

The Combination of Sibling Victimization and Parental Child Maltreatment on Mental Health Problems and Delinquency

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Abstract

This study examined how the combination of sibling victimization and parental child maltreatment is related to mental health problems and delinquency in childhood and adolescence. Co-occurrence, additive associations, and interactive associations of sibling victimization and parental child maltreatment were investigated using a sample of 2,053 children aged 5–17 years from the National Survey of Children's Exposure to Violence. The results provide primarily evidence for additive associations and only suggest some co-occurrence and interactive associations of sibling victimization and child maltreatment. Evidence for co-occurrence was weak and, when controlling for the other type of maltreatment, only found for neglect. Sibling victimization was related to more mental health problems and delinquency over and above the effect of child abuse and neglect. Moderation by sibling victimization depended on child age and was only found for the relation between both types of child maltreatment by parents and delinquency. For mental health, no interactive associations were found. These results highlight the unique and combined associations between sibling victimization on child development.

Keywords

sibling victimization, child maltreatment, delinquency, mental health, neglect, physical abuse

Conflict, even when it involves aggression, between siblings is often seen as a normative and harmless component of sibling relationships (Caspi, 2012). As a consequence, sibling victimization is one of the least studied forms of within-family violence (Kiselica & Morrill-Richards, 2007), even though it occurs more often than maltreatment by a parent (Finkelhor, Turner, Shattuck, & Hamby, 2015). Despite this lacuna in research concerning sibling victimization, a few studies have demonstrated the potential detrimental effects sibling victimization has on both psychological and behavioral adjustment in childhood and adolescence. During childhood, sibling victimization is related to a lower self-esteem, more depression, anxiety, self-harming behavior, conduct problems, and general mental health problems (Bowes, Wolke, Joinson, Lereya, & Lewis, 2014; Garcia, Shaw, Winslow, & Yaggi, 2000; Graham-Bermann, Cutler, Litzenberger, & Schwartz, 1994; Tucker, Finkelhor, Turner, & Shattuck, 2013). Adolescents who are victimized by a sibling have more mental health problems and are more likely to engage in externalizing behavior and delinquency (Criss & Shaw, 2005; Natsuaki, Ge, Reiss, & Neiderhiser, 2009; Tucker, Finkelhor, Turner, et al., 2013).

Dyadic interactions within the family cannot be understood as individual processes influencing child development, given that interactions between family members are interrelated and continuously influence each other (Cox & Paley, 1997; Stocker & Youngblade, 1999; Tippet & Wolke, 2015; Tucker,

Finkelhor, Turner, & Shattuck, 2015). There is a wide agreement on this family system approach, and a small body of evidence exists for such associations between parent–child and sibling interactions. Investigating the effect of victimization for one family dyad might ignore the more complex family-wide effects victimization may have on child development. Only a small number of studies exist and show that child maltreatment by parents and sibling victimization are associated (Bowes et al., 2014; Button & Gealt, 2010; Straus, Gelles, & Steinmetz, 1980/2006). These results are, however, limited to a focus on ineffective parenting or hostile parent–child interactions (Bank, Burraston, & Snyder, 2004; Garcia et al., 2000; Ingoldsby, Shaw, & Garcia, 2001). In the current study, we expand on previous work by directly comparing the unique and

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combined associations of sibling victimization and parental child maltreatment with mental health and delinquency over the course of childhood and adolescence using a nationally representative U.S. sample. Our work will highlight possible family-wide effects of within-family violence.

From the family system perspective, three patterns of reciprocal and combined effects of parent and sibling interactions can be distinguished: cross-system contagion, additive effects, and interaction effects. Cross-system contagion is the process by which negative interaction patterns in one dyad spread to other dyads within the family (Criss & Shaw, 2005) often through processes of observational learning (Patterson, Reid, & Dishion, 1992). For example, exposure to coercive or hostile parenting may teach children to use such behaviors during sibling interactions. In addition, parental neglect may increase sibling victimization by modeling a lack of supportive and empathic behaviors (Linares, 2006). Furthermore, contagion may occur through a spillover effect due to the stress children experience from parental maltreatment that is expressed via aggressive sibling interactions. Cross-system contagion may be the explanatory effect for the co-occurrence of several forms of victimization. Previous studies have found evidence for the co-occurrence of dysfunctional and hostile parenting and sibling conflict and victimization during childhood and early adolescence (Bank et al., 2004; Stocker & Youngblade, 1999; Tippett & Wolke, 2015; Tucker et al., 2015). The relation between parental child maltreatment and sibling victimization (Bowes et al., 2014; Button & Gealt, 2010; Straus et al., 1980/2006) may indicate that sibling effects are confounded by the effects of other types of family abuse, since sibling victimization and parental maltreatment often co-occur. However, there is also some evidence that siblings from violent families may show less aggression and physical abuse and are supportive toward each other (Waddell, Pepler, & Moore, 2001).

Additive effects occur when victimization in one dyad influences child development over and above the effect of victimization in other dyads. Several studies establish siblings' additive influence on child development in the context of parent effects. Sibling aggression has a unique effect on antisocial behavior, delinquency, peer difficulties, depression, and self-harming behavior over and above the effect of dysfunctional parenting and even parental abuse (Bank et al., 2004; Button & Gealt, 2010; Criss & Shaw, 2005; Garcia et al., 2000; Wolke, Tippett, & Dantchev, 2015). However, most of these studies have focused on adolescents (Bank et al., 2004; Button & Gealt, 2010; Criss & Shaw, 2005; Wolke et al., 2015) and some only investigated these effects in boys (Bank et al., 2004; Garcia et al., 2000) and used small samples.

Finally, sibling and parent-child victimization may have an interactive effect; thus, the effect of sibling victimization on child and adolescent well-being may depend on the effect of child maltreatment by parents. Since experiencing victimization in multiple contexts enhances the risk of poor adjustment (Tucker, Finkelhor, Turner, et al., 2013; Turner, Shattuck, Finkelhor, & Hamby, 2015), sibling victimization may exacerbate the effect of parental child maltreatment (Kiselica & Morrill-Richards, 2007).

In this case, the combined experience of victimization by a sibling and a parent would be more devastating than experiencing either type of victimization. Further, it may also be that sibling victimization is only negatively associated with child development in the context of parental maltreatment. The interaction effect between hostile or harsh parenting and sibling victimization has been shown to amplify the risk of delinquency and antisocial behavior in childhood and adolescence (Bank et al., 2004; Garcia et al., 2000; Ingoldsby et al., 2001).

Parental and sibling influences may change when children grow older. In a meta-analysis, Buist, Deković, and Prinzie (2013) showed that the effects of sibling relationship quality (considering both warmth and amount of conflict) on both internalizing and externalizing behavior are stronger in childhood than in adolescence. This is not surprising given that, compared to childhood, sibling relationships in adolescence are less intense and conflictual (Kim, McHale, Osgood, & Crouter, 2006) as extrafamilial relationships become more important and the influence of family members may decrease (Buist, Deković, & Prinzie, 2013; Steinberg & Monahan, 2007). In terms of sibling victimization, it occurs more often in childhood and sibling physical victimization has a stronger effect on mental health problems during childhood than during the teenage years (Tucker, Finkelhor, Turner, et al., 2013; Tucker, Finkelhor, Turner, & Shattuck, 2014).

In summary, this study investigates co-occurrence, additive, and interactive associations between sibling victimization and child maltreatment by parents (physical abuse and neglect) in relation to mental health problems and delinquency in a nationally representative U.S. sample. In addition, we examine whether these relations change with age. Most studies focus only on physical aggression between siblings or conflictual sibling relations (e.g., Bank et al., 2004; Criss & Shaw, 2005; Garcia et al., 2000; Wolke et al., 2015), whereas this study also includes sibling property victimization, which includes disrespect of a sibling's belongings, such as stealing or destroying property, and is one of the most common forms of victimization between siblings (Ross, 1996; Tucker, Finkelhor, Shattuck, & Turner, 2013). This is one of the first studies to investigate co-occurrence, additive, and interactive associations of parental child maltreatment and sibling victimization for children in the age range from school age to adolescence and to directly compare these associations in one sample. No studies have investigated changes in the interrelationship of sibling victimization and parental maltreatment from childhood to adolescence. Based on our review of the literature, we expect that (1) sibling victimization is related to physical abuse and neglect by parents (co-occurrence), (2) sibling victimization is related to mental health problems and delinquency over and above the effect of physical abuse and neglect by parents (additive), (3) the combination of sibling victimization and parental child maltreatment exacerbates the negative relations of the individual victimization types on mental health problems and delinquency (interactive), and (4) given the increased importance of peer influences

when children become older and reach adolescence, the strength of the associations of sibling victimization decreases with age.

Method

Participants

Participants were derived from the National Survey of Children's Exposure to Violence of 2014 (NatSCEV 2014), a national survey to obtain incidence and prevalence estimates of a wide range of childhood victimization types in the United States consisting of 4,000 completed interviews of children and adolescents aged 0–17 years from August 28, 2013, to April 30, 2014 (for details, see Finkelhor et al., 2015).

This article focuses on 2,053 children aged 5–17 years, who had at the time of the interview at least one juvenile sibling living in the same household. The children were on average 10.6 years old (standard deviation [*SD*] = 3.7). The sample was evenly divided across gender (53% boy) and having older or younger siblings (51% at least one older sibling). Most participants had an European American ethnicity (78%), followed by having a Hispanic ethnicity (10%) and an African American ethnicity (7%). With regard to family composition, the majority of children were living in a two-parent household (82%) and had one juvenile sibling living in the same home (61%), and the other large groups consisted of single-parent households (11%) and households with three children (25%). Annual household income ranged from less than US\$20,000 to more than US\$100,000, with a median of US\$75,000–US\$100,000. With regard to educational level, in the majority of the families, one of the parents had at least a bachelor's degree (68%).

Procedure

Study interviews, averaging 60 min in length, were conducted over the phone in English or Spanish by the employees of an experienced survey research firm. This methodology has been demonstrated to be comparable to in-person interviews in data quality; some evidence even suggests that telephone interviews are perceived by respondents as more anonymous, less intimidating, and more private than in-person modes and, as a result, may encourage greater disclosure of victimization events (Bajos, Spira, Ducot, & Messiah, 1992; Pruchno & Hayden, 2000). One child was randomly selected from all eligible children living in a household by selecting the child with the most recent birthday. If the selected child was 10–17 years old, the main telephone interview was conducted with the child. If the selected child was under age 10, the interview was conducted with the primary caregiver. Respondents were promised complete confidentiality and were paid \$20 for their participation. Respondents who disclosed a situation of serious threat or ongoing victimization were recontacted by a clinical member of the research team who remained in contact with the respondent until the situation was appropriately addressed locally. All procedures were authorized by the Institutional Review Board of the University of New Hampshire.

Measures

Sibling victimization and child maltreatment. Sibling victimization and child maltreatment by parents were measured using the Juvenile Victimization Questionnaire (JVQ; Finkelhor, Hamby, Ormrod, & Turner, 2005; Finkelhor, Ormrod, Turner, & Hamby, 2005). This form of the JVQ obtained reports on 53 forms of offenses against youth that cover six general areas: conventional crime, child maltreatment, peer and sibling victimization, sexual assault, witnessing and indirect victimization, and Internet victimization. Follow-up questions for each screener item gathered additional information, including perpetrator characteristics, the use of a weapon, whether injury resulted, and whether the event occurred in conjunction with another screener event.

For this study, a measure of sibling victimization—consisting of physical and property victimization (Tucker, Finkelhor, Shattuck, et al., 2013)—and two measures of child maltreatment by a parent—physical abuse and neglect (Finkelhor, Ormrod et al., 2015)—were constructed. Property victimization assessed whether a child had experienced situations in which others disrespected the child's property (e.g., “did anyone steal something from [your child/you] and never give it back?”/“did anyone break or ruin any of [your child's/your] things on purpose?”). Physical sibling victimization and physical abuse by a parent were assessed with the same items about experiences of physical assaults (e.g., “did anyone hit or attack [your child/you] on purpose with an object or weapon?”/“did anyone hit or attack [your child/you] on purpose without using an object or weapon?”) and follow-up questions regarding the identity of the perpetrator determined whether it was considered victimization by a sibling or a parent. Finally, neglect by a parent was assessed using items concerning a lack of physical care (e.g., did parents not care whether [your child was/you were] clean, wore clean clothes, or brushed teeth and hair?) and a lack of emotional care (e.g., did parents often had people over at the house who [your child was/you were] afraid to be around?). Sibling victimization covered assaults perpetrated by a juvenile sibling living in the same household and child maltreatment covered experiences with biological, adoptive, foster, and stepparents. Both sibling victimization and child maltreatment included only experiences in the past year.

Mental health problems. Trauma symptom scores for the anger, depression, and anxiety scales of two closely related measures were used to measure mental health problems: the Trauma Symptom Checklist for Young Children (TSCYC; Briere et al., 2001), which was used in the caregiver interviews for children from 5 to 9 years old, and the Trauma Symptoms Checklist for Children (TSCC; Briere, 1996), which was used in self-report interviews for children from 10 to 17 years old.

Caregivers indicated how often their children showed each of the 15 symptoms of the three subscales of the TSCYC in the past month, and youths (10–17 year olds) indicated how often they had experienced each of the 18 symptoms of the same

Table 1. Descriptives and Correlations for Child and Adolescent Sibling Victimization, Child Maltreatment, Mental Health Problems, and Delinquency.

Variable	1	2	3	4	5	6	7	8	9	10	11	M (SD)	% ^a
1. Age												10.61 (3.73)	—
2. Gender ^b	.01											—	52.5
3. Ethnicity ^c	.01	.04										—	78.8
4. Presence older sibling(s) ^d	-.36**	.01	-.05*									—	50.6
5. Number of children in family	-.06*	-.05*	-.03	.20**								2.58 (0.90)	—
6. Single-parent household ^e	.02	-.03	-.19**	-.00	-.03							—	11.1
7. Socioeconomic status	.05*	.04*	.32**	-.05*	-.10**	-.31**						0.09 (0.88)	—
8. Physical abuse	.05*	.06**	.02	-.04	-.01	.01	-.03					—	4.1
9. Neglect	.11**	.03	-.03	-.05*	-.01	-.00	-.03	.19**				—	4.9
10. Sibling victimization	-.25**	.02	.06*	.12**	.09**	-.03	.09**	.04*	.07*			—	39.1
11. Mental health problems	.39**	-.05*	-.01	-.16**	-.06**	.04*	-.04	.22**	.25**	.07**		25.03 (6.71)	—
12. Delinquency	.13**	.11**	.00	-.11**	.00	.05*	-.01	.15**	.14**	.10**	.31**	0.80 (1.54)	—

Note. SD = standard deviation.

^aPercentage of Category 1 is presented. ^b0 = girls, 1 = boys. ^c0 = Other ethnicities, 1 = White. ^d0 = no older siblings, 1 = at least one older sibling. ^e0 = two-parent household, 1 = single-parent household.

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

subscales of the TSCC in the past month, on a 4-point scale (0 = not at all to 4 = very often). Internal consistency (Cronbach's α) of the composite of these three subscales was .81 for the TSCYC and .90 for the TSCC.

Delinquency. Delinquency was measured as the sum of "yes" responses to 19 questions about possible delinquent behaviors during the past 12 months. These items included such behaviors as breaking or damaging other people's property, fighting, stealing, cheating, skipping school, carrying a weapon, and using drugs or alcohol (Finkelhor, Ormrod, & Turner, 2007).

Statistical Analyses

Co-occurrence of sibling victimization and child maltreatment was assessed with bivariate Pearson's correlation analyses and a multiple regression analysis. To investigate additive and interactive associations of sibling victimization and child maltreatment with mental health problems and delinquency, two hierarchical multiple regression analyses were conducted. In the first step, covariates (child gender, child age, ethnicity, presence of older siblings, number of children in the household, family structure, and socioeconomic status [SES]) were entered, and in the second step, main effects of the two child maltreatment measures (physical abuse and neglect) and sibling victimization were tested. The third step contained the interaction between child age and sibling victimization (to investigate age effects on the impact of sibling abuse) and the two interactions between child maltreatment and sibling victimization. Finally, in the fourth step, age effects on the relations between victimization and mental health and delinquency were computed using 2 three-way interactions, one between age, sibling victimization, and physical abuse and the other between age, sibling victimization, and neglect. Analyses with and without covariates showed similar results.

Results

Preliminary Analyses

Pearson's correlations between demographic measures, child maltreatment, sibling victimization, mental health problems, and delinquency are presented in Table 1. Correlations between the covariates show that all risk factors for child victimization were related to each other. For example, low SES was related to all other covariates, with being of a younger age, with being a girl, with self-indicating to have a non-White ethnicity, with having older siblings, with living in a family with more juvenile children, and with living in a single-parent family. Furthermore, children who identified themselves as belonging to another ethnic group than "White" lived more often in a single-parent family in the presence of an older sibling. Parental physical abuse and neglect were related, indicating comorbidity of different victimization types by the same perpetrator. Furthermore, physical abuse and neglect by a parent and victimization by a sibling were related to more mental health problems and more delinquency.

Co-Occurrence of Sibling Victimization and Child Maltreatment

Pearson's correlations showed that sibling victimization was positively related to parents' physical abuse and neglect (see Table 1). A multiple regression analyses showed that when we controlled for the presence of the other form of child maltreatment by parents, only neglect was associated with sibling victimization, $\beta = .25$, $p < .001$, whereas for physical abuse, this relation was no longer significant, $\beta = .04$, $p = .069$.

Additive Effects and Interactive Effects of Sibling Victimization

Hierarchical multiple regression analyses, controlling for child age, child gender, ethnicity, presence of older siblings, number

Table 2. Associations of Child and Adolescent Sibling Victimization, Child Maltreatment, With Mental Health Problems, and Delinquency.

Independent variables	Mental Health Problems			Delinquency		
	β	p	R^2	β	p	R^2
Step 1—Covariates			.21			.06
Child age	.45	.000		.18	.000	
Gender ^a	-.05	.001		.11	.000	
Ethnicity ^b	.03	.065		.02	.295	
Presence of older sibling(s) ^c	.00	.965		-.04	.052	
Number of children in the family	-.02	.344		.03	.188	
Single-parent household ^d	.03	.100		.07	.000	
Socioeconomic status	-.05	.001		-.01	.566	
Step 2—Additive effects			.25			.08
Physical abuse	.17	.000		.12	.000	
Neglect	.16	.000		.09	.000	
Sibling victimization	.17	.000		.13	.000	
Step 3—Interaction effects			.25			.10
Sibling Victimization \times Child Age	.00	.982		-.13	.000	
Sibling Victimization \times Physical Abuse	-.01	.726		.03	.233	
Sibling Victimization \times Neglect	-.03	.204		-.04	.098	
Step 4—Interaction effects by age			.26			.11
Sibling Victimization \times Physical Abuse \times Child Age	.02	.357		.06	.014	
Sibling Victimization \times Neglect \times Child Age	.00	.953		-.07	.008	

Note. β s are derived from each step in the regression analyses; main effects and (both two-way and three-way) interaction effects remain the same in a model without covariates.

^a0 = girls, 1 = boys. ^b0 = Other ethnicities, 1 = White. ^c0 = no older siblings, 1 = at least one older sibling. ^d0 = two-parent household, 1 = single-parent household.

of children in the family, single-parent household, and SES (see Table 2, Step 1), showed that sibling victimization was related to more mental health problems and more delinquency after controlling for the effect of child maltreatment (see Table 2, Step 2). In Step 3 of the hierarchical regression analyses, the interaction effects between sibling victimization and neglect and physical abuse were entered, neither of these interactions were significant.

Age Differences in Co-Occurrence, Additive Effects, and Interactive Associations

Age differences in co-occurrence of sibling victimization and child maltreatment were examined in multiple regression analyses testing the association of sibling victimization with two interactions: one between physical abuse and child age, $\beta = .00$, $p = .873$, and one between neglect and child age, $\beta = .00$, $p = .964$. These results indicate that there were no age differences in co-occurrence of these victimization types.

To investigate age differences in the additive relations of child maltreatment and sibling victimization, an interaction between sibling victimization and age was entered in Step 3 of the hierarchical regression analyses on mental health and delinquency (Table 2). A simple slope analysis (Aiken & West, 1991) of the significant interaction between sibling victimization and child age on delinquency showed only for younger children (i.e., one *SD* below the mean) a positive relation between sibling victimization and delinquency, $\beta = .25$, $p < .001$, while for the older children (i.e., one *SD* above the mean),

no relation was found, $\beta = -.03$, $p = .417$. Finally, the three-way interactions in Step 4 of the hierarchical regression analyses (Table 2) indicated that the interactions between sibling victimization and child maltreatment on delinquency differed with age. To investigate these result, post hoc Bonferroni tests were conducted using a median split for age resulting in a group of children (5–9 years old) and one of youths (10–17 year olds). The post hoc analyses indicated that children who experienced parental physical abuse (with or without being victimized by their sibling) showed the highest levels of delinquency, followed by children who experienced only sibling victimization. Children who experienced neither form of victimization had the lowest levels of delinquency (see Figure 1). For youths, experience of both parental physical abuse and sibling victimization was related to higher levels of delinquency compared to those who experienced only one form or no victimization (see Figure 1). Children's experiences of sibling victimization were thus related to more delinquency, and this relation was amplified when they also experienced parental physical abuse. However, the relation between physical abuse and delinquency was not influenced by sibling victimization. For youths, sibling victimization was only related to more delinquency when they also experienced physical abuse by a parent. When youths experience only one form of victimization, there was no relation between experiencing sibling victimization and delinquency. With respect to neglect, victimization by both a parent and a sibling was related to the highest levels of children's delinquency, followed by children who experienced only sibling victimization (Figure 2).

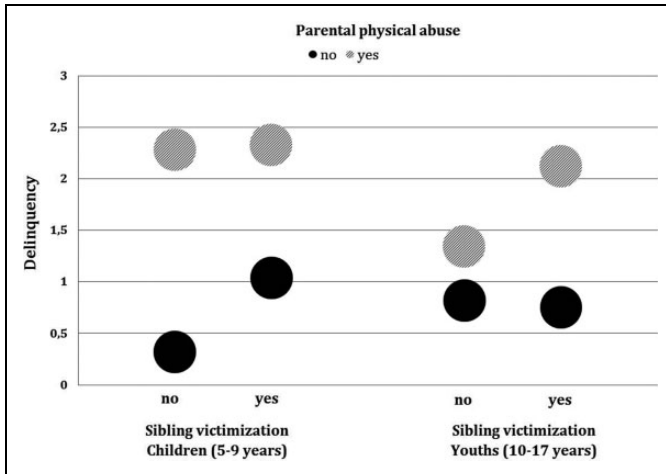


Figure 1. Interaction of sibling victimization and physical abuse by child age on delinquency.

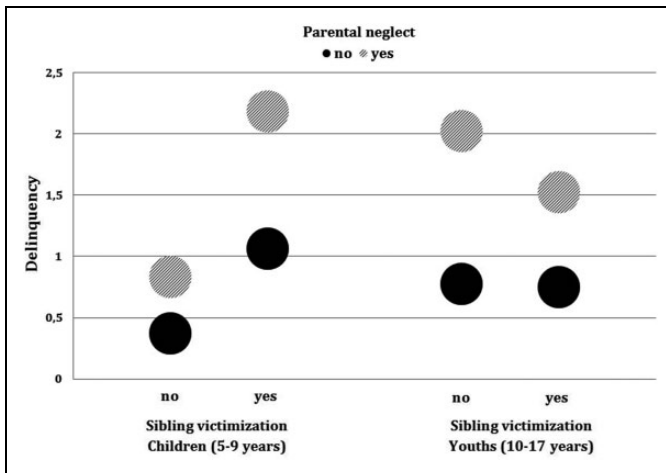


Figure 2. Interaction of sibling victimization and neglect by child age on delinquency.

Children who experienced only parental neglect had similar levels of delinquency to those who did not experience any form of victimization. For youths, similarly to the younger children, experiencing both parental neglect and sibling victimization was related to the highest levels of delinquency. However, for youths, this was followed by the experience of neglect only, while levels of delinquency were similar for youths who experienced only sibling victimization and who did not experience any form of victimization (Figure 2). None of the interactions related to mental health were significant.

Discussion

This study using a nationally representative U.S. sample provides evidence for combined effects of sibling victimization and child maltreatment by parents on child behaviors from school age to adolescence. These findings support the family

system perspective that interactions between family members can only be truly understood within the family context. The results suggest that there are additive effects of these victimization types; however, the results concerning co-occurrence and interaction effects are less clear and should be interpreted cautiously. Bivariate analyses revealed co-occurrence of both parental physical abuse and neglect with sibling victimization. When controlling for the occurrence of the other form of parental child maltreatment, only the co-occurrence of neglect and sibling victimization subsisted. Additive effects of sibling victimization on parental child maltreatment were suggested for the association of sibling victimization, after controlling for child abuse and neglect by a parent, with both mental health problems and delinquency. The additive relation with delinquency was moderated by age, showing, only for children not for youths, an additive relation between sibling victimization and delinquency. Evidence for interactive effects was succinct; interactions between sibling victimization and child maltreatment were only found for delinquency, had small effect sizes, and depended on the type of child maltreatment and child age. For children, the relation between delinquency and sibling victimization was stronger when they also experienced child maltreatment by a parent (physical abuse or neglect) than in the absence of parental child maltreatment. For youths, exposure to both sibling victimization and parental child maltreatment was related to higher levels of delinquency, while in the absence of child maltreatment, no relation between sibling victimization and delinquency was found.

Co-Occurrence of Sibling Victimization and Child Maltreatment

Significant associations between parental child maltreatment and sibling victimization indicate co-occurrence of these forms of victimization. When controlling for co-occurrence of physical abuse and neglect, only the association between neglect and sibling victimization remained significant. This might indicate the existence of cross-system contagion effects. The relation between physical abuse by parents and more sibling victimization may be the result of observational learning (Patterson et al., 1992). The experience of being exposed to physical abuse by a parent may be reflected in sibling interactions, while parental neglect may teach a child that their sibling is not important enough to take care of or to respect. However, the association between physical abuse and sibling victimization appeared only in the bivariate analysis and only the co-occurrence between sibling victimization and neglect while controlling for physical abuse had a considerable effect size. Furthermore, given the cross-sectional nature of our data, we are unable to address causal effects. It could be that violence between siblings results in more parenting stress, which is related to more harsh and dysfunctional parenting (e.g., Beckerman, van Berkel, Mesman, & Alink, 2017). Future research should continue to examine the relationships among child maltreatment and sibling victimization to assess whether intrafamilial contagion effects exist between sibling and parent-child

violence. Our findings suggest that interrelation between sibling victimization and parental child maltreatment may be complex and that sibling victimization may be independent from the occurrence of other within-family victimization types. Furthermore, given the multivariable results, it might be that comorbidity among child maltreatment types by parents forms a risk factor for sibling victimization.

Additive and Interactive Associations of Sibling Victimization

One of our major findings is the additive effect of sibling victimization beyond the effect of parental child maltreatment. Sibling interactions have been repeatedly shown to uniquely influence child development both for the better and the worse (e.g., Cassidy, Fineberg, Brown, & Perkins, 2005). The intensity and “peer-like” qualities of siblings’ interactions (Tucker & Updegraff, 2009; Youngblade & Dunn, 1995) in combination with extensive daily contact (Whiteman, Becarra, & Killoren, 2009) provide opportunities for numerous unique experiences. Such experiences may explain the effects of sibling victimization on mental health problems and delinquency beyond the effects of parental child maltreatment. Our findings highlight the unique detrimental associations between sibling victimization and development and extend the results of previous studies by investigating these effects in children (Button & Gealt, 2010; Garcia et al., 2000; Wolke et al., 2015). Our analyses suggest that interactive effects for delinquency may depend on child age and may affect development of children and youths differently. In contrast to findings of previous studies concerning the combined effect of harsh parenting and sibling victimization, none of the interactions on mental health were significant (Garcia et al., 2000; Ingoldsby et al., 2001; Turner et al., 2015).

Age Differences in Combined Associations

Age difference was only found for an additive relation (for delinquency only) and the interactive associations. Although the JVQ has been shown to be unaffected by reporter bias when comparing parent and youths’ self-reports (Finkelhor, Hamby, et al., 2005), differences evident in this study may partially originate from the different measurement methods used for children and youths. However, differences might also arise from developmental changes and changes in how sibling and family interactions influence the development of children and youths.

The *additive* relation between sibling victimization and delinquency appeared only for children, not for youths. These results are in line with previous research that also found a stronger effect of sibling victimization on the development of children compared to youths (Tucker, Finkelhor, Turner, et al., 2013, 2014). During the teenage years, sibling relationships become less intense and conflictual (Kim et al., 2006), which is also reflected by the difference in prevalence of sibling victimization of children (51%) versus youths (29%) in our

sample, and time spent with parents decreases as youths, especially during adolescence, have greater involvement with peers outside the family (Buist et al., 2013; Steinberg & Monahan, 2007). This may also explain the difference in the *interactive relations* of parental child maltreatment and sibling victimization on delinquency for children versus youths.

For children, the relation between more sibling victimization and more delinquent behavior was amplified by parental child maltreatment, while for youths, sibling victimization was only in combination with parental child maltreatment related to more delinquency. Moreover, experiencing physical abuse, irrespective of experiencing sibling victimization, was related to the highest levels of delinquency for children, while for youths, parental neglect, irrespective of experiencing sibling victimization, was related to the highest levels of delinquency. The combined effect of sibling victimization and parental child maltreatment may be related to the harmful effects these two victimization types have on children’s self-image and self-esteem (Duncan, 1999; Tyler, Allison, & Winsler, 2006). Low self-esteem may make these children more vulnerable to peer pressure and more motivated to show deviant behavior, which increases the probability on showing risk-taking behaviors and delinquency (Parker & Benson, 2004; Wild, Flisher, Bhana, & Lombard, 2004). The violation of self-esteem in several dyads within the family may explain the combined effect of child maltreatment and sibling victimization. This underlines the importance of investigating the influence of specific types of victimization rather than global effects of multiple types of victimization, although the results of this study do not provide evidence for explaining these different processes.

Given that sibling relations are less intense during teenage years (Kim et al., 2006), the relation between sibling victimization and delinquency might also be weaker, especially since delinquent behavior is probably more likely to take place outside the family with peers. The age difference in the relation of parental physical abuse and neglect with delinquency could be explained by different processes in which physical abuse and neglect may influence delinquent behavior. Physical abuse is possibly related to more delinquent behavior through observational learning (Patterson et al., 1992), while the association with parental neglect could be explained by a lack of parental supervision of child behaviors outside the home, which is associated with delinquency (Parker & Benson, 2004). So in children who spent more time with their parents, observational learning may be a more important mechanism than a lack of supervision of their whereabouts outside the home. Contrary, for youths who spent more time outside the home (Buist et al., 2013), supervision of their interactions and behaviors outside the family context may have a greater influence on the development of delinquency than observational learning from their parents’ behaviors. This is in line with previous studies suggesting that parental neglect may have a stronger relation with delinquency in adolescents than parental harsh control (Steinberg, Blatt-Eisengart, & Cauffman, 2006). Finally, the result that experiencing parental neglect without sibling victimization was related to higher levels of delinquency in youths than

experiencing both parental neglect and sibling victimization was counterintuitive. However, if the effect of parental neglect can be explained by a lack of parental supervision of youths outside the home, the effect of neglect might be especially strong for those youths who spent most of their time outside the home with peers, which automatically leads to less contact with siblings and thus less opportunities for sibling victimization. Yet, given the small effect sizes of these interactions, results should be interpreted with caution.

Implications

Given that our strongest evidence was in support of additive effects of sibling victimization, child protection services should pay more attention to this type of victimization when intervening in families where there is a presumption of child maltreatment, for example, by observing interactions between all family members instead of focusing on the perpetrating parent and the victimized child only. The question how sibling victimization develops remains unanswered; further research may look into specific risk factors for this type of within-family violence. Finally, sibling victimization seems to have a greater impact on delinquency in childhood than in adolescents, so this asks for early interventions aiming at improving sibling relations and decreasing violence between siblings.

Limitations

This study has some limitations. First, although we controlled for the influence of the number of children in the family and the presence of older siblings, we were not able to explore the importance of sibling structural characteristics like birth order and gender composition. For example, given the literature on differences between boys' and girls' sibling relations (Kim et al., 2006; Slomkowski, Rende, Conger, Simons, & Conger, 2001), it would be interesting for further research to investigate differences in the relation between parental maltreatment and sibling victimization, on one hand, and delinquency and mental health problems, on the other. Second, only parent report (for children) and self-report measures (for youths) were used, which may have resulted in exaggerated covariation among variables. Using multiple informants would provide a more balanced assessment and would enhance the validity of the results. Third, the data cover only experiences of the past year. Although this may provide more reliable and valid data, since accuracy of retrospective recall may be more affected when individuals are asked to provide information about events that happened a longer time ago (Widom, Raphael, & DuMont, 2004), lifetime maltreatment could especially for adolescents be more influential than maltreatment in the past year. Finally, the cross-sectional nature of our data makes it impossible to draw conclusions concerning causality. It could be that children and adolescents with more mental health problems and higher levels of delinquency show more difficulties at home and as a result are at risk of experiencing child maltreatment and sibling victimization. Longitudinal studies could address

this problem by following the development of children who report parental and sibling victimization over a period of several years.

Conclusion

This study with a nationally representative U.S. sample is the first to examine co-occurrence, additive effects, and interactive effects between sibling victimization and parental child maltreatment in children from school age to adolescence. Our results emphasize the detrimental effects of sibling victimization on child development uniquely and in combination with child maltreatment. Children who are being victimized in two important relational contexts within the home show more developmental problems than children who experience such victimization in the context of one relationship. In addition, the high prevalence of sibling victimization suggests that a substantial part of the children who experience parental child maltreatment will also experience victimization by their brothers or sisters. This stresses the importance for both child protection services and child psychologists to give more attention to investigating sibling victimization. Currently, there is a large body of literature on peer bullying and peer victimization (e.g., Hawker & Boulton, 2000; Lereya, Copeland, Costello, & Wolke, 2015), while similar interactions between siblings are perceived as benign and remain understudied. Given the large effect sizes of sibling victimization and its unique effect on delinquency and mental health beyond the effect of child maltreatment, sibling victimization should be investigated more regularly in studies concerning child and adolescent development.

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