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Physical violence in family sub-systems: Links to peer victimization and long-term emotional  
and behavioral problems

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Abstract

Although childhood violence by any person is negative for children, little is known about whether violence by different family members is linked differently to problems in young adulthood, as family relationships might play different roles in children's individual development. In this study, we examine parent and sibling violence and associations with emotional and behavioral problems, directly and indirectly via peer victimization. We used retrospective reports from 347 young adults (aged 20-24) who all reported childhood family physical violence, and we performed a path analysis using Mplus. The results showed that participants who had been victimized by a sibling *only* or by *both* a sibling and parent were more likely to report peer victimization than were participants who had been victimized by parents *only*. Peer victimization was, in turn, linked to more aggression, criminality, and anxiety. Theoretical and clinical implications of these results are discussed.

*Keywords:* Family violence; Peer victimization; Emotional problems; Behavioral problems

# Physical violence in family sub-systems: Links to peer victimization and long-term emotional and behavioral problems

## **Introduction**

A majority of childhood physical violence takes place within the family in which both siblings and parents may serve as potential perpetrators (Espelage, Low, Rao, Hong, & Little, 2014). To understand the impact of physical violence (from now on referred to as violence only) on emotional and behavioral problems, the family is an important context (van Berkel, Tucker, & Finkelhor, 2018), as processes within the family are often viewed as laying the foundation for future relationships and behaviors (e.g., Hartup, 1978; Howe & Recchia, 2014; Tucker & Finkelhor, 2017; Ladd, 1992). Violence within the family might influence children's development of social identity, teaching children that aggressive behaviors are normal within relationships (Baldry, 2003). Further, violence within the family may "teach" children to be submissive and signal weakness in other relationships and potentially increase the risk of being victimized in other settings, such as by peers (Tippett & Wolke, 2015; Tucker, Finkelhor, Turner, & Shattuck, 2014).

In general, being victimized to violence place children at risk of long-term negative consequences (Cater, Andershed, & Andershed, 2014; Copeland, Wolke, Angold, & Costello, 2013; Hughes et al., 2017). However, although being victimized by any person is negative, the impact might be somewhat different depending on who is the perpetrator (van Berkel et al., 2018). Previous research on family violence has mainly focused on parent to child violence, overlooking victimization by other family members, such as siblings, which might influence both peer relations, and children's behaviors and development. In the current study, we seek to expand this area of research and break down the associations between being victimized of physical violence by parent, sibling, and peer on the one hand, and emotional and behavior problems in young adulthood on the other hand.

## **Childhood Victimization in the Family**

Physical violence is the most common type of family victimization (Källström, Hellfeldt, Howell, Miller-Graff, & Graham-Bermann, 2017; Tucker, Finkelhor, Turner, & Shattuck, 2013). Other types of family violence involve emotional and sexual abuse, as well as being neglected by a caretaker (Finkelhor, Turner, Shattuck, & Hamby, 2015). The focus in research has been on parents as the main perpetrators of physical violence. Research conducted in Western countries suggests that between 16% and 30% of all children are subjected to victimization by a parent or other caretaker (e.g., Annerbäck, Sahlqvist, Svedin, Wingren, & Gustafsson, 2012; Centers for Disease Control [CDC], 2014; Gilbert, Widom, Browne, Fergusson, Webb, & Janson 2009; Janson, Jernbro, & Långberg, 2011; May-Chahal & Cawson, 2005). Violence by family members is often unpredictable, making the victim unable to understand, anticipate, and avoid the wrath (Meyers, 2017). Parental violence has, in several studies, been linked to long-term negative outcomes such as anxiety and depression (Mandelli, Petrelli, & Serretti, 2015; Springer, Sheridan, Kuo, & Carnes, 2007), drug misuse (Wright, Fagan, & Pinchevsky, 2013), criminal behavior (Widom 2000), and antisocial and impulsive behaviors (Cohen, Brown, & Smailes, 2001).

Sibling violence is a less studied form, yet some argue that it is the most common form of victimization in the family (Eriksen & Jensen, 2009; Finkelhor, Ormad, Turner, & Hamby, 2005). For example, in a US nation sample of 4000 children and youth 0 to 17 years old, 21.8% reported having been assaulted by a juvenile sibling the past year (Finkelhor et al., 2015). In comparison to sibling rivalry, there are no known positive consequences of sibling abuse (Meyers, 2017), yet violence by a sibling is often deemed less severe than violence by a dating partner or a stranger (Khan & Rogers, 2015). Sibling violence is detrimental and increases the risk of both emotional and behavioral problems for its victims, such as anxiety (Graham-Bermann et al., 1994), depression (Coyle, Demaray, Malecki, Tennant, & Klossing,

2017), mental health distress and disorders (Dantchev, Zammit, & Wolke, 2018; Tucker et al., 2013), self-harm (Bowes, Wolke, Joinson, Lereya, & Lewis, 2014), trauma symptoms (Finkelhor, Turner, & Ormrod, 2006), delinquency (van Berkel et al., 2018), substance and alcohol misuse (Button & Gealt, 2010). In sum, then, physical violence is the most common type of victimization during childhood, mostly taking place within the family. Research has been shown that both parent and sibling violence is linked to emotional and behavioral problems, although most studies have been conducted on parent violence.

### **Childhood Peer Victimization**

In addition to the association between violence in the family and future problems, violence from parents and/or sibling, might increase the risk of being a victim of peer violence (i.e. being peer victimized) (Álvarez-García, García, & Núñez; Espelage, Low & De La Rue, 2012; Lucas et al., 2016; Tippett & Wolke, 2015; Wolke, Tippett, & Dantchev, 2015), as interaction patterns are often shaped within the family and later generalized to other interactions (Bank, Burraston, & Snyder, 2004; Criss & Shaw, 2005; Howe & Recchia, 2014). Specifically, children and adolescents negotiate their positioning in relation to their other family members, through which they form their identity and views on themselves and on relationships (cf. Davies & Harré 1990; Harré & van Langenhove 2007). In line with the family relational schema model (Perry, Hodges & Egan, 2001), children who experience negative treatment in the family might develop a form of “victim schema” that increase the risk of victimization outside the family. Thus, relationships within the family may serve as a model that shape children’s expectations and behaviors in future relationships (Baldry, 2003; Howe & Recchia, 2014; Kramer, 2014). Children who are victimized by family members might develop negative emotions and submissive posture in the parent-child (Koenig, Cicchetti & Rogosch, 2000) or sibling-to-sibling (Feinberg, Solmeyer, & McHale, 2012), interactions that are later carried into peer interactions making them seem easy target for peers

to victimize or bully (Baldry, 2003; Wolke & Samara, 2004). Indeed, in a meta-analysis on parenting and peer victimization, parental abuse and neglect were the best predictors of peer victimization (Lereya, Samra & Wolke, 2013). Also, sibling violence has been related to an increased risk for being victimized by peers (Tippet & Wolke, 2015; Tucker et al., 2014; Wolke et al., 2015).

As with family violence, peer victimization is also linked to adult negative outcomes such as internalizing problems (Klomek, Sourander, & Elonheimo, 2015; Lereya, Copeland, Costello, & Wolke, 2015; Sigurdson, Undheim, Wallander, Lydersen, & Sund, 2015), and aggression and violent behaviors (Ttofi, Farrington, & Lösel, 2012). In sum, children who have been victimized by a family member are at heightened risk of being victimized by peers. Peer victimization is also linked to a variety of negative outcomes. Hence, there is some evidence for an indirect link between family violence and negative outcomes, through a heightened risk of peer victimization.

### **Limitations with Earlier Research**

Earlier research has often lacked a holistic approach in the study of family violence. Although existing theories highlight the importance of taking a broader family systems approach (e.g., Cox & Paley, 2003; Minuchin, 1974), few studies have included an examination of different perpetrators in the same model, yielding piecemeal examinations of family violence. Specifically, different subsystems and dyads within the family constantly influence each other (Cox & Paley, 2003; Criss & Shaw, 2005; Hoffman & Edwards, 2004; Howe & Recchia, 2014), which stresses the importance of examining several sub-systems simultaneously to better understand the impact of family violence for children's future emotional and behavioral development.

Additionally, examining earlier research, at least two limitations can be identified. First, the theoretical idea of an indirect link between family violence and negative outcomes

via peer victimization has been tested in a piecemeal way. Studies from different research bodies have examined the different parts of this idea, but the mediational process—how family violence is linked to peer victimization, which in turn explains variations in later problems—has not been tested in its whole. There is a need to test the direct link and the indirect link in the same model to better understand the process in which children who are victimized of violence by family members develop negative outcomes. Second, the potential different impact of family violence depending on whether the family member is a parent or a sibling has not been tested in the same model. From research it is clear that both parent and sibling violence are linked to negative outcome, but it is unclear about their unique associations with peer victimization, and emotional and behavioral problems.

### **The Current Study**

In the current study, we aim to overcome the limitations identified above with a base in two research questions. First, is the association between family physical violence on the one hand and emotional and behavioral problems on the other hand mediated by an increased risk of peer victimization? Second, do parent and sibling violence have different associations with peer victimization, and emotional and behavioral problems in young adulthood? We answer these research questions using a sample of young adults reporting on their experiences of family and peer victimization, as well as their emotional and behavioral problems in young adulthood. Hence, this study represents a first attempt to examine a theoretically driven model as to how victimization to violence by different perpetrators in the family (i.e., including examinations of several sub-systems in the family) is linked to relational problems, and long-term emotional and behavioral problems in young adulthood.

## **Method**

### **Participants and Procedures**

In this study, we used data from a large nation-wide retrospective study (reference removed for masked review) including 2,500 young Swedish adults aged 20-24 (47% males and 53% females). Participants answered questions in Swedish about their childhood experiences of victimization and current well-being and behaviors in young adulthood. Following approval of the procedure and measures of the study by the regional ethical review board, data were collected between March 2011 and December 2011. The national Statistic agency “Statistics Sweden”, which holds names, addresses, and telephone numbers to all Swedish citizens, was used to randomly select participants born between 1987 and 1991. The data were collected by a Swedish survey and marketing company and took approximately 90 minutes to complete. Participants received 400 SEK for their participation in the survey.

In the current study, we included only participants who reported physical violence at least once by one or more family members (biological mother, biological father, or sibling) ( $n = 347$ ; 14% of the full sample). In the majority of these cases, the violence took place, and ended, before the age of 18 (74 %), and the mean age of the last occasion of violence was 15 (Median = 16). Hence, for the majority of the participants in this study, the physical violence represents experiences during childhood and adolescence.

## **Measures**

***Physical violence.*** We measured physical violence using 11 items. Six of these were adapted from the Juvenile Victimization Questionnaire (JVQ; Finkelhor, Hamby, Ormrod, & Turner, 2005; Hamby, Finkelhor, Ormrod, & Turner, 2004). The items were modified to cover aspects of violence by various perpetrators within and outside the family. Examples of items are: “Has anyone ever hit or attacked you on purpose with an object or weapon”, “Has anyone ever hit or attacked you without using an object or weapon”, and “Not including spanking on your bottom or hitting you with a belt, has anyone ever hit, abused, or physically hurt you in any way?” We used five additional items to cover aspects of physical violence

that were not included in the JVQ, but that have been identified in research as being central aspects of physical violence experienced by children (Janson, Langberg, & Svensson, 2007; May-Chahal & Cawson, 2005). Examples of these items are: “Has anyone ever held you around the neck so it was hard for you to breathe”, “Has anyone ever spanked you on your bottom or hit you with a belt”, and “Has anyone ever thrown, shoved or pushed you down on the ground?” Response options ranged from 1 (*Zero times*) to 6 (*Five times or more*).

Following the questions on violence, the participants were asked who the perpetrator(s) was (e.g., biological parents, step/adoptive/foster parents, sibling, peer, current partner, teacher or personnel at school, stranger).

***Emotional and behavioral problems in young adulthood.*** In the current study, we used scales of depression and anxiety to measure emotional problems and scales of aggression and criminality to measure behavioral problems in young adulthood.

To assess anxiety and depressive symptoms, the Hospital Anxiety and Depression Scale (HADS; Zigmond & Snaith, 1983) was used. The HADS consists of two subscales; HADS-A includes seven items of anxiety (Cronbach’s alpha was .80), and HADS-D includes seven items of depression (Cronbach’s alpha was .66). Examples of the items are: “I feel tense or ‘wound up’”, “I get a sort of frightened feeling as if something awful is about to happen”, “I get sudden feelings of panic”, “I feel cheerful”, “I still enjoy the things I used to enjoy”, “I feel as if I am slowed down”, and “I look forward with enjoyment to things”. Participants reported on how well the statements describe their emotional status during the past week, using a response scale ranging from 0 (*Not at all*) to 4 (*Very much*).

Aggression was measured by the Physical Aggression subscale from the Buss–Perry Aggression Questionnaire (AQ; Buss & Perry, 1992). This subscale comprises nine items, such as “If somebody hits me, I hit back” and participants reported on how well the

statements described themselves using a scale ranging from 1 (*Extremely uncharacteristic of me*) to 7 (*Extremely characteristic of me*). Cronbach's alpha for this scale was .79.

A 19-item scale was used to measure criminal behaviors over the past year. The items have been used in previous studies on Swedish young adults (e.g. Andershed, Kerr, Stattin, & Levander, 2002; Cater et al., 2014). Examples of items are: "Have you been involved in physically abusing someone, so that you believe or know, that he or she needed medical attention", "Have you carried a weapon", and "Have you been involved in taking a car without permission?" Response options ranged from 1 (*No, that has not happened*) to 5 (*Has happened more than 10 times*). Cronbach's alpha for this scale was .89.

**Control variables.** We used three control variables in this study: Participants' gender (1 = male), gender on the perpetrating parent (1 = mother, 2 = father, 3 = both mother and father), and whether the participant had been separated from the family before the age of 18 or not (1 = lived with parents until age 18). Gender of the participant and perpetrator were included as control variables based on ideas that relationships, as well as outcomes, might differ depending on gender (Cater et al., 2014; Evans, Davies, & DiLillo, 2008; Hoglund, 2007; Sullivan, Farrell, & Kliewer, 2006). Separation from the family might influence the behavioral and emotional outcomes, as it might put an end to the violence, and, thus break a negative development.

### **Statistical Analyses**

We ran a path analysis using Mplus 7.11 (Muthén & Muthén, 1998-2012) with the Robust Maximum Likelihood estimator (MLR), as some of the dependent variables were categorical. To prepare data for this analysis, we dummy coded the victimization variables to use as categorical predictors. Because three options were possible: (1) being victimized by a parent only, (2) being victimized by a sibling only, and (3) being victimized by both a parent and a sibling), we computed two dummy variables. Both dummy variables were coded so that

victimization by a parent only was the reference group (0). For the first dummy variable (parent only vs. sibling only violence), being exposed by a sibling only was coded as 1, and for the second dummy variable (parent only vs. both parent and sibling violence), being victimized by both a parent and a sibling was coded as 1. Peer victimization was a categorical variable (1 = been victimized at least once; 0 = not been victimized), and the behavioral variables were continuous.

The analytical model is presented in Figure 1. In this model, we examined the associations among violence in the family and peer victimization, and emotional (depression and anxiety) and behavioral (aggression and criminality) problems. We tested both the direct effects between family violence and problems and indirect effects via peer victimization. To test for indirect effects, we used the model indirect command of the Mplus language, and we used bootstrap sampling method ( $n = 1,000$ ; Shrout & Bolger, 2002), as it does not assume normal distributions and is suitable when using smaller sample sizes (MacKinnon, Lockwood, Hoffman, West, & Sheets, 2002). In the path analysis, we also included the control variables (gender of participant and perpetrator, and separation from the family before age 18 or not).

## **Results**

### **Descriptive Statistics**

Of the 347 participants, 193 (56%) reported physical violence by a parent (58% of the girls and 52% of the boys), 102 (29%) reported physical violence by a sibling (26% of the girls and 35% of the boys), and 52 (15%) participants reported being victimized by both a sibling and a parent (16% of the girls and 14% of the boys). Of the 347 participants, 145 (42%) reported peer victimization (31% of the girls and 60% of the boys).

In Table 1, we present zero-order correlations for all study variables. As can be seen, both family violence variables were significantly correlated with peer victimization. Family violence variables also showed significant associations with some of the outcome variables,

and so did peer victimization. Most outcome variables were significantly correlated with each other.

In Table 2, we report the means and standard deviations for outcomes, both for the full sample and across the control variables. As can be seen in Table 2, men reported more criminal behaviors, but significantly lower levels of anxiety than women did. Further, participants who had been being victimized by both their father and their mother reported more aggressive behaviors than did participants who had been victimized by one of the parents. Finally, participants who had been separated from their home environment before the age of 18 showed significantly fewer emotional and behavior problems (anxiety, depression, and aggression) than did participants who stayed in their families at least until the age of 18.

### **Results from the Path Analysis Examining Direct and Indirect Effects**

To examine the associations among the study variables, we adapted a path model using observed variables (see Figure 1). This model, which included all direct and indirect paths, was just identified (i.e., a saturated model) meaning that there was an equal amount of known and unknown information, producing 0 degrees of freedom. Although saturated models do not offer fit statistics as a mean for evaluating the fit of the model, the parameter estimates can still be generated and evaluated (Hoyle, 2012), and, thus, these are interpreted in the current study. The results from the analytical model are presented in Table 3 (both non-significant and significant direct and indirect effects).

**Direct effects.** As can be seen in Table 3, both variables of family violence were significantly linked to peer victimization ( $\beta = .19, p < .001$  and  $\beta = .12, p = .025$ , for the parent only vs. sibling only violence and the parent only vs. both parent and sibling violence dummy variables respectively). As parent violence was treated as the reference group and was coded as 0 on both variables, a significant estimate specifies that a change on this variable (i.e., going from parent violence only to sibling violence only/both parent and sibling

violence) is associated with a change in the peer victimization variable (i.e., going from not being victimized to being victimized by peers). These variables were positively associated, and thus, the results show that participants who reported being victimized by their sibling or by both their parent and sibling were more likely to be victimized by peers than were participants who were victimized by their parents only. Concerning the links between family violence and the emotional and behavioral outcome variables, none of the eight estimates were significant. Hence, in the analytical model, family victimization was significantly linked to peer victimization, but not to emotional and behavioral behaviors.

Peer victimization was significantly linked to anxiety ( $\beta = .14, p = .015$ ), criminality ( $\beta = .10, p = .014$ ), and aggression ( $\beta = .19, p = .001$ ). Peer victimization was not, however, significantly associated with depression ( $\beta = .07, p = .174$ ). Hence, being victimized by peers was associated with a greater risk of reporting emotional and behavioral problems.

*Indirect effects.* To examine if the indirect effects were significant, we used the model indirect command of the Mplus language. Three of the eight indirect effects were significant (see Table 3), and these were all found in the comparison between sibling violence only and parent violence only. Sibling violence only (in comparison to parent violence only) was significantly linked to anxiety ( $\beta = .03, p = .050$ ), criminality ( $\beta = .02, p = .043$ ), and aggression ( $\beta = .04, p = .018$ ), via peer victimization. Hence, the link between family violence and emotional and behavioral problems was, at least partly, explained by peer victimization (only partly, as only three of the eight indirect effects were significant).

## Discussion

In this study, we examined the associations among parent and sibling violence, peer victimization, and emotional and behavioral problems. With family system theory in mind, it is necessary to examine physical violence within different sub-systems in the family, and their links to emotional and behavioral problems. Such examination offers a broader understanding

of children and adolescents' experiences in the family and whether or not certain pattern of violence, within some sub-systems and by some family members, are more strongly linked to long-term emotional and behavioral outcomes. We posed two research questions. First, is the association between family physical violence on the one hand and emotional and behavioral problems on the other hand mediated by an increased risk of peer victimization? Second, do parent and sibling violence have different associations with peer victimization, and emotional and behavioral problems in young adulthood? The results showed that sibling violence and violence by both a sibling and a parent in childhood were linked to an increased risk of peer victimization, which in turn was linked to more aggression, criminality, and anxiety in young adulthood. Below we discuss these results in terms of their theoretical and practical implications.

The results of this study suggested that sibling violence might be especially important for problems in young adulthood, as more of the effects were significant for participants who had been victimized by a sibling *only* or a sibling *in combination* with a parent in comparison to participants who had been victimized by a parent *only*. Specifically, participants who reported being victimized by their sibling or by both their parent and sibling were more likely to be victimized by peers than were participants who reported being victimized by their parents *only*. Peer victimization was in turn linked to more problems in young adulthood. It is possible that violence by a parent and a sibling have different meanings for the victim. Being victimized by a sibling might have a strong association with the identity construction, given that a sibling is probably closer in age to the participant than are parents (Geldard, Geldard & Yin Foo, 2016). In such, victimization by a sibling can be part of a socialization process in which a positioning takes place (Davies & Harré 1990; Harré & van Langenhove 2007). Specifically, as a result of repeated interactions with a violent sibling, the person might construct a "victim schema" (Perry et al., 2001) that becomes incorporated as part of

the child or adolescents' view on him- or herself, signaling in relation to others a form of weakness (Baldry, 2003). Hence, sibling violence might be specifically problematic for the development of emotional and behavioral problems during young adulthood.

However, the fact that sibling violence showed especially strong associations with the outcome variables does not mean that parent violence is unimportant for a person's development. Numerous studies have shown clear evidence that parental abusive behaviors bring severe negative outcomes. What the current study suggests, however, is that the associations with emotional and behavioral outcomes might differ depending on who is the perpetrator in the family, suggesting that there is a need to examine violence within different sub-systems of the family. It is possible that peer victimization is a better mediator to explain the link between sibling violence and the problems, as was discussed above concerning the development of a victim schema. Other factors might play a more important role in the process concerning parent violence and its links to outcomes in young adulthood. One example might be the child's attachment to his or her parent, which is linked to parent violence, and emotional, social, and behavioral outcomes (e.g., Jacobsen & Hofmann, 1997; Muris, Meesters, & van den Berg, 2003). Children being victimized by parents might develop an insecure attachment style, which in turn explains development of problems in young adulthood. This hypothesis, however, needs empirical examination.

The results showed that family violence was linked to aggressive behaviors and anxiety, via peer victimization. In fact, and somewhat surprising, none of the direct associations between family violence and the emotional and behavioral outcomes were significant. The non-significant direct effects and the significant indirect effects (three out of eight) suggest that the development of emotional and behavioral problems in young adulthood might be explained, at least partly, by the fact that family violence put the child at heightened risk of experiencing peer victimization. Additionally, the indirect link to aggression, in addition to

the link to anxiety, suggests that not all participants showed outcomes that would be included in a typical “victim schema” (cf. Fohring, 2012; Burcar 2005). Instead, supporting the idea of a victim-offender overlap (e.g., Cater et al., 2014), the results can be interpreted as some participants showed an increased risk of developing both a victim position and an offender position, where being victimized by both siblings and peers might be part of a development of attitudes in favor of victimizing others. The result concerning aggression is in line with the social learning theory (Bandura, 1977) in which aggressive behaviors are learned and later serve as guide for actions in other relationships and contexts. Hence, violence in the family, and especially sibling violence, might be important in young people’s social, emotional, and behavioral development, by influencing their schemes about themselves as a victim and/or an offender.

In this study, we controlled for three covariates. One of the covariates—whether or not the participant had been separated from the family before age 18—showed especially strong association with the outcomes, suggesting that being separated from a violent family environment before the age of 18 is positive in terms of the development of emotional and behavioral problems. This result indicates that although being victimized in the family, a separation might break a negative spiral, as it might put a stop to the violence. However, as the indirect effect of family violence on the outcomes, via peer victimization, was still significant, although we controlled for the covariates, separation might not break the development of a so called “victim schema” (Perry et al., 2001).

The findings in this study must be interpreted with its limitations in mind. First, the data did not allow a control for additional factors related to the siblings, such as gender, birth order, number of siblings, or relationship quality between the siblings. Such information might be important for the understanding of the association between family violence and emotional and behavioral problems. For example, a positive relationship with a sibling might

buffer, and, thus, work as a moderator, against negative development resulting from parental violence. In future research, a further holistic approach would include examinations of more aspects concerning the sibling relationship. Second, data were cross-sectional and the findings might be a result of other underlying factors that were not controlled for and that are causing the processes of interest. Additionally, because of the cross-sectional data, we could not draw conclusions about causal relations, and whether problems reported emerged as a result of the violence being studied. However, most participant (74%) reported that the violence had taken place before age 18, and because participants reported on their *current* emotions and behaviors (in young adulthood), we somewhat overcame this issue and it made us more comfortable to draw conclusions about the processes of interest in this study. However, we were not able to draw conclusions about the direction of effect between family violence and peer victimization. Although theory (Perry et al., 2001) and research (Álvarez-García et al., 2016; Tippett & Wolke, 2015; Wolke et al., 2015) suggest that family violence generalizes to other relationships, such as with peers, it is possible that peer victimization increases the risk of family violence. Third, the data consist of self-reported retrospective reports of violence. Although retrospective reports are often used in studies on childhood victimization, this presents a limitation concerning validity, as recollections are more negatively influenced when respondents are asked to give information on issues that happened a long time ago (Widom, Raphael, & DuMont, 2004). A final limitation concerns the year of the data collection, as changes in attitudes and frequencies of violence might have taken place since 2011. Future studies should examine similar questions using more recent collected data to test the validity of the findings.

Despite the limitations, this study has important strengths. It is the first, to our knowledge, to test the idea that family violence is linked to emotional and behavioral problems *via* peer victimization. This presents a test of a theoretical model that has not been

tested in earlier studies. Further, as we examined parent and sibling violence in the same model, we were able to test for differences in the associations regarding violence by these family members, peer victimization, and emotional and behavioral outcomes. With this examination, we overcame the common problem of piecemeal examinations. Hence, this study offers a more holistic and broader approach, both in terms of family context and across several settings (family and peers).

The results of the current study have important implications for theory and practice. Taken together, our results show that children who are victimized in two important contexts—the family environment and in peer relations—report problems with anxiety, criminality, and aggression in young adulthood. Because we test both direct and indirect effects, the results inform about important mechanisms in explaining why some participants are at heightened risk of developing both emotional and behavioral problems in young adulthood. Specifically, to understand the outcomes of sibling violence, it is necessary to consider both a development of a “victim scheme” and a process of learned aggression. Additionally, our results stress the importance for practitioners to work with violent behaviors within the family in a broader manner, paying attention also to sibling violence because it can be especially important for identity formation. Our results support the notion that sibling relationships may serve as an important training ground for other relationships. Accordingly, this study gives support to those arguing for the importance of developing family prevention programs aimed at sibling aggression and violence since it might influence how children handle conflicts outside the family (Tucker & Finkelhor, 2017). Some promising findings from intervention studies show benefits of mediation and social skills training on improving siblings’ relationship quality (Smith & Ross, 2007; Thomas & Roberts, 2009). Such training could teach children important skills in handling conflicts, skills that can be generalized to relationship with peers. However, empirically tested interventions regarding sibling violence are still lacking and

should be the next important issue to address for research on family violence. Moving forward, research should focus on how parents can be supported in handling aggression between siblings, especially since parents seem to find it challenging to tackle (Pickering & Sanders, 2017). Incorporating interventions to improve sibling relationship quality in existing family programs could be one way forward. Regardless, this study stresses the need to develop evidence-based intervention programs aimed at reducing family violence in a broader sense, in order to secure children's welfare.

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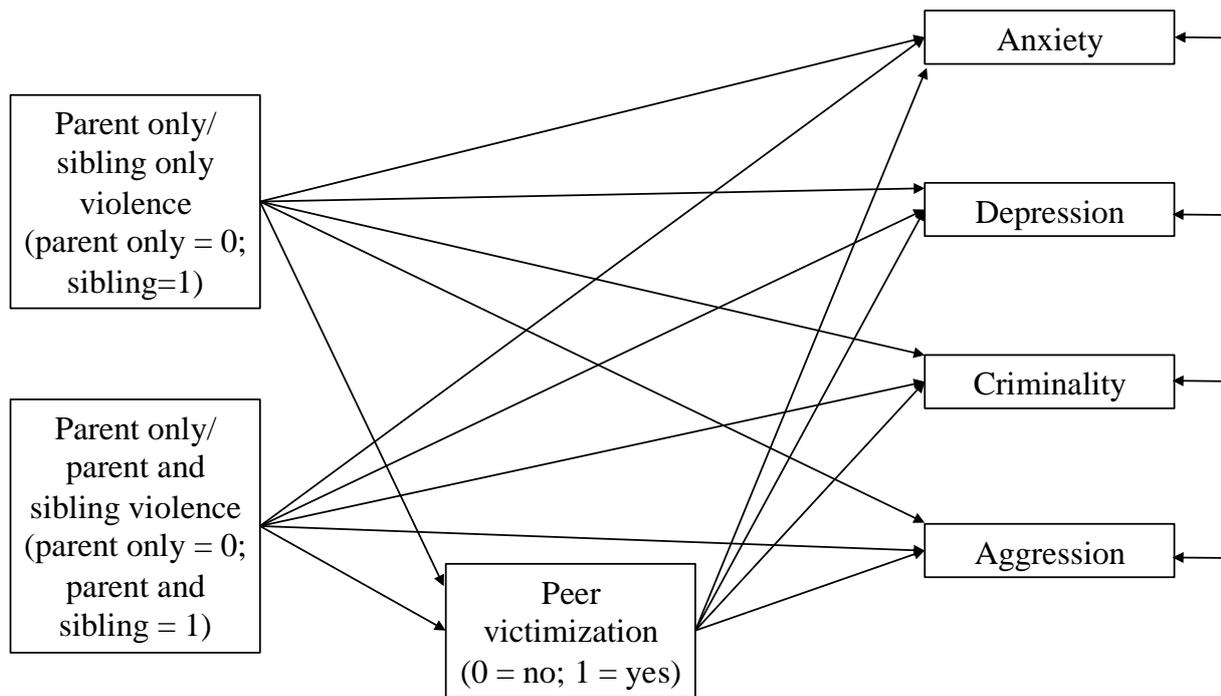
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*Figure 1.* Analytical model in which the associations among family violence, peer victimization, and behavioral outcomes are examined.

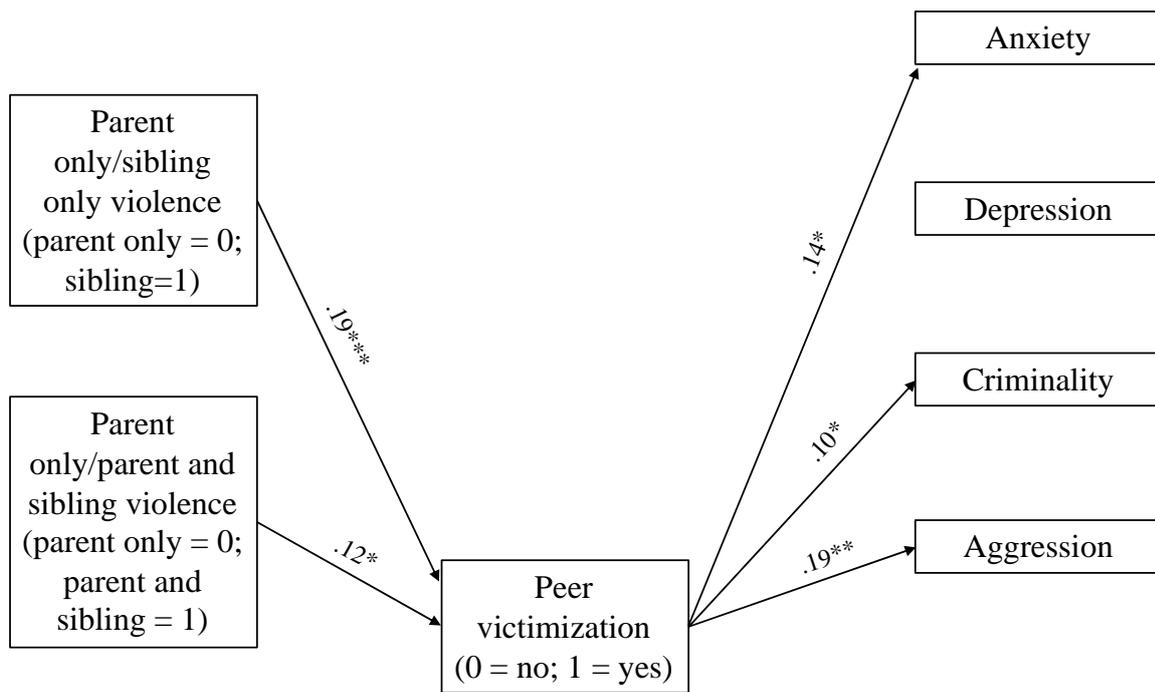


Figure 2. Significant direct effects from path analysis (see Table 3 for all coefficients). \* =  $p < .05$ ; \*\* =  $p < .01$ ; \*\*\* =  $p < .001$ .

$N = 347$ .

Table 1

Correlations among the main study variables

Variable	1	2	3	4	5	6	7
1. Parent vs. sibling	.	-.03	.11**	.05**	.01	.07**	.08**
2. Parent vs. both		.	.08**	.08**	.03	.03	.09**
3. Peer violence			.	.04	.06**	.12**	.20**
4. Anxiety				.	.49***	.11*	.34***
5. Depression					.	.15**	.28***
6. Criminality						.	.22***
7. Aggression							.

*Note.* Parent vs. sibling = Parent only vs. sibling only violence; Parent vs. both = Parent only vs. both parent and sibling violence. \* =  $p < .05$ ; \*\* =  $p < .01$ ; \*\*\* =  $p < .001$ . Spearman's rho was used to examine correlations for the categorical variables and Pearson correlation was used for the continuous variables.

$N = 347$ .

Table 2

Mean level differences of the control variables

Variable	Anxiety		Depression		Criminality		Aggression	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
	Whole sample							
	1.92	0.59	1.49	0.41	1.09	0.20	2.66	0.83
	Participant sex							
Male (n = 132)	1.81 <sup>a</sup>	0.52	1.48	0.39	1.14 <sup>b</sup>	0.28	2.69	0.80
Female (n = 215)	1.99 <sup>a</sup>	0.62	1.50	0.42	1.06 <sup>b</sup>	0.12	2.65	0.85
	Perpetrator parent sex							
Father (n = 129)	1.91	0.60	1.49	0.35	1.06	0.17	2.56 <sup>c</sup>	0.74
Mother (n = 66)	1.88	0.60	1.52	0.43	1.07	0.16	2.62 <sup>d</sup>	0.75
Both mother and father (n = 50)	2.10	0.60	1.59	0.53	1.10	0.19	3.05 <sup>cd</sup>	1.10
	Living with both parents							
Until age 18 (n = 171)	2.02 <sup>e</sup>	0.64	1.54 <sup>f</sup>	0.44	1.10	0.23	2.78 <sup>g</sup>	0.90
Separated before age 18 (n = 176)	1.83 <sup>e</sup>	0.52	1.45 <sup>f</sup>	0.37	1.08	0.17	2.55 <sup>g</sup>	0.73

*Note.* Response rates for anxiety and depression scales: 1-4; Criminality scale: 1-5;

Aggression scale: 1-7. Means sharing a common subscript (e.g., <sup>a</sup>) are significantly different at  $\alpha = .05$ .

*N* = 347.

Table 3

Standardized beta coefficients from path analysis

Estimate	$\beta$	$p$
Direct effects		
Parent vs. sibling $\rightarrow$ Peer victim	.19	<.001
Parent vs. sibling $\rightarrow$ Anxiety	-.05	.416
Parent vs. sibling $\rightarrow$ Depression	.03	.635
Parent vs. sibling $\rightarrow$ Criminality	.08	.143
Parent vs. sibling $\rightarrow$ Aggression	-.10	.084
Parent vs. both $\rightarrow$ Peer victim	.12	.025
Parent vs. both $\rightarrow$ Anxiety	.06	.263
Parent vs. both $\rightarrow$ Depression	-.00	.985
Parent vs. both $\rightarrow$ Criminality	.05	.361
Parent vs. both $\rightarrow$ Aggression	.07	.208
Peer victim $\rightarrow$ Anxiety	.14	.015
Peer victim $\rightarrow$ Depression	.07	.174
Peer victim $\rightarrow$ Criminality	.10	.014
Peer victim $\rightarrow$ Aggression	.19	.001
Indirect effects		
Parent vs. sibling $\rightarrow$ Peer victim $\rightarrow$ Anxiety	.03	.050
Parent vs. sibling $\rightarrow$ Peer victim $\rightarrow$ Depression	.01	.207
Parent vs. sibling $\rightarrow$ Peer victim $\rightarrow$ Criminality	.02	.043
Parent vs. sibling $\rightarrow$ Peer victim $\rightarrow$ Aggression	.04	.018
Parent vs. both $\rightarrow$ Peer victim $\rightarrow$ Anxiety	.02	.095
Parent vs. both $\rightarrow$ Peer victim $\rightarrow$ Depression	.01	.247
Parent vs. both $\rightarrow$ Peer victim $\rightarrow$ Criminality	.01	.091
Parent vs. both $\rightarrow$ Peer victim $\rightarrow$ Aggression	.02	.061

*Note.* Parent vs. sibling = Parent only vs. sibling only violence; Parent vs. both = Parent only vs. both parent and sibling violence. Peer victim = Peer victimization.

$N = 347$ .