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From exposure to family violence during childhood to depression in adulthood:

A path analysis on the mediating effects of intimate partner violence

Abstract

Literature shows a link between adverse childhood experiences and subsequent depression, but there is a lack of concrete evidence on whether victimization of intimate partner violence (IPV) in adulthood plays significant roles in that link. This study aimed to test the mediating effect of adulthood IPV victimization in the associations between exposure to family violence in childhood and adulthood depression. Exposure to family violence in childhood was operationalized as one's experiences of child abuse and witnessing parental IPV in childhood. This study also tested the effects of other violence-related factors from the Personal and Relationships Profile, including one's antisocial personality, borderline personality, dominance, post-traumatic stress (PTS) symptoms, and violence approval, on the associations. A path analysis was conducted a cross-sectional survey study sample recruited between 2009 and 2010. The sample was 8,807 adults selected with a multi-stage stratified sampling procedure from 6 cities in China (43.4% male; mean age = 40.61 years, SD = 8.93). The main outcome was participants' depressive symptoms during the past two weeks. As predicted, the path model suggests that IPV victimization significantly mediated the associations between exposure to family violence in childhood and adulthood depression. Violence approval and PTS symptoms, but not the other violence-related factors, significantly mediated the above associations. Findings warrant the need to identify individuals with exposure to family violence in early stages, and to provide them with suitable intervention programmes to prevent subsequent IPV as well as to minimize the negative impacts of the exposure to family violence in childhood.

Keywords

Depression, intimate partner violence, child abuse, victimization

For Peer Review

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From exposure to family violence during childhood to depression in adulthood:

A path analysis on the mediating effects of intimate partner violence

Childhood abuse experiences and adulthood depression

The effects of childhood abuse (CA) experiences, a type of adverse childhood experience (ACE), on the subsequent development of psychological problems are well documented in the literature (e.g. Chartier, Walker, & Naimark, 2009; Ouellet-Morin et al., 2015). Victims of CA are more likely to experience post-traumatic stress disorder (PTSD; Breslau et al., 2014), depression (Khan et al., 2015; Sansone, Wiederman, & Sansone, 2001), suicide attempts (Hardford, Yi, & Grant, 2014), and borderline personality disorder in adulthood (Temes, Magni, Fitzmaurice, Aguirre, Goodman, & Zanarini, 2017). **Adulthood depression** is one of the most robust negative health consequences associated with ACE and exposure to family violence in childhood (Chapman, Whitfield, Felitti, Dube, Edwards, & Anda, 2004). Some believe that CA and exposure to other family violence in childhood may result from poor-quality parent-child relationships, which are harmful to self-esteem and feelings of belonging (Dunkley, Masheb, & Grilo, 2010; Metson, Heiman, & Trapnell, 1999), and in turn make one vulnerable to depression **in later stages**. On the other hand, some demonstrate that ACE may produce changes in brain structure and stress-responsive neurobiological systems that make victims more prone to the development of depressive symptoms (Anda et al., 1999).

Intimate partner violence: A plausible mediator

CA and other ACE may not only lead to greater risks of mental health symptomology directly, but may also associate with hampered mental health in adulthood via different pathways. Violence experiences in adolescence or adulthood may be one of the factors that could be resulted from CA and may be associated with depressive and PTS symptoms in later

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3 stages. Past research has provided concrete evidence that one type of victimization often
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5 places an individual at a higher risk of other co-occurring violence or future victimization of
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7 the same kind (Boney-McCoy & Finkelhor, 1995; Chan, 2017; Rich, Gidycz, Warkentin Loh,
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9 & Weiland, 2005). Literature often points to the high possibility of a cycle of violence, in
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11 which childhood experiences of physical and/or other types of maltreatment may predispose
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13 the survivors to violence and crimes in later years, and CA may result in an increased risk of
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15 delinquency, criminality, and violence in adulthood (Widom & Maxfield, 2001; Wright,
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17 Turanovic, O'Neal, Morse, & Booth, 2016). A study has demonstrated that adult survivors of
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19 CA are also more likely to be victims, but not perpetrators, of IPV and physical injury in
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21 middle life than adults with no experience of CA (Widom, Czaja, & Dutton, 2014); while
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23 some other research has showed that adult, especially men, who have experienced CA are
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25 more likely to perpetrate violence (Machisa, Christofides, & Jewkes, 2016; Milaniak &
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27 Widom, 2015). Findings of meta-analytical studies suggest a moderate effect size of .59
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29 between childhood sexual abuse and subsequent adult sexual victimization (Roodman &
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31 Clum, 2001) and a 2.2-fold increased odds of lifetime intimate partner violence (IPV)
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33 associated with CA (Barrios et al., 2015), while those of regression analyses demonstrate a
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35 doubled risk of physical IPV among those who have suffered abuse in childhood (Tiaden &
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37 Thoennes, 2000).

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42 As a strongly associated correlate of CA, IPV is often found to be associated with
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44 depression. There has been evidence that IPV victims experience more depressive symptoms
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46 and disorders in adulthood than non-victims (Houry, Kembal, Rhodes, & Kaslow, 2006;
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48 Nixon, Resick, & Nishith, 2004). Learned helplessness and hopelessness may contribute to
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50 the associations between IPV victimization and depression (Bargai, Ben-Shakhar, & Shalev,
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52 2007; Gibb & Alloy, 2006). Learned helplessness may lead to low self-esteem and
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54 difficulties with problem-solving (Campbell, Kub, & Rose, 1996; Clements & Sawhney,
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3 2000), while learned hopelessness makes one attribute IPV to internal reasons and expect
4 negative outcomes in the future (Clements & Sawhney, 2000); all these phenomena are often
5 related to the development of depressive symptoms among IPV victims.
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9 Existing literature addresses the relationships between (a) exposure to family violence
10 during childhood and depression in adulthood (Anda et al., 2006; Sansone et al., 2001), (b)
11 IPV and depression (Houry et al., 2006; Nixon et al., 2004), and (c) exposure to family
12 violence during childhood and IPV in adulthood (Boney-McCoy et al., 1995; Chan, 2017;
13 Rich et al., 2005). A recent research in 2015 has explored the effect of exposure to CA and
14 adulthood IPV on new-onset depression, and found that women who suffered from both
15 victimizations could be four to seven times more likely to suffer from depression in
16 adulthood (Ouellet-Morin, 2015). However, this study only investigated the effects on
17 women and failed to include witnessing of family violence during childhood as the
18 independent variable. Overall, even when there has been an abundance of studies on the
19 associations between childhood experiences of violence, adulthood depression, and IPV
20 separately, research on the mediating effect of IPV on the association between family
21 violence during childhood and depression in adulthood is lacking.
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37 **Personal and relationship factors as other pathways**

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39 Apart from previous victimization, literature has identified a number of factors that are
40 predictive for future violence. A group of researchers have listed 21 etiological factors of
41 violence and grouped them in a screening tool for future violence, namely the Personal and
42 Relationships Profile (PRP; Straus, Hamby, Boney-McCoy, & Sugarman, 1999). This gives a
43 comprehensive picture of the personal and social constructs that are associated with violence,
44 and facilitates the research on the mechanism underlying the issue. For example, “violence
45 approval” refers to as the degree to which the use of physical force is accepted when dealing
46 with interpersonal situations; and “dominance” describes the hierarchical relationships and
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3 how one partner gains control over another (Straus et al., 1999). A recent study has included
4 the PRP factors in exploring the associations between childhood physical maltreatment and
5 adult dating violence, and has provided preliminary evidence supporting the PRP factors in
6 affecting the associations (Tomsich, Jennings, Richards, Gover, & Powers, 2015).
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10 11 **The present study**

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13 On the basis of the past findings, this study extended existing studies by examining the
14 possible mediating effects of IPV victimization on the associations between the exposure of
15 childhood family violence, which included both CA and WPV, and adulthood depression. In
16 the present study, we hypothesized that CA and WPV would predict adulthood depression,
17 and proposed three main hypotheses with the inclusion of the mediating effects of IPV and
18 some PRP factors, including antisocial personality, borderline personality, dominance, post-
19 traumatic stress symptoms (PTS symptoms), and violence approval, which have been
20 demonstrated in previous research to be strongly related to IPV and child abuse (e.g. Chan,
21 2005):
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33 (i) PRP would emerge as significant pathways (mediators) explaining the
34 associations between CA, WPV, and past-year IPV victimization;
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36 (ii) PRP characteristics would emerge as significant pathways (mediators)
37 explaining the associations between CA, WPV, and depression; and
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39 (iii) Past-year IPV victimization would emerge as significant pathways (mediators)
40 explaining the associations between CA, WPV, and depression.
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48 **Methods**

49 **Participants**

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51 The sample was from a cross-sectional study in six cities in China: Shanghai,
52 Shenzhen, Xi'an, Tianjin, Wuhan, and Hong Kong conducted during 2009 and 2010. A total
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3 of 11,647 households were sampled, and 8,945 agreed to participate (response rate=76.8%).
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5 Of all participating parents, 8,807 provided complete profiles of the major variables in the
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7 study.

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9 Of the sample, 6,804 participants (77.3%) were recruited from urban areas while 2,003
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11 (22.7%) were from rural areas in China (see Table 1). About 43.4% were male, and the mean
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13 age was 40.61 years ($SD = 8.93$). Significant differences were found in certain variables
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15 between the participants from urban areas (the urban subsample) and those from rural areas
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17 (the rural subsample). Overall, the rural subsample demonstrated lower socio-economic
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19 status (SES) than the urban subsample: greater proportions of them had low educational
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21 attainment (i.e., middle school or below), were unemployed, and had family income below
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23 the median (all $p < .05$).

24 25 26 **Procedure**

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28 In each city, except for Hong Kong, a multistage stratified probability sampling
29
30 procedure was used to select participants. In each city, two urban districts and one rural
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32 district (as defined by the Chinese government) were first sampled with stratification. Then
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34 neighbourhoods, towns, villages, communes, and finally households were selected step-by-
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36 step in each district using the stratified procedure. In Hong Kong, a two-stage sampling
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38 procedure was employed. Living quarters were first randomly sampled from the Register of
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40 Quarters maintained by the Hong Kong government. The sample was stratified by the type
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42 and the geographical region of residence. Households were eligible when they included a
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44 parent (or parents) of at least one child aged 17 years or under. In households with more than
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46 one eligible parent, the one with the most recent birthday was selected in order to minimize
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48 possible response bias. Eligible participants were recruited during household visits by a team
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50 of trained interviewers. No incentives were given to participants.
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3 Informed consent was required before each questionnaire was administered.
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5 Participants were given a structured questionnaire to complete in a quiet and private corner
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7 selected by a trained interviewer. The corners were mainly located at the households without
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9 the presence of other family members. If the households were too small or too crowded with
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11 other family members, the trained interviewers would discuss with the participants to decide
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13 the location for completing the questionnaire. In case the participants needed assistance,
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15 trained interviewers would be available to help. Items on sensitive issues were grouped into a
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17 part which was detachable from the main questionnaire, and the detachable part was to be
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19 completed and sealed in an envelope by the participants themselves. The study was approved
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21 by the institutional review board of the University of Hong Kong/ Hospital Authority Hong
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23 Kong West Cluster, and the local institutional review board in each of the five mainland
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25 cities.
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28 **Measures**

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31 **Depression.** Symptoms of depression were assessed using the Chinese version of the
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33 Beck Depression Inventory, version II (BDI-II; Leung, 2001). Participants were asked to
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35 choose one answer from each of 21 groups of statements that represented how they had felt
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37 during the past two weeks since the day when the questionnaire was done. The time frame of
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39 two weeks was recommended by the original author of the BDI-II, so as to correspond more
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41 accurately to the DSM-IV criteria (Beck, Steer, Ball, & Ranieri, 1996). All items were rated
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43 with a 4-point scale. Total scores ranged from 0 to 63, with higher scores indicating more
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45 severe depressive symptoms. The internal reliability was good in this study, with a
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47 Cronbach's alpha of .89.
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50 **Exposure to family violence during childhood.** The past experience of witnessing
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52 IPV between parents (WPV) was assessed by the modified Chinese version of the CTS-2
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54 (Chan, 2004). Witnessing parental emotional abuse (WPA – EA) was assessed with two
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3 items: (a) whether the participants witnessed their father carry out psychological aggression
4 to their mother and (b) whether the participants witnessed their mother carry out
5 psychological aggression to their father. On the other hand, witnessing parental physical
6 abuse (WPA – PA) was assessed with four items: (a) whether the participants witnessed their
7 father carried out physical attacks to their mother, (b) whether the participants witnessed their
8 mother carried out physical attacks to their father, (c) whether the participants witnessed their
9 father got injured because of the physical attacks by their mother, and (d) whether the
10 participants witnessed their mother got injured because of the physical attacks by their father.
11 Dichotomous response was used (1 = yes, 0 = no) to capture such experience among
12 participants under the age of 18. The Cronbach's alpha of witnessing emotional abuse and
13 physical abuse was .94 and .79 respectively, indicating satisfactory to good reliabilities.
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27 On the other hand, the Chinese version of CTS2 (Chan, 2004) was used to assess the
28 participants' retrospective experience of physical and emotional CA by their parents.
29 Participants were asked with four items if they have been maltreated by their father or mother
30 by means of physical violence and verbal aggression. A "yes/no" (1/0) scale was used. The
31 reliabilities of the subscales were good in this study (Cronbach's alpha = .80 – .88).
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37 **Participants also reported whether they had experienced sexual abuse before the age of 18**
38 **with three questions:** (i) "I have ever been forced to touch someone in a sexual way, or
39 someone has touched me in a sexual way before the age of 18," (ii) "I have ever been forced
40 to have sex with someone (have sex, anal or oral sex) before the age of 18," and (iii)
41 "Someone has done other behaviors that are considered as sexual coercion to me, besides the
42 two behaviors described in question (i) and (ii)." The severity of the childhood sexual abuse
43 was constructed by recording the score as "3" when the situation in Question (iii) happened;
44 "2" when the situation in Question (ii); "1" when the situation in Question (i); and "0" when
45 the situations in the three questions did not happen before the age of 18.
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3 **IPV victimization.** Experiences of being victimized by their partner were assessed with
4 the Chinese version of the 33-item Revised Conflict Tactics Scale (CTS2; Chan, 2004),
5 which has four subscales measuring IPV in terms of physical violence, emotional violence,
6 sexual violence, and injury. All items were rated with a “yes/no” (1/0) scale, and the total
7 scores ranged from 0 to 33. In this study, the number of IPV victimization incidents in the
8 past year was assessed. The reliabilities of the subscales were satisfactory to good, with
9 Cronbach’s alpha ranging from .78 to .87.
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18 **Violence-related features.** The PRP (Straus et al., 1999) was used to measure IPV-
19 related constructs. Five subscales were used, including (a) “antisocial personality”, with nine
20 items based on characteristics from DSM-IV; (b) “borderline personality”, with nine items
21 measuring features derived from DSM-IV; (c) “dominance”, with nine items assessing the
22 participant’s level of control over his/her partner in a relationship; (d) “post-traumatic stress
23 symptoms (PTS symptoms)”, with eight items assessing the experiencing and re-experiencing
24 of trauma, avoidance, or arousal; and (e) “violence approval”, with ten items assessing the
25 extent to which the use of physical force was acceptable in different interpersonal situations.
26 All items were rated on a 4-point Likert scale. The subscale scores ranged from 0 to 27 for
27 antisocial personality, borderline personality, and dominance, 0 to 24 for PTS symptoms, and
28 0 to 30 for violence approval, with higher scores indicating higher levels of risk factors
29 possessed by the participant. The internal consistencies of the PRP scales were excellent in
30 this study (Cronbach’s alpha = .89 – .95).
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46 **Demographic variables.** Participants’ age, gender, educational attainment, marital
47 status, employment status, family income, and place of residence (urban or rural) were
48 recorded.
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52 **Statistical analyses**

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3 Path analyses were conducted to examine the predictive power of the experience of
4 WPV during childhood, CA, current IPV victimization, and the PRP constructs for depressive
5 symptoms among the sample. The adequacy of model fit was assessed through several
6 indices, including the χ^2 statistics, the Root Mean Square Error of Approximation (RMSEA),
7 the Comparative Fit Index (CFI), and the Tucker-Lewis Index (TLI). Models were considered
8 fit when the RMSEA value was found to be less than .06, and both the CFI and TLI were
9 higher than .95 (Hu & Bentler, 1999). Structural equation modelling (SEM) was conducted in
10 the current study to test a comprehensive path model for predicting IPV and the effects of
11 IPV on depressive symptoms. To specify, linear SEMs with latent variables were used to
12 model the complex relationships of the major study variables. Linear SEMs could also be
13 viewed as multivariate regression models. In these models, structural relationships between
14 multiple dependent variables and multiple independent variables were analysed
15 simultaneously. SEM represents a *synthesis* of path analysis with factor analytic procedures.
16 SEM identified the potential pathways, tested the significant relationship between the
17 independent variable (IV) and the dependent variable (DV), and compiled the mediational
18 analyses between WPA, CA, IPV, PRP, and depressive symptoms. When a non-significant
19 relationship between the IV and the DV in the presence of the mediators is found, a full
20 mediation establishes. When a significant relationship between the IV and the DV is found
21 and the strength of relationship is substantially reduced in the presence of the mediators, a
22 partial mediation establishes. In sum, the relationships between variables in SEM could be
23 more accurately estimated compared to conventional correlation or regression. All SEM
24 analyses were conducted with the use of Mplus version 7.0, while all other statistical analyses
25 including the descriptive statistics and correlational analyses were conducted with SPSS
26 version 23.0.

Results

Mean Scores and Prevalence Rates

The sample achieved a mean of 3.02 ($SD = 5.27$) in the depression scale. The mean number of IPV victimization incidents in the past year ranged from 0.33 ($SD = 3.42$) to 2.06 ($SD = 7.78$). About 1.6% to 16.3% reported various types of WPV during childhood, and about 1.1% to 18.4% reported experiencing CA. In general, the urban sample achieved higher scores in depression, reported higher rates of sexual IPV, and physical and sexual CA; the rural sample showed higher rates of physical WPV and injury-related WPV (all $p < .05$). Details of the mean scores and prevalence rates of the major variables are summarized in Table 2.

Path Analyses Findings

Depression was correlated with WPV, CA, the five PRP characteristics, and the four types of IPV ($r = .04 - .70$, all $p < .01$). WPV during childhood was significantly correlated to CA, and both were correlated with various types of IPV victimization in later life ($r = .03 - .63$, all $p < .05$) (see Table 3).

The results of the path analyses are shown in Table 4 and Figure 1. The final model of the overall sample (see Figure 1) fit the data well ($\chi^2 = 304.10$, $df = 28$; RMSEA = .03; CFI = .98; TLI = .95). Conceptually, the model suggests that: (a) ACE (i.e., WPV and CA) have direct effects on depressive symptoms in adulthood ($\beta = .04 - .07$, $SE = .01$, all $p < .01$); (b) current IPV victimization and PRP characteristics also have direct effects on depressive symptoms ($\beta = .14 - .22$, $SE = .01 - .02$, all $p < .001$); (c) WPV and CA have direct effects on IPV victimization ($\beta = .04 - .12$, $SE = .01$, all $p < .01$); (d) IPV victimization mediates the WPV-depression and CA-depression links; and (e) PRP characteristics mediate the emotional WPV-depression link.

Discussion

With a large and representative sample of adults in China, this study examines the underlying mechanisms of the associations between exposure to family violence during childhood (i.e., WPV and CA) and depression in adulthood. Path analyses reveal that, while some of the relationships between the two are direct, others can be explained by the mediating effects of IPV victimization and violence-related PRP characteristics. The findings of the path analyses shed light on the mechanisms of the WPV-depression and CA-depression links, and contribute to our understanding of the pathways underlying the cycle of violence and its robust negative consequences on victims' physical and mental health.

Consistent with past research (e.g., Chapman et al., 2004; Khan et al., 2015; Ouellet-Morin et al., 2015; Rich et al., 2005; Sansone et al., 2001; Sullivan, Meese, Swan, Mazure, & Snow, 2005), this study demonstrates that one's experiences of being victimized, both in childhood and in intimate adult relationships, are predictive of greater levels of depressive symptoms, reflecting that the negative impacts of child victimization continue well beyond childhood and compromise psychological functioning in adulthood. The findings show that emotional CA is more predictive of adult depressive symptoms than physical CA. It is possible that emotional CA is more indicative of the poor quality of the parent-child relationship and more harmful to self-esteem and sense of belonging (Dunkley et al., 2010; Metson et al., 1999), and in turn makes one more vulnerable to depression.

Our findings also support the indirect pathways of the associations via IPV victimization. *Our findings are commensurate with the past research that demonstrated the associations between exposure to family violence during childhood and an increased risk of both IPV victimization (Widom et al., 2014) and perpetration (Milaniak & Widom, 2015).* Previous research has shown that sexual CA, but not physical CA, is related to IPV victimization among adults (Feerick, Haugaard, & Hien, 2002). Yet our findings show

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3 significant relationships between physical and emotional CA and adult IPV, indicating that
4 these two types of CA, besides sexual CA, might also be predictive of future IPV. It is
5 possible that violence in the family of origin could lead to later IPV through social learning
6 (Bandura, 1977; Sullivan et al., 2005). Social learning theory posits that one acquires violent
7 behaviours by direct experience or observation (Farmer, Clark, & Sherman, 2003).

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9 Individuals who experience WPV and/or CA may learn that violence is effective in intimate
10 relationships. Although we did not test this theory directly, the mediating effects of PRP
11 characteristics (in particular, violence approval, the degree to which one accepts the use of
12 physical force or violence in interpersonal situations) do provide some preliminary evidence
13 for the role of social learning in such cases. Individuals who have witnessed emotional IPV
14 between their parents may learn that IPV is an acceptable means of resolving conflict
15 between partners, and might then tolerate IPV victimization when they grow up.

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17 One should be cautious in assuming a universal mechanism for the effects of exposure
18 to family violence during childhood on subsequent depression. Gender, age, and ethnicity are
19 some of the factors that may interact with other variables in the associations between
20 childhood family violence and adulthood depression. Among these possible factors, the
21 (urban/rural) origin of an individual has often been overlooked. [The present finding showed](#)
22 [significant differences between the urban residents and the rural residents in depression, IPV,](#)
23 [CA, and WPV. Although the urban/rural differences were not the focus of this study, this](#)
24 [finding was still notable and should be considered by future studies on exploring the](#)
25 [associations between childhood family violence and adulthood depression.](#) Indeed, past
26 findings do provide indirect evidence supporting a role for this factor in the associations
27 between childhood family violence and adulthood depression. A pilot study in the last decade
28 compared IPV experiences of urban and rural residents in the US (Logan, Walker, Cole,
29 Ratliff, & Leukefeld, 2003). Despite a relatively small protective order sample ($N = 23$), the

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3 study provided the very first piece of evidence for the higher rates of physical IPV and CA,
4 as well as the poorer overall and mental health, among rural residents compared to urban
5 counterparts. However, there has been no further research since this preliminary study, and
6 the lack of empirical evidence on the urban-rural differences in IPV and health warrants a
7 well-designed and carefully executed study with a large and representative sample.
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16 **Limitations**

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18 There are certain limitations in this study. First, it employed a retrospective design to
19 probe experiences of childhood family violence. Errors and biases, such as memory recall
20 biases, may appear in the responses and result into unreliable and inaccurate data which could
21 confound the results. Future research may consider a longitudinal prospective design to
22 minimise such errors. Second, the path analysis did not differentiate the perpetrators of CA.
23 A previous path analysis has shown that CA inflicted by fathers has a greater negative impact
24 on women's sexual IPV victimization in adulthood than CA by mothers (Rich et al., 2005).
25 The final path model showed that paternal physical CA, but not maternal physical CA, was
26 associated with subsequent sexual IPV. Unfortunately, Rich et al.'s study did not include
27 male sample and findings do not allow the investigation on whether this difference exists
28 only in female or in both genders. Yet, the findings shed light on the possibility that the
29 gender(s) of perpetrator and victim may interact in the associations between CA, WPV, IPV,
30 and depression. A third limitation arises when correlation does not imply causation in the
31 path models. Although the models developed in this study fit well statistically, there may be
32 alternative models that can explain the data. Also, it was possible that the severity or repeated
33 exposures to violence may affect the associations between CA, IPV, and depression. Future
34 research may explore the moderating effects of the severity and frequency of violence in the
35 path model. The fourth limitation is the exclusion of childhood sexual abuse in the path
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3 model due to its extremely low prevalence. Although sexual abuse is an important domain in
4 child abuse, we decided to exclude it from the model in order to improve the overall model
5 fit. Future studies may include childhood sexual abuse in the path model and explore its
6 effects. Another limitation is that childhood neglect experiences were not included in the path
7 analyses. We agree that neglect is a prevalent issue in the world and a great concern in child
8 maltreatment literature; however, we decided to include only physical and emotional
9 childhood abuse experiences in this preliminary study so as to avoid over-complicated
10 findings in the path models. Future research may take references on our present findings and
11 expand the investigation to cover different aspects of childhood maltreatment experiences
12 including neglect. The last limitation is that the associations between WPV, CA, IPV, PRP,
13 and depression may be accounted for by variables that were not examined in this study, such
14 as social support, stress level, self-esteem, and hopelessness. Future studies may explore
15 different potential moderators and mediators so as to draw a clearer picture on the pathways
16 underlying the cycle of violence and its impact on one's health.

32 33 **Implications**

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35 This study examined the mediating roles of IPV victimization and PRP characteristics
36 in associations between exposure to family violence during childhood and depression in later
37 life among a large and representative sample in modern China. Although it has been well
38 demonstrated in Western literature that exposure to direct or indirect childhood family
39 violence could result in adulthood health problems (Wright et al., 2016), there are still a
40 majority of adult survivors of CA or WPV who could overcome the negative impact of ACE.
41 Researchers and stakeholders have been making effort on breaking the cycle of violence and
42 reducing the negative consequences of exposure to family violence during childhood by
43 understanding the pathways and identifying the underlying factors between the associations
44 between CA and adulthood psychopathology. The findings of the current path analyses may
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3 shed lights on the importance of IPV, violence approval personality, and PTS symptoms in
4 mediating the effect of CA and WPV on adulthood depression, and show the need to identify
5 individuals with CA and WPV and provide them with suitable intervention or prevention
6 programmes to prevent subsequent IPV in adulthood and to minimize the negative impacts of
7 one's exposure to childhood family violence.
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14 Furthermore, the implications of this study on the development of effective measures
15 and services to prevent and combat CA and WPV in modern China may be particularly great.
16 Child abuse or maltreatment has been growing into a hot topic in Mainland China recently,
17 and has attracted the attention of the mass media, the public, and the Chinese government
18 (China Social Assistant Foundation, 2015). Although the Chinese government has started to
19 make efforts on combating child maltreatment, the results are not satisfactory. There are three
20 major laws to protect children in Mainland China, namely the Criminal Law, the Law on the
21 Protection of Minors, and the recently enacted Anti-Domestic Violence Law. Yet, there is a
22 lack of clear definitions of child maltreatment and the specific roles of different professionals
23 (Xie, Sun, Chen, Qiao, & Chan, 2017), leading to a deficiency in the provision of effective
24 services for adult CA and IPV survivors. The findings of this study [may help lessen the gap](#)
25 by acknowledging the associations between various family violence and adult depression,
26 and provide both evidence and insights for the development and expansion of the
27 programmes and services related to family violence in modern China.
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For Peer Review

Table 1
Demographic Characteristics of the Sample (N=8,807)

Characteristic	Frequency (%)			
	Overall (N=8,807)	Comparison by Residential Area		
		Urban (n=6,804)	Rural (n=2,003)	<i>t</i> / χ^2
Gender				49.40***
Male	3,822 (43.4)	2,823 (41.5)	999 (49.9)	
Female	4,942 (56.1)	3,963 (58.3)	979 (48.9)	
Missing	43 (0.5)	17 (0.2)	25 (1.2)	
Age, mean (SD)	40.61 (8.93)	40.75 (9.03)	40.14 (8.54)	2.68**
Marital status				28.70***
Married or cohabiting	8,198 (93.1)	6,295 (92.5)	1,903 (95.0)	
Divorced, separated, or widowed	383 (4.3)	339 (5.0)	44 (2.2)	
Missing	226 (2.6)	170 (2.5)	56 (2.8)	
Educational attainment ^a				413.90***
Middle school or below	4,405 (50.0)	3,052 (44.9)	1,353 (67.5)	
High school	2,694 (30.6)	2,345 (34.5)	349 (17.4)	
Tertiary school or above	1,392 (15.8)	1,232 (18.1)	160 (8.0)	
Missing	316 (3.6)	175 (2.6)	141 (7.0)	
Unemployment	595 (6.8)	451 (6.6)	144 (7.2)	902.41***
Family income				6.10*
No income	254 (2.9)	202 (3.0)	52 (2.6)	
Below median	3,349 (38.0)	2,040 (30.0)	1,309 (65.4)	
Above median	4,403 (50.0)	3,936 (57.8)	467 (23.3)	
Missing	801 (9.1)	626 (9.2)	175 (8.7)	
Addictive behaviours				
Frequent gambling	1,052 (11.9)	876 (12.9)	176 (8.8)	34.39***
Frequent smoking	1,954 (22.2)	1,407 (20.7)	547 (27.3)	34.30***
Alcohol dependence	1,104 (12.5)	808 (11.9)	296 (14.8)	8.71**
Substance dependence	39 (0.4)	32 (0.5)	7 (0.3)	0.63

Note. ^aEducational attainment: middle school or below=grade 9 or below; high school=grade 10 to grade 12; tertiary school or above=university or above.

* $p < .05$, ** $p < .01$, *** $p < .001$.

Table 2
 Mean Scores, Standard Deviations (SD), and Prevalence of the Major Variables

Variable	Mean (SD)			
	Overall (N=8,807)	Comparison by Residential Area		
		Urban (n=6,804)	Rural (n=2,003)	<i>t</i>
Depression	3.02 (5.27)	3.12 (5.33)	2.73 (5.10)	2.83***
IPV victimization				
Emotional	2.06 (7.78)	2.11 (8.05)	1.89 (6.82)	1.11
Physical	0.33 (4.42)	0.31 (3.56)	0.41 (6.50)	-0.88
Injury	0.05 (0.98)	0.06 (1.09)	0.04 (0.47)	0.81
Sexual	0.33 (3.42)	0.37 (3.67)	0.19 (2.58)	2.28*
PRP				
Antisocial personality	17.58 (5.88)	17.53 (5.69)	17.78 (6.48)	-1.53
Borderline personality	17.59 (7.69)	17.47 (7.31)	18.07 (8.87)	-2.71*
Dominance	18.93 (7.71)	19.01 (7.60)	18.75 (8.08)	1.25
PTS symptoms	17.36 (7.46)	17.28 (7.32)	17.74 (7.96)	-2.26*
Violence approval	21.83 (6.39)	21.80 (6.10)	21.99 (7.32)	-1.04
		Frequency (%)		χ^2
Witnessing parental violence				
Emotional	1,437 (16.3)	1,108 (16.3)	344 (17.2)	0.89
Physical	334 (3.8)	245 (3.6)	92 (4.6)	4.14*
Injury	139 (1.6)	97 (1.4)	44 (2.2)	5.84*
Childhood abuse				
Emotional	1,617 (18.4)	1,281 (18.8)	353 (17.6)	1.48
Physical	729 (8.3)	593 (8.7)	138 (6.9)	6.78*
Sexual	94 (1.1)	87 (1.3)	7 (0.3)	12.65***

Note. IPV=intimate partner violence; PRP=personal and relationship profile; PTS symptoms=post-traumatic stress symptoms.

* $p < .05$, ** $p < .01$, *** $p < .001$.

Table 3

Correlations between Depression, IPV Victimization, PRP, Witnessing Parental Violence, and Childhood Abuse (N=8,807)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. Depression	–	.18**	.10**	.06**	.06**	.05**	.12**	.12**	.13**	.70**	.16**	.14**	.16**	.14**	.04**
2. IPV (Emotional)		–	.33**	.17**	.02	-.01	.01	.01	.01	.04**	.20**	.12**	.14**	.13**	.02
3. IPV (Physical)			–	.33**	.05**	.00	.01	.01	.01	.04**	.06**	.14**	.60**	.63**	.26*
4. IPV (Injury)				–	.54**	.03**	.02	.02	.01	.03**	.03**	.06**	.02	.04**	.02
5. IPV (Sexual)					–	.00	.00	.00	.01	.01	.02	.05**	.04**	.02*	.08**
6. PRP (Antisocial)						–	.75**	.57**	.55**	.52**	.00	.01	-.04**	-.01	.00
7. PRP (Borderline)							–	.70**	.68**	.54**	.02	.03**	-.02	.01	-.01
8. PRP (Dominance)								–	.59**	.51**	.04**	.30**	.01	.03*	.00
9. PRP (PTS symptoms)									–	.43**	.04**	.03**	.01	.03*	.01
10. PRP (Violence approval)										–	.07**	.05**	.04**	.05**	-.01
11. WPV (Emotional)											–	.39**	.52**	.35**	.02
12. WPV (Physical)												–	.27**	.37**	.05**
13. CA (Emotional)													–	.52**	.04**
14. CA (Physical)														–	.03**
15. CA (Sexual)															–

Note. IPV=intimate partner violence; PRP=personal and relationship profile; PTS symptoms=post-traumatic stress symptoms; WPV=witnessing parental violence; CA=childhood abuse.

* $p < .05$, ** $p < .01$.

Table 4
Standardized Coefficients and Standard Errors of the Preferred Path Models (N=8,807)

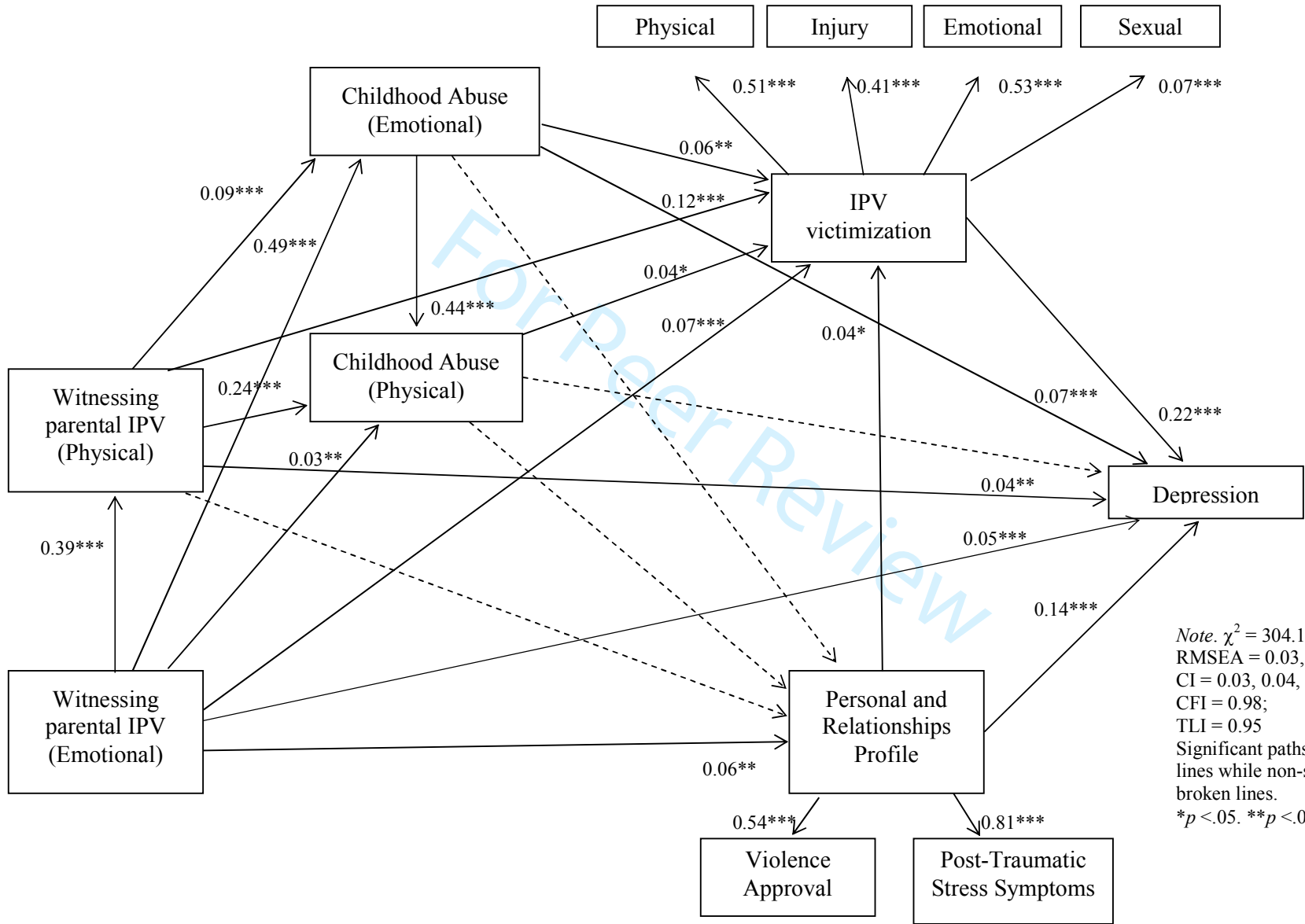
Path	Standardized coefficient (β)	Standard error
Overall model		
Direct effects		
WPV (Emotional) → Depression	.05***	.01
WPV (Physical) → Depression	.04**	.01
CA (Emotional) → Depression	.07***	.01
CA (Physical) → Depression	.03	.01
IPV victimization → Depression	.22***	.02
PRP → Depression	.14***	.01
Indirect effects		
WPV (Emotional) → WPV (Physical) → CA (Emotional) → CA (Physical) → Depression	.001	.000
WPV (Emotional) → WPV (Physical) → CA (Emotional) → CA (Physical) → IPV victimization → Depression	.002*	.001
WPV (Emotional) → WPV (Physical) → CA (Emotional) → CA (Physical) → PRP → Depression	.001	.000

Note. IPV=intimate partner violence; PRP=personal and relationship profile; WPV=witnessing parental violence; CA = childhood abuse.
 * $p < .05$, ** $p < .01$, *** $p < .001$.

Figure Captions

Figure 1. Path Analysis of Associations among Witnessing Parental IPV, Experiences of Childhood Abuse, IPV Victimization during Adulthood, Personal and Relationships Profile, and Depression among the Study Sample ($N = 8,807$)

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Note. $\chi^2 = 304.10$, $df = 28$, $p < .001$;
 RMSEA = 0.03,
 CI = 0.03, 0.04, $p < .001$;
 CFI = 0.98;
 TLI = 0.95
 Significant paths are shown in solid lines while non-significant paths in broken lines.
 * $p < .05$. ** $p < .01$. *** $p < .001$.