Published in final edited form as:

J Clin Child Adolesc Psychol. 2018 ; 47(6): 941–953. doi:10.1080/15374416.2016.1138409.

Sibling Aggression in Clinic-Referred Children and Adolescents

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Introduction

Building evidence demonstrates that sibling aggression is both widespread and associated with negative outcomes. However, aggression between siblings has not been as widely studied as other types of youth aggression, such as aggression aimed at parents or peers. The limited data on sibling aggression is of notable concern considering evidence suggesting that children who are hostile toward their siblings are more likely to engage in a variety of aggressive behaviors, and to remain aggressive over time (Bank, Burraston, & Snyder, 2004; Ensor, Marks, Jacobs, & Hughes, 2010; Natsuaki, Ge, & Reiss, 2009). Additionally, children who are victims of sibling aggression experience higher rates of both aggressive and trauma-related symptoms (Button & Gealt, 2010; Finkelhor, Turner, & Ormrod, 2006). Clinic-referred youth are at higher risk for engaging in disruptive and/or aggressive behaviors in general, and sibling aggression may be a salient issue among these children and adolescents. At the same time, sibling aggression in particular may not be the focus of clinicians' attention due to other presenting problems. As a result, little is known about the prevalence of sibling aggression among children referred for clinical treatment. The current study presents the prevalence of aggression toward siblings in a large sample of clinic-referred children and adolescents across a broad age range. This study also utilizes multiple reporters of family aggression, and examines the associations of parental aggression and other risk factors with two subtypes of sibling aggression.

Defining and assessing sibling aggression in community and clinic-referred samples

Lack of consensus on a definition of sibling aggression has complicated estimation of the prevalence of such behavior. Based on research using community samples, evidence suggests that 70-80% of children have hit a sibling or engaged in at least mild sibling aggression, while approximately 30% of children have been "assaulted" by a sibling (Finkelhor, 2005; Miller, Grabell, Thomas, Bermann, & Graham-Bermann, 2012; Straus, Gelles, & Steinmetz, 1980). Definitions of sibling aggression vary from including only more severe forms of physical aggression such as "beating up" or using a weapon against a sibling, to separately examining rationally-derived subscales of mild and severe sibling aggression, to including all forms of child aggression against a sibling in a single scale (Eriksen & Jensen, 2009; Finkelhor, 2005; Miller et al., 2012). Several studies of sibling aggression exclude verbal aggression, focusing only on physical aggression, despite evidence that verbal aggression within a family is associated with negative child outcomes (Kolko, Kazdin, & Day, 1996; Teicher, Samson, Polcari, & McGreenery, 2006; Vissing, Straus, Gelles, & Harrop, 1991). Prevalence of sibling aggression also appears to depend on the age range examined, with younger children engaging in sibling aggression more

frequently and also being more likely to engage in more severe physically aggressive behaviors such as hitting, kicking, or using a weapon—at the same time, these types of behaviors tend to be perceived as more serious when an older, larger child is the aggressor (Eriksen & Jensen, 2009; Finkelhor et al., 2006). Studies examining diverse subtypes of sibling aggression across childhood into adolescence are rare, limiting our understanding of normal developmental pathways of sibling aggression (for a notable exception, see the work of Finkelhor and colleagues, 2005; 2006).

Assessing prevalence of relatively mild to more severe forms of sibling aggression is further complicated by the use of different reporters of aggression in different studies. Most studies that include assessment of sibling aggression use only one reporter, typically the mother. Some evidence indicates that across large community samples, mothers and children report similar mean levels of sibling aggression, such that prevalence estimates may be unaffected by reporter (Finkelhor, Hamby, Ormrod, & Turner, 2005). However, at least one study that used multiple reporters within each family found only moderate agreement on severity of sibling aggression, indicating that within a single family, assessment of sibling aggression may be complicated by disagreement between informants (Natsuaki et al., 2009).

Despite challenges in assessing sibling aggression, this form of family aggression appears to be widespread within community samples, with overall rates of aggression varying based on types of behaviors assessed and the number of reporters used. Remarkably, we were unable to locate empirical studies documenting that sibling aggression is a potential area of concern within families seeking mental health services for an adolescent or child. To help fill this gap, this study focuses on youth referred for clinical services at a community mental health center. Our first major goal was to assess how often clinic-referred youth direct a wide range of verbally and physically aggressive acts toward their siblings, using reports from both the targeted youth and the youth's primary female caregiver, labeled hereafter as “mother.” Further, we used factor analysis to empirically verify that the widely used Conflict Tactics Scale (Straus, 1979) yields distinctive sub-types of aggression by clinic-referred youth toward their siblings (i.e., mild and severe aggression). In addition, we examined the level of agreement between clinic-referred youth and mothers when reporting sibling mild and severe aggression, to clarify the potential value of getting reports from more than one family member when assessing this type of family aggression. Given that clinic-referred youth often present to clinicians with a broad variety of problems to be targeted for treatment, sibling aggression may be easy to overlook. We intend for our findings on the assessment of sibling aggression in a clinic-referred sample to help practitioners, the general public, and policy makers to recognize that this form of family violence may be an important problem worthy of both prevention and intervention efforts.

Links between parental aggression and sibling aggression

Sibling verbal and physical aggression may best be understood within the context of the family, with aggression between siblings being just one form of aggression that can occur within a family. In particular, youth whose parents are aggressive towards them are especially likely to engage in aggressive behavior towards their siblings (Eriksen & Jensen, 2006; Miller et al., 2012). Parental aggression is likely to contribute to sibling aggression

through multiple mechanisms. Social learning models explain child aggression in part through parents' influence on the child's development of stable schemas favoring aggression as a solution to interpersonal conflict. Aggressive parents can model aggression as a solution for interpersonal conflict, increasing the likelihood that children will behave similarly when confronted with conflict (Bandura, 1973; Bjorkqvist & Osterman, 1992). Patterson's research on coercive family processes demonstrated that aggressive parents unintentionally reinforce their children's aggressive behavior, and respond less to prosocial behavior, increasing the likelihood that children will continue to engage in aggressive behavior (Patterson, 1982; Patterson, DeBaryshe, & Ramsey, 1989). Parental modeling or reinforcement of aggressive behavior may be particularly influential in shaping aggressive behavior against siblings, as sibling aggression is more likely to occur in the home or under the supervision of the parent. Parents who view aggressive behavior as normative, or even reinforce aggressive behavior, may be less likely to intervene when siblings aggress against each other.

While exposure to parental aggression is clearly likely to increase a child's risk for engaging in sibling aggression, it is less obvious which types of parent aggression are most likely to predict child aggression. Some evidence suggests that the impact of parental verbal aggression or corporal punishment is comparable to more severe physical aggression, despite severe parental aggression often being viewed as more of a cause for concern (Gershoff & Bitensky, 2007; Teicher et al., 2006; Vissing et al., 1991). Verbal aggression and corporal punishment may be more reflective of pervasive family norms regarding aggression, as these types of aggression are more common, and therefore more likely to occur on a regular basis. It is possible that in the presence of regular verbal aggression and/or corporal punishment, rarer occurrences of more severe physical aggression do not add to risk for the targeted child engaging in aggressive behaviors, despite the inherent seriousness of severe parental aggression. Thus, a second major goal of this study was to examine the relative contribution of three forms of parental aggression – verbal aggression, corporal punishment, and severe acts of physical aggression – to the prediction of aggression by clinic-referred youth toward siblings. Noting that a paucity of prior research has addressed this issue, we tentatively hypothesized that each form of parental aggression would be correlated with sibling aggression, but that in a combined regression model not all forms of parental aggression would be equally predictive.

Psychological symptoms/diagnoses and demographic factors

A third goal of this study was to examine the role of several risk factors, beyond the family context, that prior studies suggest would be likely to contribute to sibling aggression in clinic-referred samples. We expected that the types of symptoms or problems that led to the referral would be tied to rates of sibling aggression. Clinic-referred children and adolescents are typically assigned a diagnosis early in treatment; those who meet diagnostic criteria for a disruptive behavior disorder might be expected to demonstrate higher rates of sibling aggression, as these disorders are marked by aggressive, impulsive, and/or oppositional behaviors. In addition, early symptom assessments often include parent- or self-reports of externalizing symptoms. Some longitudinal evidence suggests that sibling aggression can increase risk for later externalizing problems (Natsuaki et al., 2009). However, it could also

be expected that children who are currently engaging in externalizing behaviors across settings, including impulsive and aggressive behaviors, might be expected to also demonstrate higher levels of sibling aggression. Thus, in this study, we examined links between sibling aggression and standardized self-report measures completed by the mother and youth on externalizing problems (i.e., CBCL score; Achenbach, 1991), as well as diagnoses given by mental health providers. We predicted that youth with greater disruptive behavior problems would be more aggressive toward siblings.

Past research with general population samples also highlights that the following demographic factors are linked to sibling aggression: child age, gender, and family income. Thus, we controlled for these factors in this study for the following reasons. It is widely recognized that younger children tend to engage in more sibling aggression (Ensor et al., 2010; Eriksen & Jensen, 2006; Straus et al., 1980). Younger children tend to be more physically aggressive in general, although their aggression may be taken less seriously due to the lower likelihood that they will cause lasting physical harm (Tremblay, 2004). Similarly, male children tend to be more physically aggressive than females in general, and appear to be more likely to engage in sibling-directed aggression (Ensor et al., 2010; Eriksen & Jensen, 2006). Finally, socioeconomic status may be expected to be linked with sibling aggression. Although this association has not been widely explored, some evidence links lower family socioeconomic status with greater child aggression in general (Arsenio, 2004; Tremblay, 2004). The family economic stress model posits that stress associated with financial strain increases conflict between parents, which then impairs parent-child relationships (Conger, Wallace, Sun, Simons, McLoyd, & Brody, 2002; Conger & Conger, 1992); it seems likely that this heightened family tension and conflict would contribute to conflict between siblings as well.

Current study

Overall, research evidence using community-based samples suggests that aggression between siblings is both common and problematic. However, little is known about the assessment and prevalence of sibling aggression among clinic-referred children and adolescents. Existing studies rely on community samples, tend to use a single reporter of sibling aggression or do not contrast reporters, and often examine sibling aggression within a narrow age range. The current study aims to determine the prevalence of sibling aggression within a broad age range of clinic-referred youth, utilizing both youth and mother report of sibling aggression. Measurement of sibling aggression is further advanced through the use of exploratory factor analyses testing for possible subtypes of sibling aggression across both verbal and physical aggression items. In addition, this study examined the relative contribution of three forms of mother to child aggression in predicting subtypes of sibling-directed aggression: verbal aggression, corporal punishment, and severe physical aggression. While it was expected that each type of mother to child aggression would correlate with sibling-directed aggression, we also expected that some types of maternal aggression would be more closely associated with sibling-directed aggression than others. Finally, clinical diagnoses and symptoms as well as demographic variables were examined as additional predictors of sibling aggression within this clinic-referred sample.

Methods

Participants

This study included 346 youth aged 7-18 ($M = 12.92$, $SD = 2.82$; 55.8% males), and their mothers, who received a diagnostic assessment at a youth-serving community mental health center in a semi-rural county in the Midwest. Eighteen-year olds ($N = 7$) were included in the sample because they had recently had a birthday and/or were still in high school, making them eligible to receive services from the agency. Data for this study were derived from consecutive referrals to the agency during a 24-month period where mothers and children both attended the intake session, and the child had at least one sibling living in their home. Child participants were primarily Caucasian ($N = 312$, 90.2%), with some biracial ($N = 22$, 6.4%), Hispanic ($N = 6$, 1.7%), African American ($N = 3$, 0.9%), and Native American ($N = 1$, 0.6%) participants. Most mothers included in the sample were biological mothers of the child (87.3%), with 2.3% adoptive mothers. "Functional mothers" were also included, who may have been stepmothers (3.5%), grandmothers or other relatives (3.5%), long-term partners of a parent (2.6%), or had another type of relationship but fulfilled a maternal role ($N = 3$, 0.9%). Within the current sample, 28.0% of children were living with both biological parents. An additional 22.8% were living with a parent and stepparent, and 15.6% were living with a parent and their unmarried partner. Only 27.2% ($N = 94$) of the mother-child sample also included information gathered from the child's father (including functional fathers), and so it was determined to focus the current study on results from mother and child reports only. Family income was assessed on an 8-point scale, ranging from 1 = below \$17,000 annual household income (and/or no earned income) to 7 = above \$100,000; the mean reported family income on this scale was 2.80 ($SD = 1.58$), which falls within the \$17,000-\$34,000 range.

Participants: sibling characteristics—The mean number of siblings was 2.01 ($SD = 1.04$), with the mean number of siblings residing in the home with the participant being 1.80 ($SD = .86$). Due to lack of information on custody and visitation details for siblings outside of the home, the focus of remaining descriptive analyses is on siblings residing within the same home as the participant. The age of siblings in the home ranged from 0 to 29, $M = 11.13$, $SD = 4.6$. The gap in age between participants and the next-closest aged sibling in the home ranged from 0 to 14, $Mdn = 2.00$, $M = 3.06$, $SD = 2.36$; indicating that most participants had a sibling within about 5 years of their age living in the home. Regarding birth order, more participants were the oldest of the siblings in the home (47.5%), followed by in the middle (29.5%), followed by being the youngest of the siblings residing in the home (22.7%). Participants were about equally likely to report having at least one female sibling in the home (69.7%) as at least one male sibling (68.2%). Less than half of participants reported having at least one same-gender sibling in the home (40.2%), with a small majority reporting only opposite-gender siblings in the home (59.8%). Most participants reported that all siblings in the home shared both biological parents (68.8%), while some participants had at least one sibling in the home that shared only one biological parent (19.9%). A few participants reported having at least one step-sibling in the home (3.2%), foster siblings ($N = 1$, 0.3%) or adopted siblings ($N = 5$, 1.4%), or having a sibling in the home that was not identified with one of the above categories (8.7%).

Measures

Sibling-directed aggression—A modified version of the Conflict Tactics Scale was used to assess child to sibling verbal and physical aggression (Straus, 1979). Children self-reported on their own aggression against siblings, while mothers used a slightly reworded version of the same items to provide their own report of the referred child's aggression against siblings. The measure includes 14 items indicating types of aggressive behavior, and response options ranged from 0 (never occurred in the past year) to 6 (occurred more than 20 times in the past year). While items could be rationally grouped by severity, to our knowledge no study has yet tested whether distinct subscales emerge from the sibling-CTS. Two principal components analyses were used to separately analyze the child-reported and mother-reported items. These analyses supported the use of separate mild and severe subscales of sibling aggression, as described in the Results.

Mother to child conflict—The Parent-Child Conflict Tactics Scale was used to assess mother to child verbal conflict, corporal punishment, and severe physical aggression (Straus, Hamby, Finkelhor, Moore, & Runyan, 1998). The measure includes 21 items designed to assess different types of parent-child conflict as well as prosocial conflict resolution, but for the current study only the 14 items assessing for types of conflict were included. Response options ranged from 0 (never occurred in the past year) to 6 (occurred more than 20 times in the past year). Unlike with the sibling aggression Conflict Tactics Scale, these and similar subscales have been used extensively in existing literature (Lee, Lansford, Pettit, Bates, & Dodge, 2012; McCloskey, Figueredo, & Koss, 1995; Straus & Hamby, 1997; Straus et al., 1998). Subscales were calculated by summing the relevant items, separately for mother and child report. Internal consistency was acceptable in the current sample. Verbal conflict, including items such as “swore or cursed at him/her” demonstrated $\alpha = .76$ for mother reports and $\alpha = .79$ for child reports. Corporal punishment, including items such as “hit him/her on bottom with some type of hard object (e.g., belt, hairbrush, stick, etc.)” had $\alpha = .73$ for mother reports and $\alpha = .71$ for child reports. Severe mother to child aggression, including items such as “Hit him/her with a fist or kicked him/her hard” had $\alpha = .47$ for mother reports and $\alpha = .71$ for child reports. This low internal consistency is typical of studies of severe parent to child aggression, and indicates that parents who engaged in one type of physical aggression may not engage in the others (Straus & Hamby, 1997). However, this subscale has been shown to have both good test-retest reliability, and good validity as evidenced by high correlations between reporters and related measures (Amato, 1991; Straus & Hamby, 1997). A detailed analysis of mother and child interrater consistency is provided in the Results.

Externalizing symptoms—Externalizing symptoms were assessed using the Externalizing behavior problems scale of the parent-reported Child Behavior Checklist (CBCL; Achenbach, 1991). This measure has well-established reliability and validity (Achenbach, 1991). A youth self-report scale is available for adolescents aged 12 and older, however due to the inclusion of a significant number of younger children in the current study, only the parent-reported version was used. *T*-scores were used in all analyses.

Diagnoses—Axis I diagnoses were assigned by agency staff following the intake assessment using the Diagnostic and Statistical Manual of Mental Disorders-IV (American Psychiatric Association, 1994). Typically the intake clinician relied on information from interviews with youth and parents to assign diagnoses, and may also have utilized information from standardized intake measures such as the CBCL or CTS. Because diagnoses were assigned as part of standard clinic practice, and not for use in research, no reliability data were available for diagnoses.

Procedure

As part of the informed consent procedure for the receipt of clinical services, all parents/guardians were told that agency staff would follow federal and state laws for reporting suspected child abuse or neglect to proper authorities, and that nonidentifying information from client files would be entered into electronic databases for use in research. The agency granted consent to the research team to analyze anonymously coded archival data that were routinely collected during diagnostic evaluations. Prior to the intake appointment, families were mailed a packet of information that included the Child Behavior Checklist and a demographic and health history questionnaire. Family members who attended the first appointment completed a 1-hour family interview with an agency diagnostician, followed by a 30-minute questionnaire period coordinated by an agency volunteer. The volunteer remained present for the full questionnaire period to ensure independent completion of forms and to respond to any questions. Agency clinicians referred suspected child physical abuse cases to child protective services when this action was warranted. Data were not provided by the agency on the cases for which this action was taken. Thus, these cases were neither identifiable nor excluded from the current study. The Human Subjects Review Board of the university where the project was initiated approved the use of nonidentifiable data generated by these procedures for research purposes.

Results

Sibling aggression: Prevalence and mother-child agreement

To address the first goal of the study, prevalence of sibling aggression within the clinic-referred sample was assessed using both mother and child report. Almost all mothers (93.1%) reported that their child had engaged in at least one act of sibling-directed aggression in the past year, with the majority of youth also reporting engaging in some sibling aggression (82.4%). Frequencies of individual items are reported in Table 1. Due to limited existing literature on subscales of sibling aggression in the CTS, principal components analysis was used with varimax rotation to reduce the total number of items to a few factors; mother and child reports were factor analyzed separately. For both mother and child analyses, two factors resulted that had an eigenvalue greater than 1. Item loadings and variance explained are reported in Table 1. These factors correspond with mild (factor 1) and severe (factor 2) sibling-directed aggression. The mild factor included primarily verbal items, with two mild physical aggression items loading on the same factor; the severe factor encompasses remaining physical aggression items. One item, “threw something at sibling(s) that could hurt,” appeared to load on both factors, but due to its higher loading on the severe subscale, was included in that scale. Six items were summed to create a scale score for mild

sibling aggression with a range of 0-36 (mother report $M = 19.13$, $SD = 10.84$, child report $M = 12.19$, $SD = 10.58$). Eight items were summed to create a scale score for severe sibling aggression with a range of 0-48 (mother report $M = 8.09$, $SD = 9.70$, child report $M = 5.09$, $SD = 8.43$). Mild sibling aggression demonstrated strong internal consistency (mother report $\alpha = .91$, child report $\alpha = .91$), as did severe sibling aggression (mother report $\alpha = .88$, child report $\alpha = .89$). Mild and severe sibling aggression were significantly correlated (mother report $r = .70$, $p < .001$; child report $r = .72$, $p < .001$). Mild sibling aggression was more commonly reported than severe sibling aggression, although neither was rare: 24% of mothers reported that their child engaged in mild sibling aggression only, and 69% of mothers reported that their child engaged in both mild and severe sibling aggression. None of the mothers, and only four (1.2%) of the youth reported severe but not mild sibling aggression. 28% of youth reported engaging in mild sibling aggression only, and 54% of youth reported engaging in both mild and severe sibling aggression.

Intra-class correlations between mother and child reports of each sibling aggression item are reported in Table 1. Discrepancies between mother and youth report of mild sibling aggression ($ICC = .35$) and severe sibling aggression ($ICC = .31$) were marked. In addition, trends of prevalence by age appeared to differ by reporter. Prevalence of any, as well as mean frequency of different subtypes of sibling aggression by age group are reported in Table 2. While mother-reported frequency of mild sibling aggression was negatively associated with child age ($r = -.11$, $p < .05$), child-reported frequency of mild sibling aggression was positively associated with age ($r = .21$, $p < .001$). In addition, mothers reported lower rates of severe sibling aggression for older children ($r = -.21$, $p < .001$), while child report of severe sibling aggression did not vary by age ($r = .04$, $p = .52$). To maximize detection of sibling-directed aggression, the higher report for each item, whether mother or child, was summed into a composite score. It is noted that for total mild sibling aggression in 68.8% of mother-child dyads the higher report was from the mother (24.5% were from the youth, 6.9% perfectly agreed), and for total severe sibling aggression in 51.3% of cases the higher report was from the mother (24.8% youth, 23.9% perfectly agreed).

Mother-child agreement on maternal aggression

Mother to child verbal conflict, corporal punishment, and severe aggression was assessed using the Parent-Child Conflict Tactics Scale (Straus et al., 1998); for more information on item prevalence within the current sample, see [reference omitted to protect masked review]. Intraclass correlations between mother and child report of verbal conflict were significant but moderate, with consistency on verbal conflict ($ICC = .47$, $p < .001$) and corporal punishment ($ICC = .48$, $p < .001$) being higher than consistency on severe mother to child aggression ($ICC = .23$, $p < .001$). Mother to child verbal aggression was quite common, with 93.6% of mothers and 82.7% of children reporting at least one instance over the past year; corporal punishment was also quite common with 63.3% of mothers and 62.1% of children reporting at least one instance. Severe mother to child aggression was reported by 13.6% of mothers and 22.8% of children, rates that are higher than previously reported in the general population (Finkelhor et al., 2005; Straus et al., 1998). Of those who reported any severe mother to child aggression, most reports were in the 1-2 instance range with only 4.3% of mothers and 14.7% of youth reporting a combined score of 3 ("3-5 times within the past

year”) or higher. As with sibling aggression, for each mother to child aggression item, the higher report (whether from the mother or child) was selected and summed to create a composite score. Due to the rarity of severe mother to child aggression, the total composite score was categorized into 0=none, 1=1-2 instances, 2=3 or more instances. For most dyads mothers gave the higher total report of verbal aggression (59.0%; 28.3% youth gave higher report, 9.0% perfectly agreed), but reports were fairly evenly distributed for corporal punishment (32.5% of dyads mother gave the higher report, 28.9% reporters perfectly agreed, 35.0% youth gave the higher report). For mother to child severe physical aggression, most dyads had perfect agreement between reporters on the total score (72%), likely due to most dyads reporting none of this type of conflict, while youth gave the higher report in 17.9% of dyads and mothers gave the higher report in 6.1% of dyads.

Descriptive Analyses

Correlations, means, and standard deviations between select demographic variables, predictors, and outcomes of interest are reported in Table 3. Because age, gender, and family income were correlated with some maternal aggression and/or sibling aggression indices, we controlled these variables in subsequent analyses. Total number of siblings in the home was not associated with any of the other variables of interest, and so was not included in subsequent analyses. Birth order (out of siblings in the home) was not associated with mean differences on any variables of interest, and was not included in subsequent analyses. The presence of step siblings in the home was also examined. Participants who had a step-sibling living in the home (15.6%) had lower self-reported mild sibling aggression than participants who did not ($M = 1.12$ vs. $M = 1.19$, $t(344) = 2.55$, $p < .05$). No mean differences were found for child-reported severe sibling aggression, for mother-report of either type of sibling aggression, nor for any other variables of interest. The presence of step-siblings in the home does not appear to be associated with a consistent pattern of influence, and so was not examined further.

Mother to child aggression and sibling-directed aggression

The second goal of the study, to examine the relative contribution of three forms of parental aggression, was addressed using both bivariate correlations and hierarchical regression analyses. As reported in Table 3, at the bivariate level all measures of mother to child aggression were significantly associated with both mild sibling-directed aggression and severe sibling-directed aggression. Before conducting hierarchical regression analyses, four outliers on the corporal punishment variable were trimmed to the next-highest value, as was one outlier on externalizing symptoms. Due to significant skew on the outcome variables of mild and severe sibling-directed aggression, these variables were log-transformed for regression analyses.

Two hierarchical regression models were used to assess variables associated with mild sibling-directed aggression (Table 4), and those associated with severe sibling-directed aggression (Table 5). Demographic covariates were entered in the first step of the model, followed by externalizing symptoms in the second step, followed by three forms of mother to child aggression in the third step: verbal aggression, corporal punishment, and severe aggression. Regarding the second goal, assessing types of maternal aggression associated

with sibling-directed aggression, when entered in the same regression equation only mother to child verbal conflict predicted mild sibling aggression. Both verbal conflict and corporal punishment were associated with severe sibling aggression. Severe mother to child aggression did not predict either type of sibling aggression when accounting for the effects of other types of maternal aggression.

Additional regression analyses were run to explore possible reasons for the lack of variance in either form of sibling aggression explained by severe maternal aggression in the above hierarchical regressions (and in the case of mild sibling aggression, corporal punishment). One possibility was that severe maternal aggression did not add predictive power beyond the demographic covariates and externalizing symptoms, and the other possibility was that severe maternal aggression did not add predictive power beyond the other two types of maternal aggression. In models entering corporal punishment or severe maternal aggression together with demographic covariates and externalizing symptoms (but not the other types of maternal aggression), corporal punishment did significantly predict mild sibling aggression ($R^2 = .314$, $\beta = .22$, $p < .001$) and severe maternal aggression did not predict mild sibling aggression ($R^2 = .267$, $\beta = .07$, $p = .16$) but did predict severe sibling aggression ($R^2 = .272$, $\beta = .15$, $p < .01$). In models entering the three types of maternal aggression together in a series of hierarchical regressions, without controlling for demographic covariates or externalizing, corporal punishment did not predict mild sibling aggression ($R^2 = .262$, $\beta = .12$, $p = .06$); hierarchical regressions indicated that it was verbal conflict rather than severe maternal aggression that accounted for the reduction in effects of corporal punishment. Similarly, when controlling for other types of maternal aggression, severe maternal aggression did not predict either mild ($R^2 = .272$, $\beta = -.01$, $p = .87$) or severe sibling aggression ($R^2 = .262$, $\beta = -.03$, $p = .55$), and hierarchical regressions indicated that when entered alone, either verbal conflict or corporal punishment were sufficient to reduce the associations between severe maternal aggression and both types of sibling aggression to non-significance. Together these exploratory analyses indicate that the bivariate association between corporal punishment and mild sibling aggression is better explained by verbal conflict; that the bivariate association between severe maternal aggression and mild sibling aggression is not robust as it is explained away by demographic covariates or either of the other types of maternal aggression, and that the association between severe maternal aggression and severe sibling aggression is explained away by either of the other types of maternal aggression.

Psychological symptoms/diagnoses and demographic factors associated with sibling aggression

Hierarchical regression results indicate that externalizing symptoms measured by the CBCL were significantly associated with mild sibling aggression, while demographic variables were non-significant when included in the same model (Table 4). Externalizing symptoms were also associated with severe sibling aggression, as was younger age and lower family income (Table 5).

Analyses of variance (ANOVAs) were used to explore differences in sibling aggression by DSM-IV diagnosis. To facilitate comparison, diagnoses were grouped into three major

categories: internalizing (including mood and anxiety disorders, $N = 79$, 22.8%), disruptive (including conduct disorder, ODD, and Attention Deficit-Hyperactivity Disorder, $N = 145$, 41.9%), and adjustment disorders ($N = 118$, 34.1%), with an additional $N = 4$ not being included in analyses due to having unusual primary diagnoses (such as Tourette's Disorder). Significant differences in rates of mild sibling-directed aggression emerged ($F(2, 339) = 14.97$, $p < .001$), with Tukey post-hoc analyses revealing that youth with internalizing and disruptive diagnoses had similar rates of mild sibling aggression (internalizing $M = 22.46$, disruptive $M = 24.89$), which was higher than rates of mild sibling aggression among youth with adjustment disorders ($M = 18.08$). For severe sibling aggression, disruptive diagnoses were associated with higher rates of severe sibling aggression (disruptive $M = 14.11$) than were internalizing or adjustment diagnoses (internalizing $M = 9.95$, adjustment $M = 7.34$; $F(2, 339) = 13.19$, $p < .001$).

Regression models using pairwise dummy codes were run to explore whether differences in diagnostic categories remained when controlling for other variables examined in the study, these models shed light on the relative utility of clinical diagnoses and other sources of information in predicting sibling aggression. Each regression entered age, externalizing symptoms on the CBCL, and the three measures of mother to child conflict in the first step. In the second step, two dummy codes were added with adjustment disorders as the reference group: one variable compared internalizing=1 to externalizing or adjustment diagnosis=0, the other variable compared externalizing=1 to internalizing or adjustment diagnosis=0. Neither dummy code reached statistical significance predicting either mild or severe sibling aggression, indicating that the other predictors examined in this study accounted for differences in diagnostic categories observed in the ANOVAs.

Discussion

The current study pursued three major goals: to assess the prevalence of sibling-directed verbal and physical aggression in a clinic-referred sample of children and adolescence, to examine how parental violence is associated with sibling aggression, and to identify other symptoms or demographic variables that may predict sibling aggression. Our results demonstrate that sibling aggression is a highly prevalent problem among clinic-referred children and adolescents. Almost all children in the current sample had engaged in some type of sibling aggression within the past year. Mild sibling aggression and severe sibling aggression appeared as distinct subtypes, although highly correlated, with mild sibling aggression consisting of verbal conflict and mild physical aggression, and severe sibling aggression consisting of more serious physical aggression. Mild sibling aggression was more common than severe physical aggression, but similar patterns of prediction emerged for both. While family violence has long been a focus of research and clinical practice, most of these efforts have concerned violence between parents and children. The current study highlights how parental violence and sibling violence are associated, and supports the importance of attending to sibling aggression.

Prevalence and subtypes of sibling aggression

The prevalence of sibling aggression in the current clinic-referred sample is higher than estimates reported for community samples. In our sample, 93.1% of mothers and 82.4% of children reported that the child engaged in any sibling aggression within the past year, while the highest prevalence reported in community samples has fallen within the 70%-80% range (Finkelhor, 2005; Miller et al., 2012; Straus et al., 1980). There are a number of reasons why clinic-referred children are more likely to engage in sibling-directed aggression. Aggressive behavior is a common reason for referral, and children who are aggressive in general are more likely to aggress against siblings (Duncan, 1999; Garcia, Shaw, Winslow, & Yaggi, 2000). Children who have been referred for mental health treatment are also at higher risk for being exposed to other forms of family violence such as violence between parents or parental abuse of children (Mahoney, Donnelly, Lewis, & Maynard, 2000), which we and others have found to predict sibling-directed violence (Eriksen & Jensen, 2009).

The current study used factor analysis to identify distinct subtypes of mild and severe sibling aggression, but found that even when only severe sibling aggression is considered, prevalence rates are high; 69% of mothers and 55.2% of youth reported severe physical sibling aggression including hitting, kicking, and hitting a sibling with an object. Severe sibling aggression is common even among adolescents, who are physically larger and more likely than younger children to inflict serious physical harm, suggesting that families of clinic-referred children are very likely to be coping with sibling aggression, even severe or potentially dangerous sibling aggression. These high prevalence rates highlight the importance of this problem within the clinical population.

Violence within a family

Just as previous studies have found that parental aggression can increase child aggression in general, the current study found that sibling-directed aggression is predicted by maternal aggression such as verbal conflict or corporal punishment (Eriksen & Jensen, 2006; Gershoff, 2002). From a social learning perspective, aggressive parents model aggression as an approach to resolving interpersonal conflict, and at the same time often unintentionally reinforce aggressive behaviors more than prosocial behaviors, socializing their children to become more aggressive themselves (Bjorkqvist & Osterman, 1992; Patterson, 1982). Parental aggressive behavior may also reflect a parent's view of aggression as normative or acceptable; parents who believe that aggressive behavior is normal may be expected to intervene less in aggressive conflicts between their own children.

Our findings indicate that the less severe types of maternal aggression are more predictive of sibling aggression than severe maternal physical aggression. We found that mild sibling aggression, such as insulting, threatening, or pushing a sibling, was predicted only by maternal verbal aggression—although corporal punishment and severe physical aggression were both associated with mild sibling aggression at the bivariate level, when included together the effects of maternal verbal aggression subsumed these other subtypes of maternal aggression. Severe sibling aggression, including hitting, kicking, or beating up a sibling, was predicted by both verbal maternal aggression and corporal punishment, but again severe maternal physical aggression was not predictive in the presence of other types of maternal

aggression. In the current sample severe maternal physical aggression was relatively rare when compared to verbal aggression or corporal punishment. It is possible that the relative lack of variance in this type of aggression is partly responsible for the less robust influence of severe maternal aggression compared with the other types of maternal aggression. While severe parental aggression has been noted by others to be less common than corporal punishment or verbal conflict (Finkelhor, 2005; Straus & Stewart, 1999; Vissing et al., 1991), and the current sample did report higher rates of severe maternal aggression than in general population studies (Finkelhor et al., 2005; Straus et al., 1998), it is important to note that in the current sample some families may have withheld information on more severe types of aggression to avoid mandated child abuse reporting. It is also possible that the more common, but less severe, types of maternal aggression are more influential in modeling aggressive behaviors or establishing family norms for aggressive behavior. Children may imitate what they observe in their parents, leading children who are targets of mild aggression to perpetrate similar mild aggression against their siblings, while children who experience corporal punishment may engage in comparable physical aggression against their siblings—severe maternal aggression may be rare enough that it does not lead to changes in child behavior beyond the influence of more common forms of maternal aggression. Similar findings have been found in some community studies, and significant research has linked the use of corporal punishment to increased child aggression in general (Gershoff, 2002; Vissing et al., 1991). We believe that when intervening with families, while more severe parental aggression, including child abuse, is always of serious concern, less apparently serious but more insidious forms of parental aggression, such as insulting or threatening a child, should also merit clinical attention.

Predicting and assessing sibling aggression with multiple reporters

Clinical symptom measures, diagnostic measures, and some common demographic variables were also demonstrated to be associated with sibling aggression. Younger children and children from lower-income families were more likely to engage in severe sibling-directed physical aggression, and as noted previously, children exposed to maternal aggression were significantly more likely to aggress against siblings. Higher rates of externalizing behaviors in general were associated with aggression against siblings specifically, and children with a diagnosis of a disruptive disorder appear to be more likely to engage in more severe sibling-directed aggression. These risk factors can alert a clinician to be aware that a child may need targeted intervention for sibling aggression.

Assessment for sibling aggression within a clinical setting may need to involve a variety of coordinated efforts. As with other studies of parent and child report of parent-child conflict, mothers and children demonstrated only moderate agreement on severity of maternal aggression (Rinaldi & Howe, 2003). Similarly, inter-rater agreement on severity of sibling aggression was moderate at best. Mothers tended to give higher estimates of sibling aggression across dyads. It is possible that children minimize the severity or frequency of their aggressive behaviors, or that mothers are more likely to be concerned about aggressive behaviors towards a sibling. It is not unusual for researchers to recommend using multiple reporters of child behaviors, and violence within the family is clearly no exception. While on average mothers reported greater rates of sibling aggression than their children, in many

dyads the reverse was true, making it difficult to justify relying solely on maternal report. It is of course impossible to know the “true” rates of sibling aggression within any family, but using multiple reporters maximizes the chances of detecting sibling aggression. The most thorough assessment of a clinic-referred child's aggression against siblings will combine multiple reports of sibling aggression with examination of risk factors identified using common clinical intake measures.

Limitations of the current study

The current study has a number of limitations that should be taken into consideration when interpreting findings. While the use of a clinic-referred sample contributes important information about a unique population, this also limits the generalizability of the findings to community populations. Also, participants were all informed that if they disclosed child abuse a report would be filed with local child protective services; while this practice is common in clinical settings, it is possible that informing participants of this mandated report may have made them less willing to disclose severe maternal aggression. At the same time, the clinic where the study takes place serves a primarily Caucasian clientele in a semi-rural county. While this sample represents a large proportion of the American population, results may not generalize to ethnic minority or urban clinical populations. This study sampled risk factors and sibling aggression at a single point in time. It is possible that sibling aggression precedes or causes some hypothesized risk factors, such as maternal aggression or externalizing behaviors. Future research with longitudinal data may be able to tease out how risk factors and sibling aggression interact over time, and, with clinical samples, may examine how treatment could contribute to changes in both risk factors and sibling aggression. In addition, researchers may find that sibling aggression varies between specific sibling pairs, and may wish to use sibling aggression measures specific to each sibling dyad within a family. Although the current study used two separate reporters of sibling and maternal aggression, predictors and outcomes were measured using the same method, which could have inflated reported associations due to shared method variance. Finally, the current study used an empirical approach to identifying subtypes of mild and severe sibling aggression. While these subtypes appear to correspond to similar subtypes using different versions of the same measure, future studies may wish to use confirmatory analyses to determine if they are replicated in independent samples.

Conclusions

Despite these limitations, this study also has a number of strengths that enhance the importance of our findings. Children and adolescents who have been referred for clinical treatment are an understudied group, at high risk for negative behavioral and emotional outcomes. Our sample includes a wide age range, capturing developmental variability in sibling aggression across childhood and adolescence. In addition, the inclusion of multiple reporters permitted a more thorough assessment of aggression within the family. Some important conclusions can be drawn using the current study. First, perpetration of sibling aggression appears to be very common among clinic-referred children and adolescents. In most families with a child in outpatient psychotherapy, some conflict will exist between siblings, and in many families the severity and frequency of sibling conflict will be quite high. As sibling conflict is common among outpatient families, and sibling conflict has been

associated with a variety of negative outcomes (Button & Gealt, 2010; Ensor et al., 2010; Eriksen & Jensen, 2009), sibling-directed aggression may be an important target for treatment. By integrating attention to sibling aggression into treatment plans, child clients as well as their siblings could see a significant improvement in functioning. Another conclusion to be drawn from this study is that understanding rates of sibling conflict, or any family conflict, will be enhanced by gathering reports from multiple family members—while mothers appear to generally be more likely to report higher levels of conflict, in many families their children will perceive greater conflict. Finally, this study supports other, community-based, studies finding associations between different types of aggression within a family (Appel & Holden, 1998; Eriksen & Jensen, 2009). Research focusing on family conflict may benefit from closer attention to how sibling aggression fits within the context of family aggression.

References

- Achenbach, TM. Manual for the Child Behavior Checklist/4-18 and 1991 profile. Burlington, VT: University of Vermont, Department of Psychiatry; 1991.
- Amato PR. 1991; Psychological distress and the recall of childhood family characteristics. *Journal of Marriage & Family*. 53:1011–1019.
- American Psychiatric Association. Diagnostic and statistical manual of mental disorders. 4th. Washington, DC: American Psychiatric Press; 1994.
- Appel AE, Holden GW. 1998; The co-occurrence of spouse and physical child abuse: A review and appraisal. *Journal of Family Psychology*. 12:578.
- Arsenio WF. 2004; Trajectories of physical aggression from toddlerhood to middle childhood: Abstract. *Monographs of the Society for Research in Child Development*. 69:120–129. DOI: 10.1111/j.1540-5834.2004.00311.x
- Bandura, A. Aggression: A social learning analysis. Oxford England: Prentice-Hall; 1973.
- Bank L, Burraston B, Snyder J. 2004; Sibling conflict and ineffective parenting as predictors of adolescent boys' antisocial behavior and peer difficulties: Additive and interactional effects. *Journal of Research on Adolescence*. 14:99–125.
- Bjorkqvist K, Osterman K. 1992; Parental influence on children's self-estimated aggressiveness. *Aggressive Behavior*. 18:411–423.
- Button DM, Gealt R. 2010; High risk behaviors among victims of sibling violence. *Journal of Family Violence*. 25:131–140.
- Conger RD, Conger KJ. 1992; A family process model of economic hardship and adjustment of early adolescent boys. *Child Development*. 63:526.doi: 10.1111/1467-8624.ep9207061028 [PubMed: 1600820]
- Conger RD, Wallace EL, Sun Y, Simons RL, McLoyd VC, Brody GH. 2002; Economic pressure in African American families. *Developmental Psychology*. 38:179–193. [PubMed: 11881755]
- Duncan RD. 1999; Peer and sibling aggression: An investigation of intra- and extra-familial bullying. *Journal of Interpersonal Violence*. 14:871–886. DOI: 10.1177/088626099014008005
- Ensor R, Marks A, Jacobs L, Hughes C. 2010; Trajectories of antisocial behaviour towards siblings predict antisocial behaviour towards peers. *Journal of Child Psychology and Psychiatry*. 51:1208–1216. DOI: 10.1111/j.1469-7610.2010.02276.x [PubMed: 20584100]
- Eriksen S, Jensen V. 2006; All in the family? Family environment factors in sibling violence. *Journal of Family Violence*. 21:497–507. DOI: 10.1007/s10896-006-9048-9
- Eriksen S, Jensen V. 2009; A push or a punch: Distinguishing the severity of sibling violence. *Journal of Interpersonal Violence*. 24:183–208. [PubMed: 18417730]
- Finkelhor D. 2005; The victimization of children and youth: A comprehensive, national survey. *Child Maltreatment*. 10:5–25. DOI: 10.1177/1077559504271287 [PubMed: 15611323]

- Finkelhor D, Hamby SL, Ormrod R, Turner H. 2005; The Juvenile Victimization Questionnaire: Reliability, validity, and national norms. *Child Abuse & Neglect*. 29:383–412. DOI: 10.1016/j.chiabu.2004.11.001 [PubMed: 15917079]
- Finkelhor D, Turner H, Ormrod R. 2006; Kid's stuff: The nature and impact of peer and sibling violence on younger and older children. *Child Abuse & Neglect*. 30:1401–1421. DOI: 10.1016/j.chiabu.2006.06.006 [PubMed: 17118448]
- Garcia MM, Shaw DS, Winslow EB, Yaggi KE. 2000; Destructive sibling conflict and the development of conduct problems in young boys. *Developmental Psychology*. 36:44. [PubMed: 10645743]
- Gershoff ET. 2002; Corporal punishment by parents and associated child behaviors and experiences: A meta-analytic and theoretical review. *Psychological Bulletin*. 128:539–579. DOI: 10.1037//0033-2909.128.4.539 [PubMed: 12081081]
- Gershoff ET, Bitensky SH. 2007; The case against corporal punishment of children: Converging evidence from social science research and international human rights law and implications for U.S. public policy. *Psychology, Public Policy, and Law*. 13:231–272. DOI: 10.1037/1076-8971.13.4.231
- Kolko DJ, Kazdin AE, Day BT. 1996; Children's perspectives in the assessment of family violence: Psychometric characteristics and comparison to parent reports. *Child Maltreatment*. 1:156–167. DOI: 10.1177/1077559596001002007
- Lee SJ, Lansford JE, Pettit GS, Bates JE, Dodge KA. 2012; Parental agreement of reporting parent to child aggression using the Conflict Tactics Scales. *Child Abuse & Neglect*. 36:510–518. DOI: 10.1016/j.chiabu.2012.04.005 [PubMed: 22763358]
- Mahoney A, Donnelly WO, Lewis T, Maynard C. 2000; Mother and father self-reports of corporal punishment and severe physical aggression toward clinic-referred youth. *Journal of Clinical Child Psychology*. 29:266–281. [PubMed: 10802835]
- McCloskey LA, Figueredo AJ, Koss MP. 1995; The effects of systemic family violence on children's mental health. *Child Development*. 66:1239–1261. [PubMed: 7555214]
- Miller LE, Grabell A, Thomas A, Bermann E, Graham-Bermann S. 2012; The associations between community violence, television violence, intimate partner violence, parent-child aggression, and aggression in sibling relationships of a sample of preschoolers. *Journal of Violence*. 2:165–178.
- Natsuaki M, Ge X, Reiss D. 2009; Aggressive behavior between siblings and the development of externalizing problems: Evidence from a genetically sensitive study. *Developmental Psychology*. 45:1009–1018. [PubMed: 19586176]
- Patterson, GR. *Coercive family process*. Eugene, OR: Castalia; 1982.
- Patterson GR, DeBaryshe BD, Ramsey E. 1989; A developmental perspective on antisocial behavior. *American Psychologist*. 44:329–335. [PubMed: 2653143]
- Rinaldi CM, Howe N. 2003; Perceptions of constructive and destructive conflict within and across family subsystems. *Infant and Child Development*. 12:441–459. DOI: 10.1002/icd.324
- Straus MA. 1979; Measuring intrafamily conflict and violence: The Conflict Tactics (CT) Scales. *Journal of Marriage and the Family*. 41:75–88. DOI: 10.2307/351733
- Straus, MA, Gelles, RJ, Steinmetz, SK. *Behind Closed Doors: Violence in the American Family*. 1st. Garden City, NY: Doubleday; 1980.
- Straus, MA, Hamby, SL. Measuring physical and psychological maltreatment of children with the Conflict Tactics Scales. In: Kantor, GK, Jasinski, JL, editors. *Out of darkness: Contemporary perspectives on family violence*. Thousand Oaks, CA: Sage; 1997. 119–135.
- Straus MA, Hamby SL, Finkelhor D, Moore DW, Runyan D. 1998; Identification of child maltreatment with the Parent-Child Conflict Tactics Scales: Development and psychometric data for a national sample of American parents. *Child Abuse & Neglect*. 22:249–270. [PubMed: 9589178]
- Straus MA, Stewart JH. 1999; Corporal punishment by American parents: National data on prevalence, chronicity, severity, and duration, in relation to child and family characteristics. *Clinical Child and Family Psychology Review*. 2:55–70. [PubMed: 11225932]
- Teicher M, Samson J, Polcari A, McGreenery C. 2006; Sticks, stones, and hurtful words: Relative effects of various forms of childhood maltreatment. *American Journal of Psychiatry*. 163:993–1000. [PubMed: 16741199]

- Tremblay RE. 2004; Physical aggression during early childhood: Trajectories and predictors. *Pediatrics*. 114:e43–e50. DOI: 10.1542/peds.114.1.e43 [PubMed: 15231972]
- Vissing YM, Straus MA, Gelles RJ, Harrop JW. 1991; Verbal aggression by parents and psychosocial problems of children. *Child Abuse & Neglect*. 15:223–238. [PubMed: 2043974]

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Table 1
Child and Mother Reports of Sibling Aggression: Prevalence of Items, Factor loadings, and Inter-reporter Correlations

Sibling aggression item	Child report			Mother report		Intra-class Correlation between mother and child report	
	% any within past year	Factor 1 loading	Factor 2 loading	% any within past year	Factor 1 loading		Factor 2 loading
1. Insulted, swore or cursed at sibling(s)	62%	.80	.16	78.4%	.83	.12	.38***
2. Threatened to hit or throw something at sibling(s) but did not actually do it	54.5%	.76	.37	69.5%	.79	.29	.27***
3. Threw, smashed, hit or kicked something during a disagreement with sibling(s)	41.5%	.68	.35	61.1%	.64	.52	.16**
4. Shouted, yelled or screamed at sibling(s)	75.2%	.87	.19	90.2%	.85	.14	.27***
5. Called sibling(s) names (e.g., ugly, fat)	62.5%	.82	.23	82.7%	.87	.10	.25***
6. Threw something at sibling(s) that could hurt	30.8%	.51	.65	46.1%	.48	.66	.22***
7. Pushed, grabbed or shoved sibling(s)	55.3%	.73	.45	70.6%	.68	.50	.33***
8. Bit sibling(s), punched or hit with fist	34.9%	.50	.63	44.7%	.49	.65	.23***
9. Kicked sibling(s) hard	31.4%	.46	.70	42.9%	.40	.78	.28***
10. Slapped sibling(s)	30.5%	.38	.76	52.7%	.47	.65	.30***
11. Hit or tried to hit sibling(s) with a hard object or something that could hurt	20.2%	.37	.78	28.2%	.25	.78	.15**
12. Beat sibling(s) up	21.9%	.20	.81	19.6%	.18	.73	.29***
13. Choked sibling(s)	7.8%	.03	.69	9.8%	.03	.57	.09
14. Used or threatened sibling(s) with a knife or gun	4.3%	.14	.35	5.2%	.02	.52	.17***
Total variance explained by factor		33.51%	30.88%		32.74%	30.46%	

Note: factor loadings are boldfaced to indicate the scale on which they were included

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

Table 2**Frequency of sibling aggression by age**

	Age 7-10		Age 11-14		Age 15-18	
	Child report	Mother report	Child report	Mother report	Child report	Mother report
Prevalence of any mild sibling aggression	80%	94%	81%	97%	84%	88%
Prevalence of any severe sibling aggression	52%	77%	59%	75%	53%	56%
Mean mild sibling aggression (standard deviation)	8.96 (9.59)	19.48 (10.07)	12.34 (10.63)	20.53 (10.84)	14.27 (10.71)	17.04 (11.11)
Mean severe sibling aggression (standard deviation)	4.20 (7.74)	9.50 (10.04)	5.87 (9.32)	9.18 (10.16)	4.70 (7.62)	5.67 (8.40)

Correlations, Means, and Standard Deviations

Table 3

	1.	2.	3.	4.	5.	7.	8.	9.	10.	11.
1. Child age	1									
2. Child gender (0=male, 1=female)	.16**	1								
3. Family income (1-8)	.13*	-.02	1							
4. Total siblings in the home	-.07	-.03	-.00	1						
5. Externalizing CBCL (T-score)	.06	-.01	-.04	.10	1					
6. Mother to child verbal aggression ^a	.05	-.04	.02	-.04	.51***	1				
7. Mother to child corporal punishment ^a	-.25***	-.13*	-.00	.02	.33***	.60***	1			
8. Mother to child severe aggression (0= none, 1=1-2, 2=3 or higher) ^a	.03	.10	.03	-.07	.26***	.41***	.46***	1		
9. Mild sibling-directed aggression ^a	-.03	-.05	-.11	.08	.53***	.50***	.37***	.20**	1	
10. Severe sibling-directed aggression ^a	-.17**	-.06	-.21	.09	.46***	.47***	.46***	.24**	.72***	1
Mean	12.92	1.44	2.80	1.80	63.98	13.10	6.09	.73	21.91	10.79
Standard Deviation	2.82	.50	1.58	.86	11.46	7.36	6.38	1.42	10.38	11.12

^aComposite sum of highest score on each item, whether mother or child report* $p < .05$,** $p < .01$,*** $p < .001$

Table 4**Regression results for mild sibling aggression**

	F	f ²	R ²	β	b	SE _b	95% CI (b)
<i>Step 1</i>	1.47	.014	.014				
Age				-.003	.000	.007	-.014-.013
Gender				-.06	-.041	.038	-.117-.035
Family income				-.10	-.021	.012	-.045-.002
<i>Step 2</i>	28.42	.379	.260				
Age				-.04	-.004	.006	-.016-.007
Gender				-.05	-.033	.033	-.098-.032
Family income				-.08	-.016	.010	-.036-.005
Externalizing CBCL				.51	.015***	.001	.012-.018
<i>Step 3</i>	23.47	.553	.081***				
Age				-.02	-.003	.006	-.014-.009
Gender				-.03	-.019	.032	-.082-.044
Family income				-.09	-.018	.010	-.037-.001
Externalizing CBCL				.35	.010***	.002	.007-.013
Mother-to-child verbal aggression				.28	.013***	.003	.007-.019
Mother-to-child corporal punishment				.09	.005	.003	-.002-.011
Mother-to-child severe aggression (0= none, 1=1-2, 2=3 or higher)				-.05	-.021	.025	-.070-.028

* p<.05,

*** p<.001

Table 5

Regression results for severe sibling aggression

	F	f ²	R ²	β	b	SE _b	95% CI (b)
<i>Step 1</i>	7.03	.070	.065***				
Age				-.14	-.025*	.011	-.046- -.005
Gender				-.05	-.056	.060	-.174-.062
Family income				-.19	-.062**	.019	-.098- -.025
<i>Step 2</i>	26.92	.359	.199***				
Age				-.17	-.031**	.009	-.049- -.012
Gender				-.04	-.045	.053	-.149-.060
Family income				-.16	-.054**	.017	-.086- -.021
Externalizing CBCL				.45	.021***	.002	.016-.025
<i>Step 3</i>	24.35	.575	.101***				
Age				-.12	-.022*	.009	-.040- -.003
Gender				-.02	-.019	.051	-.119-.080
Family income				-.18	-.059***	.015	-.089- -.029
Externalizing CBCL				.28	.013***	.003	.008-.018
Mother-to-child verbal aggression				.18	.013**	.005	.004-.023
Mother-to-child corporal punishment				.22	.018**	.005	.008-.029
Mother-to-child severe aggression (0= none, 1=1-2, 2=3 or higher)				.01	.006	.039	-.072-.083

* p<.05,

** p<.01,

*** p<.001