhood and of current intimate partner violence (IPV) victimisation and aggression in a Brazilian sample, in order to verify pathways between WPV and involvement in IPV as an adult. **Design and Methods.** The mediating roles of substance use and depression were investigated. Data came from the Second Brazilian National Alcohol and Drugs Survey, a multi-cluster probabilistic household survey, which gathered information on the use of psychoactive substances, current depressive disorder, history of childhood direct and indirect exposure to domestic violence and IPV in a nationally representative sample. A subsample of 2120 individuals aged 14 years or older was analysed. Weighted prevalence rates, adjusted odds ratio and conditional path models were performed. **Results.** Being a victim of IPV was reported by 6% of the sample. Thus being, 4.1% reported being IPV perpetrators; these rates were 16.6% and 7.3%, respectively, among those who reported WPV (13%). WPV was associated with being a victim of IPV in adult life, but not with becoming a perpetrator, regardless of being a victim of physical violence during childhood. There was a direct effect of WPV on IPV mediated by depressive symptoms. Alcohol and cocaine consumption and age of drinking initiation mediated only when combined with depressive symptoms. **Discussion and Conclusions.** Intergenerational transmission models of IPV through exposure during childhood can help to explain the high rates of domestic violence in Brazil. Our findings provide evidence to implement targeted prevention strategies where they are needed most: the victims of premature adverse experiences. [Madruga CS, Viana MC, Abdalla RR, Caetano R, Laranjeira R. Pathways from witnessing parental violence during childhood to involvement in intimate partner violence in adult life: The roles of depression and substance use. *Drug Alcohol Rev* 2017;36:107-114]

Key words: intimate partner violence, witnessing interparental violence, adverse childhood experiences, epidemiology, Brazil.

Introduction

Intimate partner violence (IPV) is a major public health issue across the globe and in developing countries alike, with worldwide rates ranging from 15% in Japan to 71% in Ethiopia [1]. It is estimated that over one-third of women around the world have experienced either intimate partner violence or non-partner sexual violence in their lifetime. The consequences of IPV go beyond harming the partner's physical and/or psychological

well-being. As IPV occurs within the household, it often affects children and adolescents, either as direct victims who suffer psychological, physical and/or sexual abuse, or indirect, when witnessing parental violence (WPV) [2–4].

Witnessing the perpetration of physical aggression within the family can be as damaging to children as personally suffering violence, and both are associated with mood and anxiety disorders. This includes post-

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traumatic stress disorder [3], and can also trigger conduct disorders that may progress to the perpetration of IPV in later stages of adult life, during which cohabiting relationships are established [2,5–7].

There is a large body of evidence linking exposure to adverse childhood events (ACE) with premature use of psychotropic substances during adolescence and their misuse in adult life [8–12]. Previous studies have also shown the association between the consumption of alcohol and illegal drugs with the occurrence of IPV [13–17]. However, there are far fewer studies investigating the association between WPV as a child and becoming exposed to IPV as a victim and/or perpetrator in adult life [2,18], regardless of having been a victim of physical abuse from a parent in childhood. Finally, to the authors' knowledge, no previous studies have yet explored the mediating effects of depression in the relationship between WPV as a child and being involved with IPV later in life, and how the use of substances might affect this relationship. Given the literature gap on this topic, the aim of this work was to describe national rates on exposure to IPV during childhood and in adult life. Further, we investigate the predictive value of WPV during childhood and the occurrence of IPV in adult life, controlling for being a victim of direct physical violence as a child. The pathways between WPV and IPV were estimated in a conditional model that considers the mediating effects of depressive disorder, alcohol consumption, age of drinking initiation and frequency of cocaine use in the previous year (cocaine was the only illicit substance assessed in the conditional model as it was the most commonly used illicit substance among this population, and based on the fact that Brazil is among the countries with the highest rates of cocaine use in the world [19]). A better understanding of the pathways leading to IPV could indicate priorities in the development of more efficient prevention strategies and management procedures.

Methods

This research protocol was approved by the Ethics Committee of the Federal University of São Paulo and by the National Commission of Ethics in Research. All subjects provided written informed consent prior to the interview.

Sampling and procedures

The Second Brazilian National Alcohol and Drugs Survey was conducted between November 2011 and March 2012 [20]. A multistage cluster sampling procedure was used to select 4607 individuals aged 14 years and older from the Brazilian household

population, including an oversampling of 11 57 adolescents (14 to 18 years old). The overall response rate was 77% and 79% for the adolescent sample. The sampling process was conducted in three steps: (i) selection of 149 counties using probability proportional to size methods; (ii) selection of two census sectors for each county, totalling 375 census sectors, also using probability proportional to size methods; and (iii) within each census sector, eight households were selected by simple random sampling, followed by the selection of a household member to be interviewed using the 'the closest future birthday' technique. One-hour, face-to-face interviews were conducted in the respondents' home by trained interviewers using a standardised fully structured questionnaire. This study analysed a subsample of 2120 individuals (46% of the total sample of survey respondents) who were married or living with their partners.

Measurements

Adverse childhood experiences. Having been a victim of physical violence perpetrated by a parent during childhood was measured using seven items from the parent-child version of the Conflict Tactics Scale [21,22]. The items covered the following types of physical aggression: 'During your childhood or adolescence, were you ever 1) Insulted or humiliated publicly? 2) Hurt with an object? 3) Pushed, scratched, pinched or knocked over? 4) Burned or scalded with boiling water? 5) Threatened with a knife or a gun? 6) Shot with a gun or attacked with a knife? 7) Hit until bruised?'. Responses were scored 0 (*never*), 1 (*sometimes*), 2 (*often*) and 3 (*very often*). Scores were summed up to create a violence index with a possible range of 0 to 21.

Witnessing parental violence. WPV was based on the following items of the Conflict Tactics Scale: 'During your childhood or adolescence, how frequently did you see your parents threatening to harm each other or others?' and 'During your childhood or adolescence, how frequently did you see your parents physically harm each other or others?' with the same scores for responses ranging from 'never' to 'very often' (0 to 3) as mentioned previously for the assessment of adverse childhood events. The variable WPV was created through the sum of the two items with a possible range of 0 to 6.

Intimate partner violence—victimisation and perpetration. All questions were from the Conflict Tactics Scale [21,23], Form R. Respondents were asked a total of nine questions about the occurrence of different types of violent behaviours in the last 12 months, including less severe physical violence (throwing something; pushing,

grabbing or shoving; slapping) and severe physical and/or sexual violence (kicking, biting or hitting; trying to hit with something; burning or scalding; forced sex; threatening with a knife or gun; using a knife or gun). First, the respondents were asked if they had perpetrated any of these acts against their partner (perpetration), and then were asked to report if their partner had perpetrated any of these acts against them (victimisation).

Cocaine use assessment. Lifetime and previous year use and frequency of cocaine consumption were assessed. Frequency responses were scored as 0 (*never*), 1 (*one to two times in the week*), 2 (*three to five times in the week*) or 3 (*six times a week or every day*). In order to guarantee confidentiality, all illicit drug related questions were not asked face-to-face, but self-reported separately by the participant alone, using a standard form, which was collected at the end of the interview in sealed envelopes and immediately placed in sealed bags in front of the respondent.

Alcohol consumption. The age of initiation of alcohol consumption was assessed using the question ‘*At what age did you start drinking alcohol (do not consider when you only tried one or two sips)*’. The number of drinks consumed in a typical day (alcohol intake) was also measured with the assistance of a unit/drinks demonstration chart [24,25].

Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5) Alcohol Use Disorder. This was assessed with the Brazilian version of the Composite International Diagnostic Interview (CIDI 2.1) [26]. Although this survey pre-dates DSM-5, the questionnaire included questions about craving, which allowed for the creation of a diagnosis based on DSM-5 criteria, covering the 11 criteria included in the DSM-5. In the analysis herein, the presence of two or more criteria in the past 12 months was considered a positive diagnosis of alcohol use disorder.

Depressive symptoms. Assessed using the Brazilian validated version of the 20-item Center for Epidemiological Studies Depression Scale (CES-D). The CES-D Scale measures the experience of depressive symptomatology during the previous two week. The measure was developed from items appearing on longer, well-validated depression scales. The items assess cognitive, affective, behavioural and somatic symptoms of depression, and positive affect. Each item is rated on a 4-point scale ranging from 0 = rarely or none of the time (less than 1 day) to 3 = most or all of the time (5–7 days). A total score is then calculated by summing the responses after reversing the positive affect items. Higher scores reflect greater levels of depressive symptomatology. Radloff [27] reported good internal consistency for the measure,

with Cronbach’s alpha coefficients of 0.84–0.85 in White community samples and 0.90 in clinical samples. There also was strong evidence for validity. The CES-D discriminates between psychiatric inpatient and general population samples, and among levels of severity within patient groups; and is associated with other measures of depressive symptomatology. A score of 16 or above was considered as the cutoff point [28,29] for case indication of depressive disorder [28,29], and was used in the multivariate analysis. The total score (ranging from 0 to 80) was considered an index accounting for the presence and severity of depressive symptoms, and was included as a mediating factor in the conditional model.

Control variables. Included demographic variables (sex, age, education/number of years attending school and monthly income) and the score for suffering physical violence during childhood within the household (obtained through the adverse childhood events assessment).

Statistical analysis

In an attempt to account for the complex sampling design, data was weighed for the inverse probability of respondents’ selection, including the oversampling of adolescents, and a post-stratification weight was applied to correct for non-response and to adjust both samples to known population distributions on demographic variables (education, age, gender and region of the country) according to the Brazilian Census of 2010. Weighted prevalences and bivariate associations were estimated using STATA 13.0 [30]. The conditional analysis was performed using SPSS21/PROCESS (‘processmacro.org’ macro v2.14.), which is a computational procedure that implements moderation or mediation analysis, as well as their combination in an integrated conditional process model (i.e. mediated moderation and moderated mediation). It uses a path analysis framework similar to the approach described by Edwards and Lambert [31,32]. Cross-tabulations were used to examine prevalence rates of WPV by the main risk factors (depressive and alcohol disorders, cocaine use and IPV perpetration and victimisation). A multivariate analysis using Logistic regression models was used to assess the independent associations between WPV and IPV, controlling for sociodemographic factors, cocaine use and depressive symptoms.

Conditional modelling. The hypothesis was to determine whether the direct association between WPV and IPV in adult life could be mediated by: (i) depressive symptoms score (measured by the occurrence and severity of

depressive symptoms from the CES-D scale); (ii) alcohol intake (measured by amount of drinks consumed in a typical day); (iii) age of drinking onset; and (iv) frequency of cocaine use. Several hypotheses were tested to define the conditional pathways between WPV as a child and being involved with IPV, as a victim or a perpetrator in adult life. The Parallel Multiple Mediator Model was chosen, as it allows many causal effects operating through multiple mechanisms simultaneously [33,34], presenting coefficients for all direct and indirect paths tested with low *P* values, even though the R square value was considered low (30%) [35]. WPV was considered as the predictor (X), and the two forms of IPV involvement as the outcome (Y)—as a victim (IPV-V) and as a perpetrator (IPV-P). These associations were tested with the four mediators in the path. All models were calculated as weighted linear composites of scale items and controlled by the covariates sex, age, income and being a victim of parental/household physical aggression during childhood. The mediations were conducted to estimate the effect of the four mediators in the relation between WPV and IPV-V and IPV-P, using the product of coefficients method [36], which involves the multiplication of regression coefficients for the regression of the mediator on the independent variable (a-path) and for the regression of the outcome on the mediator (b-path) with the independent variable included in the model (c-path), and with *a***b* considered the mediated effect. All mediation effects were estimated in Process using a maximum likelihood estimator and 10 000 bootstrap draws to obtain confidence intervals for the indirect effect. All mediation models were evaluated using multiple indices of model fit: a non-significant χ^2 -statistic, comparative fit index values greater than 0.95 and

standardised root mean square residual values less than 0.08 [37].

Results

Descriptive analysis

Among the subsample of individuals who were married or cohabiting (*N* = 2120), 52% were female, with most (71%) aged between 26 and 59 years (mean age 41 years; SD = 15.0) and earned an average monthly income of £125.00 (R\$766.00, equivalent to 1.3 times the minimum monthly wage in Brazil at the time of the survey—2012). More than half (53.2%) reported having completed primary school and 10.2% had a college or a university degree (data available upon request).

Thirteen percent reported WPV at some point during their childhood (Table 1), and over half of the sample were victims of physical aggression within the household during their childhood (57.6%). Among individuals who reported being victims of physical aggression as a child, about one-third also witnessed parental physical violence (32.2%—data not shown); those who WPV were six times more likely to have been victims of childhood physical violence. The prevalence rate of being a victim of IPV was over three times higher among those who witnessed parental violence during childhood compared to the total sample (16.6 vs. 6%, Table 1). Those who reported WPV were nearly four times as likely to become a victim of IPV in adulthood (odds ratio 3.9; 95% confidence interval 2.4–6.2). The prevalence of being a perpetrator of IPV increased from 4.1% to 7.3% among those who WPV compared to the

Table 1. Descriptive and multivariate analysis of IPV, alcohol abuse and depressive disorder in the whole sample and among individuals exposed to WPV during childhood, in the general household population living in Brazil (*N* = 2120)

	Whole sample % [95% CI]	Witnessed parental violence %; OR [95% CI] ^a
Childhood maltreatment	100	13.0
IPV victim	20.9 [18.2–23.8]	57.6; 6.0 [4.7–7.6]
IPV perpetrator	6.0 [4.9–7.3]	16.6; 3.9 [2.4–6.2]
Depressive disorder (CES-D)	4.1 [3.1–5.4]	7.3; 1.6 [0.8–3.3]
Cocaine use	23.0 [19.9–26.5]	35.5; 2.4 [1.9–3.1]
Alcohol use disorder (DSM-V)	1.1 [0.6–1.7]	3.4; 3.9 [1.9–7.7]
	9.9 [8.2–11.8]	14.3; 2.0 [1.5–2.9]
	Mean ± SE	Mean ± SE; IRR [95%CI] ^b
Age of alcohol use onset	17.4 ± 5.5	16.2 ± 5.7; 0.94 [0.90–0.97]

^aLogistic regression, adjusted for sociodemographic characteristics (sex, age, income, education). ^bPoisson regression, adjusted for sociodemographic characteristics (sex, age, income, education). Bold indicates statistically significant associations. CES-D, Center for Epidemiological Studies Depression Scale; CI, confidence interval; DSM-V, Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition; IPV, intimate partner violence; OR, odds ratio; WPV, witnessing parental violence.

whole sample, but this difference was not significant in any of these multivariate analyses (Table 1). All variables associated with being involved in IPV in adult life were also associated with WPV during childhood (depressive disorder, cocaine use and alcohol use disorder). Over one-third of individuals who reported WPV were currently depressed (odds ratio 2.4; 95% confidence interval 1.9–3.1). Those who WPV were 3.9 times as likely to use cocaine and twice as likely to have a 12-month DSM-5 alcohol use disorder compared to the general population, and although they started drinking at a younger age, this difference was not statistically significant.

Multivariate analysis

Four multivariate analysis models were performed to explore the association between WPV as a child and being involved in IPV as a victim or as a perpetrator in the last 12 months (Table 2). The first model was adjusted by the sociodemographic variables and history of being a victim of parental physical violence during childhood. This model found that WPV was associated with being a victim of IPV in adult life, but not with becoming a perpetrator of IPV. The same was found in the other three models, including adjustment for depressive symptoms (CES-D total score), alcohol consumption (number of drinks in a typical day) and cocaine use in the previous year. WPV was a predictor of being a victim of IPV in all models tested, with odds ratios ranging from 2.9 to 3.7. WPV was not associated with becoming a perpetrator in marital/cohabiting relationships in adult life. All models were also adjusted for being a victim of physical violence as a child.

Conditional model

The Parallel Multiple Mediator Model proposed was used to test only the outcome of being a victim of IPV (IPV-V), because being a perpetrator of IPV was not statistically associated ($P > 0.05$) with WPV in the

multivariate analysis. The model tested four possible mediators in the association between the predictor X (WPV) and the outcome Y (IPV-V): depressive symptoms (CES-D total score, accounting for the presence and severity of symptoms—DSI), alcohol consumption (number of drinks consumed in a typical day—AC), age of drinking initiation (AI) and frequency of cocaine consumption (number of days in a month—CC).

Being a victim of IPV in adult life. As seen in Figure 1, the conditional analysis demonstrated that being a victim of IPV is directly predicted by WPV during childhood ($P = 0.0071$). Among all the combinations of possible indirect effects of WPV on IPV-V, considering the effects of the four mediators tested, only three pathways were significant ($P < 0.05$). The model indicates a direct effect of WPV on IPV, as well as an indirect effect on IPV via DSI. WPV did not affect age of alcohol initiation nor alcohol consumption, even though the latter did affect IPV. WPV affected cocaine consumption; however, it was not a mediator of its association with IPV. Interestingly, all valid indirect paths had the depressive symptoms index (DSI) in their route, mediating the effect of WPV on IPV. The total indirect effect of 0.0306 was significant (Boot LLCI: 0.0073 and Boot ULCI: 0.0651). All valid paths are described below and illustrated in the model shown in Figure 1:

Path 1: WPV – DSI – IPV-V.

Path 3: WPV – DSI – AC – IPV-V;

Path 6: WPV – DSI – AC – CC – IPV-V;

Path 7: WPV – DSI – AI – CC – IPV-V.

Discussion

Based on a nationally representative sample, our findings demonstrated that 13% of Brazilians witnessed parental violence during childhood and, among those, almost 60% were also victims of direct physical violence as a child within the household. On the other hand, among those who reported being victims of physical violence in childhood (21% of the population), less than one-third

Table 2. Multivariate logistic regression analysis between witnessing parental violence as a child and involvement with IPV in adult life, in the general household population living in Brazil ($N = 2120$).

	Model 1 OR [95%CI]	Model 2 OR [95%CI]	Model 3 OR [95%CI]	Model 4 OR [95%CI]
IPV victim	3.1 [2.3–6.0] $P = 0.00$	2.9 [1.7–4.9] $P = 0.00$	3.3 [1.8–6.3] $P = 0.00$	3.7 [2.3–6.0] $P = 0.00$
IPV perpetrator	1.6 [0.8–3.2] $P = 0.23$	1.3 [0.6–2.8] $P = 0.46$	1.7 [0.7–4.6] $P = 0.26$	1.5 [0.7–3.2] $P = 0.24$

M1: Adjustment for sociodemographics (sex, age, income, education) + childhood physical violence. M2: Adjustment for sociodemographics + childhood physical violence + depressive symptoms. M3: Adjustment for sociodemographics + childhood physical violence + alcohol consumption. M4: Adjustment for sociodemographics + childhood physical violence + cocaine use. CI, confidence interval; IPV, intimate partner violence; OR, odds ratio.

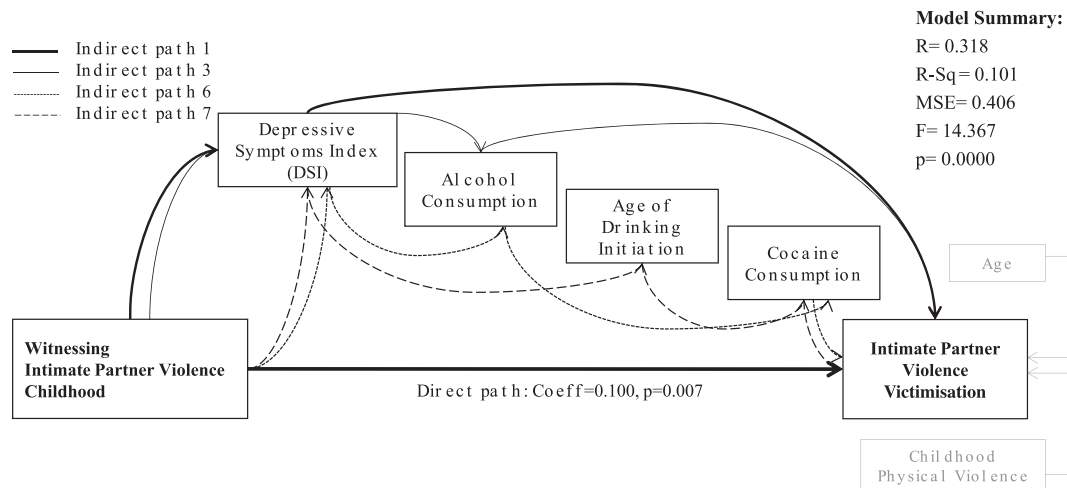


Figure 1. Conditional model illustration for the pathways of witnessing parental violence (WPV) during childhood predicting intimate partner violence victimisation (IPV-V) in adult life.

had also witnessed parental violence. Similar results were also reported by Song and colleagues [2], assessing a representative sample of household residents in South Korea, China, the Philippines and other countries [38,39]. The present study arises from the premise that, even though being a victim of physical violence and witnessing parental violence as a child are highly associated, and probably share the same underlying factors, the victims’ profile might be distinct, and therefore, its associated factors and long-term consequences should be studied separately.

There is a large body of evidence describing the long-term consequences of early life exposure to violence [40,41], its association with substance use and mental health disorders [9,12], and IPV later in life, which has been referred to as intergenerational transmission of IPV [2,7,14,16,42]. However, the assumption that the consequences of direct childhood exposure to personal violence superimpose the long-term effect of being a witness of parental violence is not entirely true. We tested the hypothesis that witnessing parental violence can independently lead to harmful consequences regardless of having suffered violence directly. Our results suggest that being a victim of direct violence (physical violence, as assessed here) and witnessing parental violence do not necessarily overlap, and that witnessing parental violence is independently associated with being a victim of IPV later in life. However, perpetration of IPV in adulthood was not predicted by WPV, when controlling for having suffered direct violence as a child, although this is a significant predictor of both, victimisation and perpetration [2,7].

The odds of being a victim of IPV as an adult increased four-fold among those who had experienced WPV during childhood, with nearly two in 10 individuals reporting IPV, compared to 6% among the general population. The multivariate analysis suggested that these individuals

are also twice as likely to report depressive symptoms and over three times as likely to use cocaine as adults. Being a victim of physical violence also doubled the chances of developing alcohol use disorders and reduced the age of drinking initiation. WPV predicted being a victim of IPV after adjusting for sex, age, education and socioeconomic status. This association remained significant even when further adjusted separately for depressive symptoms, cocaine use and alcohol use. More importantly, all associations remained significant regardless of having suffered direct physical violence as a child. However, WPV did not predict becoming a perpetrator of intimate partner violence, even when adjusting for the presence of depressive symptoms and substance use.

Based on the findings from the multivariate analysis, the conditional model was performed to estimate the direct and indirect effects of WPV on IPV-V, testing the role of depressive symptoms, alcohol consumption, age of drinking initiation and cocaine consumption as possible mediators. A parallel multiple mediator model demonstrated that witnessing parental violence as a child had a direct effect on becoming a victim of IPV later in life. This effect was shown to be mediated by symptoms of depression (DSI), with three other possible indirect paths, involving DSI and alcohol consumption; DSI, alcohol and cocaine consumption; and DSI, early drinking initiation and cocaine consumption. All these relationships occur independently from having suffered direct physical violence as a child. There is an extensive body of evidence showing that being exposed to adverse events during childhood is linked with the development of mood disorders [12,40,43]. Interestingly, all significant indirect paths involving earlier drinking initiation, alcohol and cocaine consumption did not mediate the association between WPV and IPV-V in

pathways that did not consider depressive symptoms in its route. This finding suggests that, differing from exposure to direct physical violence as a child, the experience of witnessing parental violence might not activate the HPA stress axis at levels that can lead to permanent physiological changes, increasing vulnerability to developing drug use disorders regardless of a depressive disorder being present [43,44]. We suggest that the experience of witnessing parental violence could increase the chances of being a victim of IPV possibly via social and role learning [45] than via its impact in the physiological mechanisms involved in addiction. However, all the indirect pathways between the predictor and the outcome that involved the combination between one of the drug use variables (alcohol consumption, age of drinking initiation and cocaine use) and the variable depressive symptoms were significant. This result is consistent with the extensive body of evidence acknowledging the high association between misuse of substances and mood disorders [46,47]. Because of the cross-sectional nature of this study, we are unable to establish a temporal order for depressive symptoms and substance consumption. Nevertheless, this comorbidity may play an important role in the establishment and/or maintenance of violence within intimate relationships.

Conclusions

Our findings suggest that witnessing parental violence during childhood can increase the chances of being a victim of intimate partner violence in adult life, regardless of having been directly exposed to domestic violence as a child. However, WPV does not predict perpetrating IPV in adult life. The association between witnessing parental violence and being a victim of IPV is mediated by depressive symptoms, and when they are present, the consumption of alcohol and cocaine can also play a role mediating this relationship.

Intergenerational transmission of IPV can, in part, explain the staggeringly high rates of domestic violence in Brazil, childhood maltreatment and IPV alike. Immediate prevention actions are of a foremost importance. Our findings provide the evidence needed to focus prevention strategies where they are needed most: the victims of adverse experiences in childhood.

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