Parental Maltreatment, Bullying, and Adolescent Depression: Evidence for the Mediating Role of Perceived Social Support

Pamela M. Seeds
Department of Psychology, University of Western Ontario

Kate L. Harkness
Department of Psychology, Queen’s University

Lena C. Quilty
Clinical Research Department, Centre for Addiction and Mental Health

The support deterioration model of depression states that stress deteriorates the perceived availability and/or effectiveness of social support, which then leads to depression. The present study examined this model in adolescent depression following parent-perpetrated maltreatment and peer-perpetrated bullying, as assessed by a rigorous contextual interview and rating system. In 101 depressed and nondepressed community adolescents between the ages of 13 and 18 (\(M = 15.51, SD = 1.27\)), peer bullying and father-perpetrated maltreatment were associated with lower perceptions of tangible support and of belonging in a social network. These forms of support mediated the association of bullying and father-perpetrated maltreatment with greater depression severity. In contrast, mother-perpetrated maltreatment was associated with higher perceptions of tangible support.

Large-scale population studies have documented that 10 to 25% of children younger than 18 have been physically, sexually, or emotionally abused by a parent figure (Finkelhor, Ormrod, Turner, & Hamby, 2005; May-Chahal & Cawson, 2005). In addition, close to one in five youths in the United States reports being the victim of peer bullying, which may include verbal and/or physical assault, ridicule, or exclusion (Nansel et al., 2001). The experience of parent-perpetrated maltreatment and peer-perpetrated bullying is traumatic in and of itself. Even further, it places children at risk for a number of negative outcomes that persist into adulthood, including substance abuse and dependence, delinquency, early pregnancy, school dropout, unemployment, physical health problems, and relationship impairment (e.g., Cicchetti & Toth, 2005; Simpson & Miller, 2002; Sourander et al., 2007). Furthermore, a recent review reported that a history of parent-perpetrated physical abuse, sexual abuse, and/or emotional abuse is associated with a two- to fivefold increase in rates of depression diagnosis in adolescence and/or young adulthood (Harkness & Lumley, 2007). Similarly, a meta-analytic review suggests that bullying is more strongly related to depression than any other maladaptive outcome (Hawker & Boulton, 2000).
Despite the pervasiveness of child victimization, and the clear link to depression, researchers are still at a very early stage in understanding the mechanisms that translate victimization into the symptoms and signs of disorder. This research question is critical, because understanding how a risk factor causes a particular disorder provides a clear target for intervention. The purpose of the current study, therefore, was to examine perceived social support as a mediator of the relation between victimization and depressive symptoms in adolescence.

Social support has been defined as information from others that one is loved and cared for, esteemed and valued, and part of a network of communication and mutual obligations (Cobb, 1976). Of note, perceptions of social support appear to have a greater influence on depressive outcomes than the actual level of support received (Dunkel-Schetter & Bennett, 1990). Indeed, a large number of cross-sectional (e.g., Kaltiala-Heino, Rimpelä, Rantanen, & Laippala, 2001; Marcotte, Marcotte, & Bouffard, 2002) and longitudinal (e.g., Sheeber, Hops, Alpert, Davis, & Andrews, 1997; Stice, Ragan, & Randall, 2004) studies have confirmed that low levels of perceived social support predict future depression symptoms and diagnosis. During adolescence, the source of social support goes through a great deal of change: adolescents' feelings of support, closeness, and intimacy with parents decline during adolescence (e.g., Furman & Buhrmester, 1985, 1992). At the same time, adolescent friendships become more intimate, disclosing, and supportive (Furman & Buhrmester, 1992).

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A leading explanation for the role of stress in psychological distress in general, and depressive symptoms more specifically, is the social support deterioration model. This model conceptualizes perceived social support as a mediating variable and posits that stress erodes perceived availability or effectiveness of social support, which then leads to psychological distress, impairment and/or maladjustment (Barrera, 1986). Proponents of this model argue that stressful life events, such as getting fired from a job, separating from a romantic partner, moving away from close friends, or developing a serious illness, change the set of regular social support sources that an individual has and hinders access to previously principal supports (Kaniasty & Norris, 1993). Similarly, chronic stressors such as poverty, unemployment, and illness can provoke interpersonal conflicts, social withdrawal, and increasing demands on social supports. This then leads to declines in actual support transactions and decreased perceptions of satisfaction with those social supports (Atkinson, Liem, & Liem, 1986; Lane & Hobfoll, 1992; Lepore, Evans, & Schneider, 1991). Evidence for the social support deterioration model has been found in cross-sectional studies examining the prediction of maladjustment from partner/date abuse in girls and women (Salazar, Wingood, DiClemente, Lang, & Harrington, 2004; Thompson et al., 2000), acute natural disaster in adults (Kaniasty & Norris, 1993), and chronic stressors in adults (Lepore et al., 1991; Quittner, Glueckauf, & Jackson, 1990; Schulz et al., 2006). Furthermore, a prospective study of adults simultaneously testing various models of the life stress-social support relationship found evidence only for the support deterioration model (Ensel & Lin, 1991).

The purpose of the present study is to apply and test the support deterioration model as a mechanism mediating the relation of childhood maltreatment and bullying with symptoms of depression in adolescence. Specifically, we hypothesize that deficits in actual and/or perceived social support may in part account for the depressogenic effects of childhood maltreatment and bullying on depression. Evidence supporting this hypothesis comes from studies suggesting that adolescents who have suffered maltreatment or bullying display lower levels of attachment security than those without this history, such that they view others as unpredictable, untrustworthy, and unresponsive and themselves as worthy of affection and care (Muller, Gragtmans, & Baker, 2008; Muller & Lemieux, 2000). In these circumstances, youths may have little confidence in their ability to elicit support, and may believe that whatever support they are able to elicit will not be helpful (Crittenden, 1992). Indeed, research has found that attachment security mediates the relation between childhood abuse and perceptions of social support in young people (e.g., Muller et al., 2008).

The applicability of the support deterioration model to the stressful context of childhood maltreatment has been empirically documented. However, these studies have generally focused on psychological outcomes other than depression. For example, Pepin and Banyard (2006), using a sample of college students, recently found that total perceived social support mediated the relation between childhood physical abuse, sexual abuse, and neglect, and developmental achievement. Similarly, Vranceanu, Hobfoll, and Johnson (2007) found that social support partially mediated the impact of childhood abuse on symptoms of posttraumatic stress disorder in adult women. Punamäki, Kompoe, Qouta, El-Masri, and de Jong (2005) found that perceived social support partially mediated the relation between childhood maltreatment and mental health symptoms in a large community sample of adults with high levels of exposure to military violence. To our knowledge, despite the very strong relation of childhood maltreatment to depression, no studies have yet examined the applicability of the support deterioration model to this outcome. In addition, despite the dramatic rise in rate of
depression in adolescence (Kessler, McGonagle, Swartz, Blazer, & Nelson, 1993), no studies have yet examined the generalizability of the support deterioration model to depression in this age group.

The present study, therefore, was the first to test the stress deterioration model of social support in adolescent depression, and it included a number of methodological advances over previous investigations. First, we examined the stress deterioration model in the context of the adverse childhood experiences that have shown the strongest predictive relation to depression, namely, parental physical abuse, verbal/emotional abuse, and neglect, and peer bullying. All of these adverse childhood experiences were assessed using a rigorous contextual interview and standardized rating system. Second, in our models we examine the unique contribution of perpetration from the mother, father, and peers to the development of psychopathology during adolescence—a period during which both parents and peers contribute significantly (e.g., Collins, Maccoby, Steinberg, Hetherington, & Bornstein, 2000; Harris, 1995).

Third, we take a fine-grained approach to the assessment of social support. Cohen and Wills (1985) provided a useful distinction between the structural aspects of the social support network (quantity of social support; e.g., number of friends) and the functional aspects that social support may provide (quality of social support; e.g., emotional support, advice or information, material aid). Rarely have previous studies examined the functional aspects of social support beyond global perceptions of support. However, researchers have highlighted that social support dimensions may have differential effects on outcomes (Kesseler, Price, & Wortman, 1985). Therefore, in the present study we utilized a measure of support that assesses three functional domains: appraisal (e.g., “When I need suggestions for how to deal with a personal problem I know there is someone I can turn to”), belonging (e.g., “If I wanted to have lunch with someone, I could easily find someone to join me”), and tangible (e.g., “If I needed a quick emergency loan of $100, there is someone I could get it from”).1 In addition, we included a measure of structural social support (i.e., number of peer confidants) to examine the role of this form of social support in potentially mediating the relation between victimization and adolescent depressed mood.

Finally, we examined the relations among parental maltreatment or bullying, perceived social support, and depression symptom severity using structural equation modelling (SEM). SEM is a statistical procedure that permits the estimation of complex causal models, including multiple antecedents and covariates, as well as a sensitive assay of mediation (Kline, 2005; Kraemer, Stice, Kazdin, Offord, & Kupfer, 2001; Shrout & Bolger, 2002). For all models, we hypothesized that the presence of parental maltreatment or peer bullying would be associated with lower levels of perceived appraisal, belonging, and tangible support, and a lower reported number of peer confidants, respectively. Further, we predicted that these social support variables would significantly mediate the relation between parental maltreatment or peer bullying and symptoms of depression in adolescence.

**METHOD**

**Participants**

Participants in the present study included 101 adolescents (64 girls, 37 boys) between the ages of 13 and 18 ($M = 15.51$, $SD = 1.27$) recruited from a midsized community in eastern Ontario, Canada. Consistent with the ethnic distribution of the community, all but 3 (i.e., 96%) were of European ancestry. These adolescents were part of a larger study of stress and major depression, and full details of our recruitment procedures are presented in four previous reports (Harkness, Bruce, & Lumley, 2006; Harkness, Lumley, & Truss, 2008; Harkness & Stewart, 2009; Lumley & Harkness, 2007). In brief, adolescents were recruited through referrals from community mental health providers and by an in-school screening using the Beck Depression Inventory—Second Edition (BDI–II; Beck, Steer, & Brown, 1996) at local secondary schools. In the final sample, those recruited from schools did not differ significantly from those recruited from community mental health agencies on any demographic, clinical, social support, or victimization variable ($ps = .15–.97$). Exclusion criteria for all participants included (a) the presence of a psychotic or bipolar disorder; (b) a primary diagnosis of an anxiety, eating, substance use, or externalizing disorder; (c) presence of a developmental disability; or (d) acute suicidality.

Among the 220 adolescents who were referred to the study, 53 could not be contacted or declined participation when contacted. Of the remaining 167, 25 had primary diagnoses other than a current depressive disorder (e.g., Social Phobia) and 41 failed to complete all study measures. Thus, the final sample consisted of 101 adolescents. There were no differences in age ($p = .52$), sex ($p = .87$), or parental occupation status ($p = .53$) between these 101 adolescents and the 66 who participated but were excluded. The primary current...
diagnoses of the present sample of 101 included the following: (a) Major Depressive Disorder \( (n = 51) \), (b) Dysthymia \( (n = 2) \), (c) Adjustment Disorder with Depressed Mood \( (n = 2) \), and (d) Depressive Disorder Not Otherwise Specified \( (n = 1) \). The remaining 45 participants did not meet current or past criteria for any Axis I disorder.\(^2\) Diagnoses were made according to Diagnostic and Statistical Manual of Mental Disorders (4th ed.; American Psychiatric Association, 1994) criteria using the Schedule for Affective Disorders and Schizophrenia for School-Age Children – Present and Lifetime version (Kaufman et al., 1997). Interrater reliability for diagnosis was \( \kappa = .71 \).

**Procedure**

All adolescents, and their parent or guardian for those younger than 18, provided written consent to participate. Permission to conduct this investigation was provided by the school district and their Institutional Review Board, school principals, classroom teachers, and the university Institutional Review Board. All measures were administered by one of three advanced graduate students in clinical psychology who were trained by the second author. The diagnostic interview and questionnaires were administered first, and the childhood adversity interview was completed on a second session 1 to 2 weeks later to reduce participant burden and to prevent bias in the clinical diagnoses. Participants received financial compensation for their time.

**Measures**

**Demographic interview.** A structured interview was administered to participants to assess various demographic characteristics (e.g., sex, age, ethnicity). Parental occupation status was subsequently rated by two independent judges (\( \kappa = .75 \)) on a 1- to 6-point scale according to the Hollingshead Index of Social Position (Hollingshead, 1975). Higher scores indicated lower social position. The mean Hollingshead scores indicated the present sample to be of middle socioeconomic status according to Canadian averages (\( M = 3.51, SD = 1.53 \)).

\(^2\)Among the participants with a depressive disorder, the average age at first onset was 13.06 (\( SD = 2.77 \)) and the average number of previous episodes was 1.76 (\( SD = 1.68 \)). Thirty-three (59%) of these adolescents were suffering from a comorbid Axis I disorder: dysthymia \( (n = 6) \), panic disorder \( (n = 4) \), generalized anxiety disorder \( (n = 8) \), posttraumatic stress disorder \( (n = 4) \), specific phobia \( (n = 5) \), social phobia \( (n = 8) \), bulimia nervosa \( (n = 2) \), oppositional-defiant disorder \( (n = 3) \), conduct disorder \( (n = 1) \), attention-deficit/hyperactivity disorder \( (n = 1) \), substance abuse \( (n = 7) \), and enuresis \( (n = 1) \). These numbers do not add up to 33 because some adolescents had more than one comorbid diagnosis.

**Depression severity.** The BDI-II (Beck et al., 1996) was completed by all participants to assess the presence and severity of depression symptoms over the last 2 weeks. The BDI-II is a standardized 21-item self-report measure of depression. There is extensive research to support the reliability and validity of the BDI-II for assessing depression in adolescents (Krefetz, Steer, Gulab, & Beck, 2002). The standardized internal consistency estimate of the BDI-II in the present sample was .95. BDI-II scores in the current study ranged from 0 to 52 (\( M = 14.80, SD = 13.13 \)).

**Childhood maltreatment.** The adolescent version of the Childhood Experience of Care and Abuse (CECA; Bifulco, Brown, & Harris, 1994) scale was used to assess the quality of parental care, experiences of parent-perpetrated abuse, and experiences of peer-perpetrated bullying from as far back as the participant can remember to the present. The CECA is a semistructured contextual interview and standardized rating system. The following scales were of primary interest in the present study: (a) antipathy—hostility or coldness directed at the child by parents (e.g., harsh criticism or name calling), (b) indifference—neglect of the child’s material and/or emotional needs by parents (e.g., not providing adequate food or clothing, not comforting the child when upset), (c) physical abuse—violence directed toward the child by a parent (e.g., slapping, punching, kicking, threatening with a knife), and (d) bullying—verbal and/or physical harassment directed toward the child by a same-age peer. All interviews were audiotaped, and interviewers were trained not to query about the participants’ depression status; the effect of the experience on the participants’ depression; or the participants’ subjective reaction to, or perception of, these experiences.

These variables were subsequently rated on a 4-point threat scale, ranging 1 (marked), 2 (moderate), 3 (some), and 4 (little or none), by independent raters who were blind to the participant’s clinical status and subjective reactions to the experiences. Responses were rated using a standardized system comparing individual responses to hundreds of manualized case examples, and raters had to justify each rating by appealing to a specific example. Kappa coefficients based on two independent ratings of 20% of the CECA interviews ranged from .86 to 1.0. In previous investigations, the CECA has documented high validity in the study of depression as well as high reliability in comparison with other informant reports (Bifulco, Brown, Little, & Jarvis, 1997; Brown, Craig, Harris, Handley, & Harvey, 2007).

Consistent with the conventions of the CECA (see Bifulco et al., 1994), the antipathy, indifference, physical abuse, and bullying scales were dichotomized to form
severe (marked or moderate) and nonsevere (some or little/none) categories (see Bifulco et al., 1994). We created the following composite variables for analysis:3 (a) mother-perpetrated maltreatment: the presence versus absence of severe mother-perpetrated antipathy and/or indifference and/or physical abuse, (b) father-perpetrated maltreatment: the presence versus absence of severe father-perpetrated antipathy and/or indifference and/or physical abuse, and (c) peer-perpetrated bullying: the presence versus absence of severe bullying.

Social support. The 40-item Interpersonal Support Evaluation List (ISEL; Cohen, Meramelstein, Kamarck, & Hoberman, 1985) was used to assess adolescents’ current perceptions of functional social support. The response format was true/false. Total ISEL scores in the full sample ranged from 5 to 38 (M = 30.41, SD = 6.28). Scores on the following three subscales were examined: (a) appraisal—perceived availability of someone to offer advice, guidance, and information (range = 2–9, M = 7.37, SD = 1.82); (b) belonging—perceived availability of others for companionship (range = 1–10, M = 7.95, SD = 2.42); and (c) tangible—perceived availability of material aid or instrumental support (range = 2–9, M = 7.63, SD = 1.38; Cohen et al., 1985). There is evidence to support the reliability and validity of the ISEL for assessing social support in adolescents, and its subscales have been shown to be reasonably independent from one another (Cohen & Hoberman, 1983; Cohen & McKay, 1984; Cohen et al., 1985). Cronbach’s alpha for the full ISEL in the present sample was .86. Reliabilities for the appraisal, belonging, and tangible subscales were .75, .81, and .75, respectively.

To assess the perceived size of the participants’ peer network we included a question during the Demographic Interview: “How many close friends do you have right now who you would go to if you had a problem or needed to talk about something?”

Data Analysis

We first compared participants with a depressive disorder to those without any psychiatric diagnoses on their demographic characteristics and main study variables. We then examined the preliminary relations between the demographic characteristics of sex, age, and parental Hollingshead index and the main study variables to determine the need for covariates in our path models. We then conducted a series of path model analyses using AMOS 6.0 (Arbuckle, 2005), applying maximum likelihood method of estimation. In each model, mother-perpetrated maltreatment, father-perpetrated maltreatment, and peer bullying served as antecedent variables; age, gender, and parental Hollingshead index served as orthogonal covariates; and depression symptom severity served as the outcome variable. The ISEL measures of appraisal, belonging and tangible support, and the number of peer confidants served as the mediator variables in separate models. Goodness of fit was assessed using the following indices: chi-square; confirmatory fit index (CFI), with values greater than .90 indicating acceptable fit; and root mean square error of approximation (RMSEA), with values greater than .1 indicative of poor fit, less than .08 acceptable fit, and less than .05 close fit (Hu & Bentler, 1999; Kline, 2005). The significance test for close fit is akin to that of the chi-square: p < .05 signifies that the hypothesis of close fit is rejected. Thus, a closely fitting model will have an RMSEA value of less than .05 and p > .05.

According to Kline (2005), significant regression paths from the predictor variable to the mediator variable (path a), and from the mediator variable to the outcome (path b) provide support for mediation (Kline, 2005). Shrout and Bolger (2002) further suggested a bootstrapping procedure to calculate standard errors and confidence intervals (CIs) for parameter estimates; indirect effects were thus considered statistically significant if the 95% CI did not include zero. This operationalization of mediation is consistent with that of Kraemer and colleagues (Kraemer et al., 2001; Kraemer, Wilson, Fairburn, & Agras, 2002). Kraemer and colleagues specify that mediators must (a) occur following the antecedent, (b) correlate with the antecedent, and (c) have either a main or interactive effect on the outcome. In the following path models, (a) all social support mediator variables occur following victimization, (b) a significant path a indicates a correlation of the social support variable with victimization, and (c) a significant path b indicates a main effect of social support on depression symptom severity. Sample size conventions vary greatly in SEM. A minimum sample size of 100 is supported by some experts (e.g., Hatcher, 1994), and is considered “medium” and appropriate for simpler models (Kline, 2005).

RESULTS

Descriptive Characteristics

Table 1 presents descriptive statistics of the sample by depression diagnosis, including statistical comparisons
TABLE 1
Descriptive Characteristics and Significant Differences by Depression Diagnostic Status

<table>
<thead>
<tr>
<th></th>
<th>Nondepressed</th>
<th>Depressed</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M (SD)</td>
<td>M (SD)</td>
</tr>
<tr>
<td>Gender (% Female)</td>
<td>58 (68)</td>
<td>68 (30)</td>
</tr>
<tr>
<td>Age</td>
<td>15.27 (1.14)</td>
<td>15.71 (1.34)</td>
</tr>
<tr>
<td>Parental Hollingshead Index</td>
<td>3.17 (1.46)</td>
<td>3.78 (1.54)</td>
</tr>
<tr>
<td>BDI–II</td>
<td>4.49 (4.74)</td>
<td>23.09 (11.77)</td>
</tr>
<tr>
<td>Total ISEL</td>
<td>33.64 (2.01)</td>
<td>24.98 (6.53)</td>
</tr>
<tr>
<td>Appraisal</td>
<td>8.42 (0.75)</td>
<td>6.29 (2.13)</td>
</tr>
<tr>
<td>Belonging</td>
<td>8.36 (0.98)</td>
<td>6.12 (2.41)</td>
</tr>
<tr>
<td>Tangible</td>
<td>7.78 (0.52)</td>
<td>6.43 (1.85)</td>
</tr>
<tr>
<td>No. of Peer Confidants</td>
<td>3.67 (1.77)</td>
<td>3.50 (2.51)</td>
</tr>
</tbody>
</table>


\(a_n = 45.\)

\(b_n = 56.\)

TABLE 2
Means and Standard Deviations of Depression Severity and Perceived Social Support Variables by the Presence Versus Absence of Victimization

<table>
<thead>
<tr>
<th>Social Support Variables</th>
<th>Total BDI–II M (SD)</th>
<th>No. of Friends M (SD)</th>
<th>Appraisal ISEL Subscale M (SD)</th>
<th>Belonging ISEL Subscale M (SD)</th>
<th>Tangible ISEL Subscale M (SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Victimization</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mother</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Presence(^a)</td>
<td>27.08 (14.63)</td>
<td>5.00 (3.22)</td>
<td>7.25 (1.29)</td>
<td>7.00 (1.95)</td>
<td>7.83 (1.12)</td>
</tr>
<tr>
<td>Absence(^b)</td>
<td>13.15 (12.07)</td>
<td>3.38 (1.97)</td>
<td>7.38 (1.88)</td>
<td>7.13 (2.24)</td>
<td>7.61 (1.41)</td>
</tr>
<tr>
<td>Father</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Presence(^a)</td>
<td>28.67 (11.56)</td>
<td>4.33 (3.23)</td>
<td>6.67 (1.67)</td>
<td>5.83 (2.12)</td>
<td>6.75 (1.71)</td>
</tr>
<tr>
<td>Absence(^b)</td>
<td>12.93 (12.22)</td>
<td>3.47 (2.03)</td>
<td>7.46 (1.82)</td>
<td>7.29 (2.16)</td>
<td>7.75 (1.29)</td>
</tr>
<tr>
<td>Peer</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Presence(^a)</td>
<td>20.08 (14.62)</td>
<td>2.92 (3.50)</td>
<td>6.67 (2.02)</td>
<td>5.00 (2.63)</td>
<td>6.58 (2.35)</td>
</tr>
<tr>
<td>Absence(^b)</td>
<td>14.09 (12.84)</td>
<td>3.66 (1.98)</td>
<td>7.46 (1.78)</td>
<td>7.40 (1.98)</td>
<td>7.78 (1.14)</td>
</tr>
</tbody>
</table>


\(a_n = 12.\)

\(b_n = 89.\)

\(+p < .10.\)

\(-p < .05.\)

between those with versus those without a depression diagnosis. Table 2 presents the means and standard deviations of the BDI–II scores and perceived social support variables by the presence versus absence of maternal maltreatment, paternal maltreatment, and peer bullying. BDI–II scores were not significantly related to age or Hollingshead index. However, girls had significantly higher BDI–II scores than boys (\(M_s = 16.95, 11.08; SD_s = 14.19, 10.19\), \(t(94.25) = 2.41, p < .05\).

The average age of onset of mother-perpetrated maltreatment was 5 years (\(SD = 4.70\)) and its average duration was 7 years (\(SD = 5.54\)). The average age of onset of father-perpetrated maltreatment was 8 years (\(SD = 5.36\)) and its average duration was 6 years (\(SD = 4.97\)). The average age of onset of bullying was 9 years (\(SD = 2.71\)) and its average duration was 3 years (\(SD = 2.26\)). It is important to note that all reports of victimization had their onset at least 2 years (and an

TABLE 3
Correlations Among the Social Support Variables

<table>
<thead>
<tr>
<th></th>
<th>No. of Friends</th>
<th>Appraisal Support</th>
<th>Belonging Support</th>
<th>Tangible Support</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of Friends</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Appraisal Support</td>
<td>.21*</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Belonging Support</td>
<td>.40*</td>
<td>.60*</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Tangible Support</td>
<td>.34*</td>
<td>.55*</td>
<td>.73**</td>
<td>—</td>
</tr>
</tbody>
</table>

\(*p < .05.\)

\(**p < .005.\)
average of 7 years) prior to the current assessment of perceived social support and depression symptoms. Further, for adolescents with a clinical diagnosis of depression, all reports of victimization had their onset prior to the onset of the index episode. It is also important to note that mothers and fathers did not differ in their rates of physical abuse, paired \( t(100) = .28, p = .78 \), or emotional abuse, paired \( t(100) = .33, p = .74 \). Therefore, any differences found in our models below between mother- and father-perpetrated abuse cannot be better explained by differences in the type of abuse perpetrated by mothers versus fathers.

None of the victimization variables, including age at onset, duration, or comorbidity were related to sex or age (all \( ps > .13 \)). However, the presence of mother-perpetrated maltreatment was significantly related to higher parental Hollingshead index (i.e., lower social position, \( Ms = 4.42, 3.39, SDs = 1.36, 1.51 \), \( t(99) = 2.24, p < .05 \)). In addition, those with a longer duration of victimization had significantly higher BDI-II scores (\( r = .29, p < .05 \)).\(^4\) Age of onset, duration, and comorbidity of victimization were not significantly related to the social support variables.

Finally, neither the number of peer confidants nor any of the 3 ISEL subscales were significantly related to sex or parental Hollingshead index (all \( ps > .11 \)). However, lower scores on appraisal (\( r = -.29, p < .005 \)) and belonging (\( r = -.21, p < .05 \)) were significantly associated with older age.\(^5\) Consistent with previous studies of the ISEL in community adult (e.g., Cohen et al., 1985) and adolescent samples (e.g., Ronen & Seeman, 2007), the ISEL subscales were significantly intercorrelated (see Table 3).

**Path Model Analyses**

Path models are depicted in Figures 1 and 2; covariates and error variables are omitted for clarity. We utilized depressive symptom severity rather than the presence or absence of depression diagnosis as the outcome variable to maximize power. We estimated four separate path models, one for each social support variable. The path models include all possible regression paths from the antecedent and covariate variables to the mediator and outcome variables. The sole omitted paths within these models are the covariances between the covariate variables (e.g., the lack of correlation between age and

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\(^4\)Duration of maltreatment could not be included as a covariate in our path analyses because this variable was only relevant for those in our sample who had experienced maltreatment or bullying.

\(^5\)The relation of age to the ISEL subscales raises the potential that age might also be associated with higher depressive symptomatology and/or duration of depression. We note that all of our models contain age as a covariate to account for its potential confounding effects. We also note that age was not significantly correlated with depression severity (i.e., BDI-II scores), either in the total sample, \( r(100) = .17, p = .10 \), or in the subset with a depressive disorder, \( r(55) = .15, p = .27 \). Further, among the depressed adolescents, age was not significantly correlated with total number of episodes, \( r(54) = .12, p = .39 \).
sex); as covariances between the antecedent and covariate variables are the same across all models, their associated fit remains constant.6

All four path models provided an equal and good fit to the data, \( \chi^2(3) = 2.05, p = .56 \) (CFI = 1.00; RMSEA = .00, \( p = .66 \)). As displayed in Figure 1, mother-perpetrated maltreatment had a consistent, positive direct effect on depression symptom severity. Specifically, adolescents who were maltreated had higher BDI–II scores than those who were not. In addition, and surprisingly, mother-perpetrated maltreatment had a positive direct effect on tangible support. Adolescents who were maltreated by their mothers reported higher levels of tangible support than those who were not. This indirect effect of mother-perpetrated maltreatment on depression symptom severity was \(-.10\) (\( p = .02 \)) and significantly different from zero (95% CI \(-.20, -.02\)). Thus, mother-perpetrated maltreatment displayed a positive direct effect on depression symptom severity, and this relation was partially mediated by tangible support. Father-perpetrated maltreatment had a positive direct effect on depression severity in only one model. Both father-perpetrated maltreatment and bullying had direct negative effects on belonging and tangible support, as well as indirect effects on depression severity through belonging (father: .11, \( p < .01 \), 95% CI .04, .21; peer: .18, \( p < .01 \), 95% CI .06, .33) and tangible support (father: .14, \( p < .01 \), 95% CI .03, .27; peer: .13, \( p = .03 \), 95% CI .01, .34). That is, father-perpetrated maltreatment and peer-perpetrated bullying displayed negative indirect effects on depression severity, which were fully mediated by belonging and tangible support.

As displayed in Figure 2, mother- and father-perpetrated maltreatment had positive, direct effects on depression severity. Specifically, maltreatment was associated with higher depression severity. Further, and again surprisingly, mother-perpetrated maltreatment had a negative, indirect effect on peer confidant number. The presence of severe maternal maltreatment was associated with a greater number of peer confidants. However, the indirect effect of mother-perpetrated maltreatment on depression severity was \(-.04\) (\( p = .15 \)) and did not significantly differ from zero (95% CI \(-.17, .01\)).

**DISCUSSION**

Consistent with hypotheses, both father-perpetrated maltreatment and peer bullying were associated with lower levels of perceived tangible and belonging support. Further, both of these support variables emerged as significant mediators of depression symptom severity. In other words, father-perpetrated maltreatment and bullying were related to depressive symptoms through adolescents’ perceptions that they are isolated from their support system and that others will be unavailable to assist them when they need aid. These results are consistent with a wealth of research showing that both peer bullying and childhood physical and emotional abuse, in general, are associated with poor perceptions of social support (e.g., Bao Whitbeck, & Hoyt, 2000; Holt & Espelage, 2007; Pepin & Banyard, 2006). The current findings extend these prior reports by demonstrating that these effects may be specific to the domain of belonging and tangible support. The implications of these results suggest that low sense of belonging (e.g., global self-derogation and low self-efficacy), or beliefs regarding the (un)availability of tangible support, may provide a fruitful focus for cognitive and behavioral intervention in youths who have been the victims of bullying or father-perpetrated abuse (e.g., Rigby, 2006).

In contrast, across all models, mother-perpetrated maltreatment had a significant direct effect on depression severity. This result suggests that the negative impact of victimization in the context of the mother–child relationship may be particularly insidious in contributing to depressed mood in adolescence. These results are consistent with the one previous study in the literature that compared the pathological impact of mother-versus father-perpetrated maltreatment in early adolescence (Baldry & Winkel, 2004). This research found that mother-perpetrated maltreatment had a stronger impact than father-perpetrated maltreatment on the development of withdrawal and anxiety/depression symptoms, especially in girls. These results

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6In contrast to earlier investigations, the three ISEL subscales in the current investigation were highly correlated. For this reason, we were unable to include all three ISEL subscales in the same model. The inclusion of all social support variables in the same model would result in unexpected suppression effects due to the partialing that occurs within path models. More important, however, a model including all perceived social support variables would be much more complex than those estimated, rendering the size of the sample in the current article insufficient to the task. We therefore retained four separate models to optimize the robustness and clarity of the parameter estimates we report. It is notable, however, that we do find a similar pattern of results when a model including all three subscales is run. The results of this model are available from the authors by request.
and our current findings suggest that maternal and paternal maltreatment should be examined separately in future research as they may have unique predictive relations to psychopathological outcomes.

Furthermore, severe mother-perpetrated maltreatment was associated with higher levels of tangible support, which in turn were associated with lower levels of depression symptoms. This result is intriguing, as it suggests that maltreatment by the mother, in particular, may lead at least some adolescents to actively seek out alternative sources of practical aid, which may then help to partially protect them from depression. Similarly, mother-perpetrated maltreatment was also related to a higher number of peer confidants, although number of peer confidants did not emerge as a significant mediator in this model. The explanation for the differential relation of peer bullying and father-perpetrated versus mother-perpetrated maltreatment to perceptions of support is unclear at present and requires further investigation. Research has shown that adolescents from abusive families perceive their peers as strong sources of instrumental (i.e., tangible) and belonging support (Bao et al., 2000). The present findings suggest that this pattern may be the case when the abuse is perpetrated by the mother but not when it is perpetrated by the father. It is of note that this result cannot be explained in terms of differences between mothers and fathers in the type of abuse they perpetrated in this study, as no differences emerged between mothers and fathers in terms of emotional versus physical abuse. Nevertheless, we did not have sufficient statistical power to examine the relation of specific forms of victimization to perceptions of support. Thus, future fine-grained research in this regard may help in understanding why mother-perpetrated victimization differs from father-perpetrated victimization in its relation to social support and depression symptoms.

Limitations

These results must be considered in light of the following limitations. First, model accuracy would be increased with a larger sample size. Nevertheless, we found the same pattern of results as these when we ran reduced models. Our small sample also prevented us from examining gender, age, and ethnicity as moderators of the aforementioned models. Nevertheless, results were robust when demographic variables were covaried out in our analyses, thereby ruling out any individual differences in age or gender as the cause for the current results. In addition, we compared the covariance matrix across genders and found no difference.

Second, the present study utilized a volunteer sample of community adolescents with limited ethnic diversity. Therefore, it is unclear how generalizable our results are to the population of adolescents with elevated symptoms of depression, or to outpatient samples of adolescents with severe depressive disorder. Nevertheless, the range of BDI–II scores in those with depression is consistent with that reported in adolescent patient samples (e.g., Birmaher, Ryan, Williamson, Brent, & Kaufman, 1996).

Third, the current study was cross-sectional in design, thus raising the possibility of alternative causal models and patterns of moderation and/or mediation. Relations among maltreatment and bullying, perceptions of social support, and depressive symptoms are likely transactional and mutually influence each other over time (Cicchetti & Toth, 1997). Nevertheless, we have taken some steps to clarify the temporal sequencing in our models. All incidents of parental victimization and bullying had their onset in childhood (i.e., before age 13). Therefore, we were able to establish the temporal precedence of victimization to present reports of perceived support and depressed mood. All questions related to social support were stated in the present and referred to adolescents’ current perceptions of support and size of peer network. Similarly, the measure of depression symptoms was tied to the previous two weeks, and, in those with a diagnosis of major depression, the onset of their current episode occurred well after the onset of maltreatment. Because measures of social support and the BDI–II were taken concurrently, we are unable to make firm conclusions regarding the temporal sequencing of these variables. Therefore, an alternative possibility is that childhood victimization influences level of depressive symptoms, which subsequently influences perceptions of social support. Future longitudinal prospective studies utilizing multiple assessment points are required to more firmly sort out the causal pathway and determine when social support is most influential.

Fourth, although the use of the ISEL to assess various forms of social support was a strength of the present study, the specific source of that support was not assessed. Therefore, future work is needed to determine whether support from parents versus peers differentially mediates the relation of victimization to depression symptoms. Future work is also needed to determine whether social support at the time of the victimization is related to future perceptions of social support and depression symptoms. In addition, the ISEL subscales were highly intercorrelated. This is consistent with previous studies of the ISEL in community adult (e.g., Cohen et al., 1985) and adolescent samples (e.g., Ronen & Seeman, 2007). Nevertheless, it limited our ability to examine the relative contributions of belonging, appraisal, and tangible support as mediators of depression symptoms in the same structural equation model. Complete independence of social support domains is
impossible because individuals may receive different forms of support from the same people in their social network.

Fifth, the retrospective nature of the CECA raises issues of depressive reporting bias. The CECA addresses this concern in a number of ways. First, in terms of rater bias, interviewers query only about the practical details of participants’ experiences and not about the participants’ emotional reaction to stressors or the relation of stressors to depression. In addition, raters are unaware of the participants’ depression status. Ratings are based on manualized examples to ensure standardization. Second, in terms of respondent bias, the format of the interviews is well suited to priming autobiographical memory by encouraging the participant to tell a story about their experiences, probing for both positive and negative experiences, and soliciting rich contextual details. Interview measures such as the CECA have been shown to have greater reliability and validity than the more commonly-used checklist approach (e.g., Bifulco et al., 1994; Hardt & Rutter, 2004). The CECA is also more advantageous in this population relative to documented reports because focusing on documented reports misses many incidents of maltreatment (London, Bruck, Ceci, & Shuman, 2005). Resulting samples may, then, be biased by factors known to be associated with abuse reporting (e.g., low socioeconomic status).

Finally, the assessment of peer bullying in the CECA is a rather blunt measurement that does not distinguish between physical, verbal, and relational peer aggression. In addition, due to issues of power and high comorbidity of maltreatment experiences we were unable to examine separately the effects of particular types of maltreatment (e.g., antipathy vs. physical abuse). Nevertheless, the present research provides a starting point for more fine-grained research that is able to specify the particular early experiences most strongly related to depressed mood through perceptions of support.

Implications for Research, Policy, and Practice

In summary, the current study presents a novel test of the stress deterioration model of social support in explaining the relation of peer bullying and parent-perpetrated maltreatment to symptoms of depression in adolescence. Specifically, we found that the mechanism relating victimization and social support to adolescent depressed mood differed depending on the perpetrator. These results suggest that mother- and father-perpetrated maltreatment need to be considered separately in any future research on the relation of childhood maltreatment to depression. Given the universally negative direct impact of mother-perpetrated maltreatment on depressive symptomatology, interventions should specifically target the parent–child relationship in the treatment of maltreatment and/or depression. Further, these results suggest that cognitive-behavioral interventions with maltreated children should focus on creating a sense of belonging in the social network.

REFERENCES


