Number of childhood abuse perpetrators and the occurrence of depressive episodes in adulthood

Richard T. Liu[1,*], **Shari Jager-Hyman**[1], **Clara A. Wagner**[1], **Lauren B. Alloy**[1], and **Brandon E. Gibb**[2]

[1]Department of Psychology, Temple University, Philadelphia PA 19122 USA

[2]Department of Psychology, Binghamton University, Binghamton, NY 13902 USA

Abstract

Objective—Although past research has documented a link between adverse childhood experiences – particularly childhood emotional (CEA), physical (CPA), and sexual abuse (CSA) – and depression, relatively few studies have examined the unique impact of each of these highly co-occurring abuse types. Moreover, relatively little is known about the specific aspects of abuse experiences that increase risk for depression (e.g., number of perpetrators). The current study provides a conservative test of the association between the number of CEA, CPA, and CSA perpetrators, and depressive episodes in adulthood.

Method—Two hundred and ninety-nine participants were followed longitudinally for 2.5 years. CEA, CPA, and CSA were measured using the Lifetime Experiences Questionnaire, and depressive episodes were assessed with diagnostic interviews administered every six weeks.

Results—After statistically controlling for the influence of cognitive risk for depression, baseline depressive symptoms, past history of clinical depression, and total number of different types of CEA, CSA, and CPA events, the number of CEA and CSA, but not CPA, perpetrators were uniquely associated with the number of depressive episodes experienced over the prospective follow-up.

Conclusions—These results indicate that experiencing CEA and CSA from multiple perpetrators increased risk for clinical depression beyond what is accounted for by the total number of types of abuse experiences. This study highlights the need for future research to assess the specific qualities of childhood abuse experiences that uniquely confer risk for clinical depression, as well as possible mechanisms through which they exert their deleterious effect.

Keywords

Depression; Childhood Abuse; Emotional Abuse; Sexual Abuse; Physical Abuse

1. Introduction

Childhood abuse has been found to increase risk for the development of a variety of psychological conditions and symptoms (Paolucci, Genuis, & Violato, 2001; Spertus, Yehuda, Wong, Halligan, & Seremetis, 2003; Teicher, Samson, Polcari, & McGreenery, 2006), as well as dysfunctional behaviors, including non-suicidal self-injury (see Gratz, 2003; Klonsky & Moyer, 2008, for reviews) and suicide (Melhem et al., 2007). In particular, a number of researchers have documented a relation between various forms of childhood

*Corresponding author. Richard T. Liu, Department of Psychology, Temple University, 1701 N. 13th St., Philadelphia, PA 19122 (Tel.: +1 215 204 4935; Fax: +1 215 204 5539; richard.t.liu@gmail.com).

abuse and depression (see Alloy, Abramson, Smith, Gibb, & Neeren, 2006 for a review). Childhood sexual abuse (CSA) has been found prospectively to predict the first lifetime onset of clinically significant depression (i.e., depressive episode; Jaffee et al., 2002; see Putnam, 2003, for a review; but also see Gibb, Chelminski, & Zimmerman, 2007; Widom, DuMont, & Czaja, 2007), particularly early age of first onset (Gladstone et al., 2004; Hill, Pickles, Rollinson, Davies, & Byatt, 2004). CSA has also been positively correlated with severity of depressive symptoms in adults (Gamble et al., 2006; Widom et al., 2007). Similarly, there is evidence for a relation between childhood physical abuse (CPA) and depressive symptoms in children (Kazdin, Moser, Colbus, & Bell, 1985; Kim & Cicchetti, 2006), and depressive episodes in adulthood (MacMillan et al., 2001; Widom et al., 2007; but see Gibb et al., 2007). Childhood emotional abuse (CEA) generally has been understudied in comparison to other forms of childhood abuse (Edwards, Holden, Felitti, & Anda, 2003; Gilbert et al., 2009; Wright, Crawford, & Del Castillo, 2009), perhaps owing in part to the view that it represents a less damaging form of abuse (Trickett, Mennen, Kim, & Sang, 2009). This said, CEA has been increasingly linked in recent studies to childhood depressive symptoms (Courtney, Johnson, & Alloy, 2008; Gibb & Abela, 2008) as well as adult depressive symptoms (Gibb, Alloy, & Abramson, 2003; Gibb, Alloy, Abramson, & Marx, 2003; Raes & Hermans, 2008; Wright et al., 2009) and episodes (Gibb et al., 2001; Gibb et al., 2007; Maciejewski & Mazure, 2006).

Despite these findings, it should also be noted that many past studies have either focused exclusively on a single form of abuse in relation to depression, or failed to differentiate between multiple forms of abuse, instead examining them collectively under a more general construct (e.g., childhood abuse, adversity, or trauma; Springer, Sheridan, Kuo, & Carnes, 2007). Moreover, in studies that distinguish between multiple forms of abuse, relatively few have comprehensively included an assessment of all three types of abuse, with CEA being most frequently overlooked. Failure to distinguish between, and account for, all forms of childhood abuse precludes the possibility of evaluating the *unique* influence of each abuse type, controlling for the others, on subsequent depressive episodes. Compounding this problem, childhood abuse has often been treated categorically (i.e., present vs. absent) in past research, leaving unaddressed the need for more fine-grained analyses of the relation between number of abuse experiences and depression (Chapman et al., 2004; Gibb, 2002; Gibb et al., 2001).

This is a particularly important consideration given the common co-occurrence of the three forms of childhood abuse (Chapman et al., 2004; Edwards et al., 2003; Kim & Cicchetti, 2006; Teicher et al., 2006), in what has been variously referred to as multi-type abuse (Higgins & McCabe, 2000), multiple victimization (Rossman, Hughes, & Hanson, 1998), and poly-victimization (Finkelhor, Ormrod, & Turner, 2007). Indeed, in examining all forms of child abuse and neglect with a sample of adolescents in a child protection agency, McGee, Wolfe, Yuen, Wilson, and Carnochan (1995) found that 90% of their sample had experienced multiple forms of maltreatment. Consistent with this finding, another study using a mostly clinical sample of children and adolescents found over 95% reported cases of maltreatment involved more than one form of maltreatment (Ney, Fung, & Wickett, 1994). Notably, the experience of multiple forms of maltreatment occurred at a much lower, but still substantial, rate (35%) in a large community sample (Edwards et al., 2003). Thus, exclusively assessing a single form of abuse could yield results that (a) inflate the association between the specific abuse type and depression, and (b) are an artifact of its high co-occurrence with another form of abuse that may better account for the variability in subsequent depression.

Several recent studies that assess and differentiate between all three forms of childhood abuse are generally suggestive of differing degrees of specificity in their relation to

depression. CEA has been theorized to be specifically related to depression (Rose & Abramson, 1992), whereas CSA may serve as a non-specific risk for psychopathology (Kendler et al., 2000; MacMillan et al., 2001), leaving CPA as perhaps the least strongly linked to depression. Furthermore, CEA may have longer lasting consequences than CSA or CPA on psychological functioning (Teicher et al., 2006). Consistent with these views, Gibb and colleagues (2001) found CEA, but not CSA or CPA, to be associated with depressive episodes in a sample of college students. CEA, relative to CSA and CPA, has also been observed to be more strongly associated with depressive episodes (Chapman et al., 2004; Gibb et al., 2007) and depressive symptoms (Powers, Ressler, & Bradley, 2009) in adults. Consistent with this finding, Spertus and colleagues (2003) found that CEA was associated with depressive symptoms in non-clinical adult women after controlling for the unique contributions of CSA, CPA, and lifetime trauma exposure. Additionally, CEA and CSA, but not CPA, appear to be more consistently related to cognitive risk for depression (for reviews, see Alloy et al., 2006; Gibb, 2002). Furthermore, in another study (Teicher et al., 2006), CEA and CSA were reported to be more strongly related to depression symptoms in young adults than was CPA.

In addition to establishing the unique or relative contributions of the three types of abuse to the presence of depression, research is needed to determine the specific aspects of abuse experiences accounting for their depressogenic effect. Support for the importance of considering multiple dimensions of abuse experiences comes from the Longitudinal Studies of Child Abuse and Neglect (LONGSCAN) project. Drawing on this project, English and colleagues (2005) examined multiple aspects of maltreatment (i.e., type, severity, chronicity, age at first report) in relation to different domains of functioning, and found that type (based on maximum severity of each type) was the most consistent predictor of outcome, and interacted with other aspects of maltreatment in its effect on different domains of functioning.

One aspect of childhood abuse experiences that may have a role in the pathogenesis of depression that has yet to be examined is the cumulative impact of number of abuse perpetrators. Just as multiple incidents of childhood abuse confer greater susceptibility to depression, so may it be the case with multiple perpetrators. That is, children who experienced multiple perpetrators of abuse may be at greater risk for psychopathology compared to those who experienced a single abuse incident or were repeatedly abused by a single perpetrator (Finkelhor et al., 2007). Indeed, Finkelhor and colleagues (2007) have argued that victims of multiple perpetrators may be more likely to form negative self-views. Such negative self-focused responses to abuse (e.g., shame or self-blame) are an important aspect of abuse experiences (Finkelhor et al., 2007), have been associated with depression (Feiring & Cleland, 2007; Wright et al., 2009), and thus may serve as mechanisms accounting for the possible depressogenic effect of abuse by multiple perpetrators. The limited literature assessing the effects of multiple perpetrators have almost exclusively focused on CSA, but are consistent with this possibility, finding associations with greater shame and self-blame in adolescents and young adults (Kellogg, & Hoffman, 1997), current and lifetime depression symptoms (Casey & Nurius, 2005), suicidality (Briere & Runtz, 1986), posttraumatic stress disorder symptoms (Casey & Nurius, 2005), risk-taking behavior (Davis, Combs-Lane, & Jackson, 2002), and negative long-term physical health sequelae in women (Sickel, Noll, Moore, Putnam, & Trickett, 2002).

In the current study, our aim was to build on the extant literature by examining whether the number of perpetrators for each type of childhood abuse uniquely predicted the number of episodes of depression in adulthood. Specifically, as noted above, just as number of CEA experiences appears most strongly associated with depression, we hypothesized that participants who experienced CEA from a greater number of perpetrators would similarly be

more likely to experience a greater number of depressive episodes in adulthood, and that this would be the case even after statistically controlling for the influence of other known risk factors including: (i) total number of each type of childhood abuse event, (ii) baseline symptoms of depression, (iii) history of depressive episodes, and (iv) cognitive risk for depression. Controlling for these same variables, we predicted a higher number of perpetrators of CSA would also be associated with more depressive episodes in adulthood, as a similar pattern has been previously noted between number of CSA events and depression. In contrast, we did not anticipate a relation between number of CPA perpetrators and episodes of depression in adulthood, as the association between number of CPA events and depression appears relatively weak in past literature after controlling for number of CEA and CSA occurrences.

2. Method

2.1 Participants

Participants were recruited as part of the Temple-Wisconsin Cognitive Vulnerability to Depression Project (CVD; Alloy & Abramson, 1999; Alloy et al., 2000, 2006), a behavioral high-risk study that selected participants based on cognitive risk for depression. Participants consisted of university freshmen recruited at Temple University (TU) and the University of Wisconsin (UW) as part of a two-phase screening procedure. In the first phase of recruitment, 5,378 (2438 TU; 2940 UW) university freshmen, recruited from freshman courses and flyers posted around both university campuses, completed measures of cognitive vulnerability to depression, including a modified version of the Dysfunctional Attitudes Scale (DAS; Weissman & Beck, 1978) and the Cognitive Style Questionnaire (CSQ; Haeffel et al., 2008). Participants scoring in the highest quartile on both of these phase I screening measures were recruited as part of the high-risk group, whereas those scoring in the lowest quartile on the DAS and the CSQ were recruited as part of the low-risk group. These participants then completed phase 2 of the project, during which an expanded version of the Schedule for Affective Disorders and Schizophrenia- Lifetime (SADS-L; Endicott & Spitzer, 1978) interview was administered and participants completed self-report measures of depressive symptoms and other psychopathology. Following phase 2, participants were excluded if they met criteria for current DSM-III-R or RDC (Research Diagnostic Criteria; Spitzer, Endicott, & Robins, 1978) diagnosis of any episodic mood disorder or any Axis I psychiatric disorder or if they displayed current symptoms of psychosis. In addition, participants were excluded if they reported a past history of bipolar disorder, cyclothymia, or mania or hypomania or severe medical illness. Participants with a past history of depressive episodes were retained in the sample, provided that they had been in remission for at least two months. The final longitudinal sample of participants consisted of 173 high-risk (83 TU; 90 UW) and 176 low-risk (87 TU; 89 UW) participants (see Alloy et al., 2000; 2006 for further details).

2.2 Procedure

Participants included in the longitudinal sample were entered in the 2.5 year follow-up phase of the project. At baseline, participants completed a measure of initial depressive symptoms (i.e., BDI) and cognitive risk for depression (i.e., CSQ and DAS), as well as a diagnostic interview to assess past history of clinical depression (i.e., SADS-L). At six-week intervals over the course of the 2.5 year follow-up period, participants completed a structured diagnostic interview (SADS-C; Spitzer & Endicott, 1978) assessing occurrence of depressive episodes since the previous interview. At the end of the second year of follow-up, participants completed the Lifetime Experiences Questionnaire (LEQ; Gibb et al., 2001), which assessed childhood abuse prior to age 18. On average, participants completed 18.57 follow-up assessments (SD = 1.08, range = 12 to 19). The initial study enrollment phase was

between 1990 and 1994. Only participants who completed the LEQ (n = 299; HR = 146; LR = 153) were included in the final sample of the current study. See Table 1 for demographic and cognitive style characteristics of this sample. This subsample did not differ significantly from the total CVD sample in terms of gender, ethnicity, age, or cognitive style (see Gibb et al., 2001). Participants were compensated $25 per assessment over the follow-up period.

2.3 Measures

2.3.1 Cognitive Risk Status—Cognitive risk status was determined based on scoring in the highest and lowest quartiles on both the Cognitive Style Questionnaire and the Dysfunctional Attitudes Scale.

Cognitive Style Questionnaire (CSQ; Haeffel et al., 2008). The CSQ is a self-report measure that is a revised version of the Attributional Style Questionnaire (ASQ; Peterson et al., 1982) designed to assess the tendency to form depressogenic inferences for positive and negative life events. Participants were asked to read 24 hypothetical events (12 positive and 12 negative events), with equal numbers in interpersonal and achievement domains, and to imagine that those events happened to them (e.g., "You go to a party with some friends and throughout the whole party people don't act interested in you."). For the purposes of the CVD Project, only scores for negative events were used. Participants then were asked to identify the primary cause of the event if it happened to them, and to answer questions (on 7-point Likert scales) about the likely cause and consequences of each hypothetical event. Specifically, causes were rated on dimensions of internality (degree to which the event is caused by the participant; e.g., "Is it something about you or something about other people or circumstances that cause people not to act interested in you throughout the party?"), stability (degree to which the cause is stable over time; e.g., "Will the cause of people not acting interested in you throughout the party cause people not to act interested in you in the future?"), and globality (degree to which the cause is widespread across situations; e.g., "Is this cause something that leads to problems just in people's interest in you at that party, or does this cause also lead to problems in other areas of your life?"). Finally, participants also rated on a 7-point Likert scale the consequences (e.g., "How likely is it that people not acting interested in you throughout the whole party will lead to other negative things happening to you?") and self-implications of the event (e.g., "To what degree does people not acting interested in you throughout the whole party mean to you that you are flawed in some way?"). A composite score for negative events was created based on a sum of the stability, globality, consequences, and self-implications dimensions, and as described earlier, was used in conjunction with the Dysfunctional Attitudes Scale (DAS; Weissman & Beck, 1978) to select participants for inclusion in the longitudinal sample. In the CVD Project, the CSQ showed good internal consistency (alpha = .86 for positive events and .88 for negative events), re-test reliability over a one-year period (r = .80 for positive and negative composites; Alloy et al., 2000a), and predictive validity for episodes of depression (Alloy et al., 2000, 2006).

Dysfunctional Attitudes Scale (DAS; Weissman & Beck, 1978). The DAS is a 40-item self-report inventory designed to assess maladaptive attitudes including perfectionistic performance standards, sensitivity to social criticism, causal attributions, expectations of control, and rigid ideas about the world. Participants are asked to rate a series of statements on 7-point Likert scales ranging from "totally agree" to "totally disagree. In the CVD Project, the DAS was expanded and 24 items were added to assess dysfunctional beliefs in achievement and interpersonal domains that were thought to be relevant to college students (e.g., "If I fail in school or work then I am a failure as a person" and "I am a nobody if my closest friend stops liking me."). In the CVD Project, the expanded DAS exhibited good

internal consistency (alpha = .90) and one-year re-test reliability (r = .78; Alloy et al., 2000a).

2.3.2 Baseline Depressive Symptoms—*Beck Depression Inventory* (BDI; Beck, Rush, Shaw, & Emery, 1979). The BDI is a 21-item self-report questionnaire that assesses level of depressive symptoms. It was administered at baseline. Participants rate questions on a scale from 0 to 3. Total scores range from 0 to 63, with higher scores indicating more severe depressive symptoms. The BDI has demonstrated high internal consistency (α = .81 to .86), construct validity, good test-retest reliability, and convergent validity with other measures of depression (Beck, Steer, & Garbin, 1988).

2.3.3 Lifetime History of Depressive Episodes at Baseline—*Schedule for Affective Disorders and Schizophrenia – Lifetime* (SADS-L; Endicott & Spitzer, 1978). The SADS-L is a widely used semi-structured diagnostic interview used in the current study to assess prior history of clinical depression. It was modified and expanded for the purposes of the CVD project to allow for assignment of *DSM-III-R* and *DSM-IV* in addition to RDC diagnoses (see Alloy et al., 2000, for more details). Additional questions were added to obtain more detailed information regarding episodes and frequency, duration, and persistence of symptoms for depressive episodes. In addition, the order of questions was altered to increase efficiency and render the interview easier for participants to follow. Diagnostic requirements regarding duration and persistence of symptoms were made more explicit, making diagnostic criteria somewhat stricter than RDC or *DSM-III-R* criteria. Diagnostic interviewers completed intensive training (see Alloy et al., 2000 for further details) and were blind to cognitive risk status. The expanded SADS-L demonstrated high inter-rater reliability (kappa > .90) in the present study (Alloy et al., 2000).

2.3.4 Prospective Number of Depressive Episodes—*Schedule for Affective Disorders and Schizophrenia – Change interview* (SADS-C; Spitzer & Endicott, 1978). The SADS-C was administered approximately every six weeks during the 2.5 year prospective follow-up period, and allows for an assessment of the onsets, remissions, and relapses and recurrences of diagnosable episodes of Axis I psychopathology, including *DSM-IV* and RDC major and minor depressive episodes, during each 6-week interval. The SADS-C differs from the SADS-L in that the former was used to assess the occurrence of depressive episodes in the prospective phase of the study, whereas the latter allowed for a determination of current and past depressive episodes at the baseline assessment. The SADS-C was expanded in the same way as the SADS-L interview. Interviewers were blind to participants' diagnostic status and cognitive risk status. Details regarding interviewer training have been reported in previous studies (Alloy et al., 2000; 2006). In the CVD Project, the interrater reliability of the expanded SAD-C was high (kappa > .90; Alloy et al., 2006).

2.3.5 History of Childhood Abuse—*Lifetime Experiences Questionnaire* (LEQ; Gibb et al., 2001). The LEQ is a 92-item self-report questionnaire designed to assess history of emotional, physical, and sexual maltreatment by peers and adults before the age of 18. For each event, participants were asked to indicate (1) whether they had ever experienced the event, (2) age of onset and offset of each experience, (3) frequency of event occurrence, and (4) who the perpetrator(s) was. The LEQ was developed based on Cicchetti's (1989) child maltreatment interview and was designed to obtain comprehensive and specific information regarding specific occurrences of abuse, their onset and offset dates, and relations of the perpetrator relative to the participant (e.g., female caregiver, male caregiver, siblings, boyfriend/girlfriend). Forms of emotional abuse assessed were consistent with Hart et al.'s (1987) definition, and included rejection, degradation, terrorization, isolation, and teasing. Forms of physical abuse included being hit with a fist or an object, being choked, and being

the victim of deliberate physical pain. Forms of sexual abuse included sexual behaviors (both contact and noncontact, including exposure to pornography and unwanted intercourse). Subscales assessing physical abuse (9 items), emotional abuse (20 items), and sexual abuse (20 items) are created by summing number of events endorsed. Examples of LEQ items include "Did anyone ever say they wish you were dead?" for CEA, "Did anyone ever try to choke, strangle, or smother you?" for CPA, and "Did any adult or someone more than 5 years older than you ever touch you in a sexual way? For example, touch you in the genital area, touch your breasts or buttocks?" for CSA. Cronbach's alpha for the three subscales in the current sample were .85 for CEA, .67 for CPA, and .80 for CSA. Subscales of the LEQ have been found to correlate highly with reports on structured maltreatment interviews and have demonstrated predictive validity for episodes of depression (see Gibb et al., 2001). For the current study, the number of perpetrators of emotional, physical, and sexual abuse was obtained by summing the number of unique individuals reported for each abuse type separately. Additional information regarding development of the LEQ has been reported in previous publications (e.g., Gibb et al., 2001).

3. Results

3.1 Preliminary Analyses

Table 2 presents bivariate correlations between the main study variables. Consistent with previous research (McGee et al., 1995; Ney et al., 1994), the three forms of childhood abuse were significantly correlated. Total number of CEA event types was significantly positively correlated with total number of CPA ($r = .52$, $p < .001$) and CSA ($r = .28$, $p < .001$) event types. Additionally, total number of CPA event types was significantly positively correlated with number of CSA event types ($r = .22$, $p < .001$). Total number of CEA ($r = .14$, $p < .05$) and CSA perpetrators ($r = .19$, $p < .001$), but not number of CPA perpetrators ($r = .-.05$, ns), were positively correlated with total number of depressive episodes. Given the absence of a significant bivariate correlation between number of CPA perpetrators and number of depression episodes, only the number of CEA and CSA perpetrators were evaluated in multivariate models as prospective predictors of number of depressive episodes.

3.2 Regression Analyses

To examine whether the number of perpetrators of CEA, and CSA each uniquely predicted the number of depressive episodes in adulthood, we conducted two hierarchical linear regression analyses. This analytic procedure allows for an understanding of whether the number of abuse perpetrators predicted the number of depressive episodes in adulthood above and beyond covariates putatively related to depression. Given that cognitive risk status (Alloy et al., 2006), past depressive episodes (Belsher & Costello, 1988; Lewinsohn, Zeiss, & Duncan, 1989), current depressive symptoms (Lewinsohn, Solomon, Seeley, & Zeiss, 2000), and gender (Hankin & Abramson, 2001) have all been associated with risk for depression, we considered these variables as possible covariates. Thus, preliminary regression analyses examined whether these variables were associated with the criterion variable, the number of prospective depressive episodes. In the present study, gender was not significantly associated with prospective depressive episodes ($t = 1.59$, $p = .11$), and therefore, was not included as a covariate in our regression models. In contrast, and consistent with previous research, cognitive risk status ($t = 5.66$, $p < .01$), baseline depressive symptoms ($t = 5.12$, $p < .01$), and past history of depressive episodes ($t = 4.83$, $p < .01$) were all significantly associated with number of depressive episodes in adulthood. As such, they were entered as covariates in Step 1 of the main hierarchical regression analyses. Numbers of CEA, CPA, and CSA event types were also entered in Step 2 to control for the possibility that any observed relation between number of abuse perpetrators and depressive episodes is a function of having experienced more types of abuse events. To examine the

unique effects of number of CEA perpetrators, this variable was entered in Step 3 with the number of depressive episodes as the criterion variable. Similarly, the number of CSA perpetrators was entered in Step 3 in a second regression analysis.

As hypothesized, the number of perpetrators of both CEA and CSA significantly predicted number of depressive episodes experienced in adulthood over and above the total number of types of childhood abuse events and other covariates (see Tables 3 and 4, respectively). That is, greater numbers of CEA and CSA perpetrators, respectively, were associated with higher number of depressive episodes in adulthood.[1]

4. Discussion

The primary objective of the current study was to expand on existing literature relating early forms of abuse to clinically significant depression by considering whether specific characteristics of abuse experiences, in this case number of perpetrators of CEA, CPA, and CSA, uniquely contribute to subsequent risk for depressive episodes in early adulthood. Consistent with our hypotheses, greater numbers of CEA and CSA, but not CPA, perpetrators were associated with a greater number of depressive episodes in adulthood, even after controlling for past history of clinical depression, baseline depressive symptoms, cognitive risk for depression, and total number of CEA, CPA, and CSA event types. Thus, the current results are consistent with past research documenting a stronger relation between CEA and CSA, relative to CPA, and depression (Gibb, 2002; Teicher et al., 2006), but also extend previous findings by providing the first documentation that the number of CEA and CSA perpetrators represents a significant and unique aspect of abuse experiences through which susceptibility to depression may be conferred.

What mechanisms may potentially account for the heightened risk for depression conferred by the number of CEA and CSA perpetrators? Although not the direct focus of the current study, several mediational pathways may underlie the relation between the numbers of CEA and CSA perpetrators, respectively, and depression in adulthood. One possibility is depressive rumination, as this depressogenic cognitive style has been associated with CEA and CSA (Spasojevi & Alloy, 2002), and the brooding subtype of rumination, in particular, has been found to mediate the relation between CEA and depressive symptoms (Raes & Hermans, 2008). Additionally, being the victim of emotional abuse by multiple perpetrators may lead to greater internalization of depressogenic self-schemata. Such a possibility would be consistent with the finding that childhood emotional abuse, especially compared to other forms of childhood abuse, is particularly associated with automatic depressive self-associations as measured with the Implicit Association Test (van Harmelen et al., 2010).

Based on our finding that the numbers of CEA and CSA perpetrators were each associated with depression in adulthood, even after accounting for the effects of number of CEA and CSA abuse event types, we raise the interesting question of whether experiencing several abuse events perpetrated by different people may be more damaging than experiencing an equivalent number of abuse events by the same perpetrator. Consistent with this possibility, Kallstrom-Fuqua and colleagues (2004) found, in a community sample of women, that the number of CSA event types appeared to be more a function of the number of CSA perpetrators in terms of predicting psychological distress in adulthood.

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[1]Although none of the predictors of interest evidenced multicollinearity based on variance inflation factors (VIF), a suppressor effect was observed for the number of CPA events. That is, the number of CPA events was positively correlated at the bivariate level with number of depressive episodes in adulthood, but had a negative *B* weight in both regression analyses. Given this finding, both regression analyses were repeated with this variable excluded (for more details regarding suppressor effects, see Cohen & Cohen, 1983; Tzelgov & Avishai, 1991). In both cases, the results were virtually unchanged at Step 3. Additionally, greater number of CEA events became significantly associated with higher number of depressive episodes in adulthood at Step 2.

Also worth noting are several strengths of the current study. Specifically, our controlling for the number of CEA, CPA, and CSA event types – in addition to past history of depression, baseline BDI scores and cognitive risk for depression – provided a particularly conservative test of the relation between number of CEA, CPA, and CSA perpetrators and occurrence of depression in adulthood. That is, any observed association between the number of abuse perpetrators and vulnerability to depression could not be better accounted for as simply an artifact of the number of abuse experiences. Additionally, the use of structured diagnostic interviews at relatively brief and regular intervals (i.e., every six weeks) limited potential biases associated with retrospective recall, and allowed for a rigorous and accurate documentation of the occurrence of depression (Hammen, Mayol, deMayo, & Marks, 1986).

Despite the strengths of the current study, it is also characterized by several limitations, which may point to possible directions for future research. In particular, participants were selected for inclusion in the study on the basis of being at high or low cognitive risk for depression. We were able, in part, to address this limitation by demonstrating the effects of number of childhood abuse perpetrators on risk for depression in adulthood held after statistically controlling for cognitive risk status. Nevertheless, future studies using samples unselected on this construct may inform the generalizability of the current findings.

A second limitation is the reliance on retrospective self-reports of childhood abuse. Despite the use of a well-validated measure, it is possible that recall or response biases may have occurred in the reporting of whether early abuse occurred. In particular, it may be possible that depression-prone individuals were more likely to attend to, recall, and report negative life events, and that this tendency to some degree may potentially account for any observed relation between depression and childhood abuse. There are several reasons to believe that this was not the case in the current study. First, there is some indication that individuals' recall of whether negative early childhood events occurred tends to be fairly accurate and free from mood congruent recall biases (Bifulco, Brown, Lillie, & Jarvis, 1997; Brewin, Andrews, & Gotlib, 1993; Pereda, Guilera, Forns, & Gómez-Benito, 2009; Robins et al., 1985). Second, we found a relation between depression and the number of abuse perpetrators for CEA and CSA, but not CPA. This specificity in the relations between abuse types and depression, in a manner consistent with the existing literature, appears to argue against the possibility of a recall bias. Nevertheless, fully prospective studies following individuals from childhood are necessary to document more fine-grained aspects of childhood events that may be more sensitive to issues of recall (e.g., number of times a type of abuse event occurred rather than simply whether it occurred).

Also absent from the current findings is a consideration of the number of neglect perpetrators, an aspect of neglect experiences that was not assessed by the LEQ. It is worth noting within this context, however, that relative to childhood abuse, childhood neglect is considerably more limited in terms of possible relevant perpetrators; perpetrators of childhood neglect will almost invariably be limited to parental caregivers, thus significantly limiting the variability and meaningfulness of this construct. Related to this point, other aspects of childhood abuse warrant consideration in future studies. It may be worth examining, for example, other aspects of abuse experiences such as the age at which an abuse type first occurred, and the relation of the perpetrator to the victim. More work also needs to be done assessing the degree to which the nature, severity, chronicity, or frequency of the abuse may be uniquely related to risk for depression, especially in the case of CEA, for which there seems to be a paucity of literature in this area. Addressing these issues could provide a basis for evaluating more complex research questions. Just as unique combinations of abuse and neglect types may be differentially associated with psychopathology and functional outcomes (Ney et al., 1994; Teicher et al., 2006), it may be important to determine, for example, whether experiencing multiple occurrences of a less severe form of

abuse is more damaging than a single incident involving a more severe form of abuse. Additionally, specific qualities of the victim-perpetrator relationship (e.g., importance to victim, closeness, ease of access) rather than its label (e.g., caregiver or peer) may better account for vulnerability to depression. Indeed, Kendall-Tackett and colleagues (1993) have argued that the label may not accurately reflect the nature of the relationship (e.g., close friend and same-age acquaintance falling under the label of "peer"). It is worth noting within this context that specific qualities of these relationships may change over time. It may be possible, for example, that there is an interaction between the age of victim and relationship with perpetrator, with emotional abuse by peers having a larger impact during adolescence than childhood, and the reverse being true for emotional abuse perpetrated by parents as the importance of these relationships change during the transition from childhood to adolescence.

Just as the current study does not allow for definite inferences regarding the question of temporal causality, that aspects of childhood abuse experiences lead to increased vulnerability to later depression, it also left unexamined the possibility of a reverse causal relationship, in which children with depression or other psychopathology may be more vulnerable targets of subsequent abuse (Cuevas, Finkelhor, Clifford, Ormrod, & Turner, 2010). Elaborating on this possibility of a reciprocal relation between depression and child abuse, depression may mediate the relation between initial abuse and later re-experiencing of abuse (Greene & Navarro, 1998). This mediation model may help to account for the finding that children who have been abused are often at risk for revictimization (Schaaf & McCanne, 1998; Widom, Czaja, & Dutton, 2007), and, in the case of CSA in females, may be at greater risk for victimization in adulthood than are individuals with no history of CSA (Arata, 2002). Thus, the use of a fully prospective design and the inclusion of all three forms of abuse in future studies are especially essential to delineate more clearly the relation between abuse experiences and depression.

It should also be noted that the effect of number of CEA and CSA perpetrators accounted for no more than 2% of the variance in depression risk. However, we should also point out that this represents unique variance not accounted for by other known risk factors (i.e., prior depressive episodes, baseline depressive symptoms, number of abuse event types, and cognitive risk). That said, the results highlight the need to consider other potential risk factors in future research (e.g., other life stressors, genetic vulnerability, and quality of social support network).

Finally, by demonstrating the enduring depressogenic effects of early abuse experiences in adulthood, the current study highlights the need for thorough assessments of abuse experiences in those presenting for treatment. Specifically addressing these issues could significantly influence treatment outcome (Putnam, 2003). Additionally, our results suggest that it may be important in treating abused children to include a thorough assessment of other current or past abuse perpetrators. Moreover, although the focus in treatment settings is often on preventing recurrence of abuse by past perpetrators, our findings underscore the importance of also preventing future abuse by other potential perpetrators. To the extent that victims of multiple abuse perpetrators are at increased risk for depression and subsequent re-victimization, identifying potential patterns underlying the experience of multi-perpetrator abuse (e.g., sexual reactivity) may prove instrumental in working with a client on behavioral modification or other strategies to prevent future victimization and its psychopathological sequelae. In addition to working directly with the child on reducing risk for multi-perpetrator victimization, it may be important to train caregivers of abused or other at-risk children on strategies to prevent access of potential perpetrators to their children, especially given that perpetration of abuse is considerably more frequently committed by family members and acquaintances than strangers (Lobbestael, Arntz, Harkema-Schouten, &

Bernstein, 2009). Thus educating caregivers on perpetrator risk evaluation may be important for preventing multi-perpetrator victimization.

The challenge of teasing apart the complex phenomena of childhood abuse experiences to determine the aspects most relevant to risk for depression is an exciting and interesting one for future research. It is our hope that the current study will provide a step in that direction.

Acknowledgments

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Table 1

Demographic and Cognitive Style Characteristics of the Sample

	High Risk (*n* = 146)	Low Risk (*n* = 153)
Gender (% women)	67.8	67.3
Ethnicity (% Caucasian)	65.0	61.3
Age	18.64 (0.11)	18.95 (0.15)
DAS Mean Item Score	3.98 (0.06)	2.27 (0.04)
CSQ-Negative Composite Mean Item Score	4.82 (0.06)	2.93 (0.05)

Note. Standard errors are in parentheses. DAS = Dysfunctional Attitudes Scale; CSQ-Negative Composite = Cognitive Style Questionnaire – Composite for Negative Events

Table 2

Correlational Relationships between Main Study Variables

Variable	1	2	3	4	5	6	7	8	9	10
1. Cognitive Risk Status	–									
2. Baseline Depressive Symptoms	.360 **	–								
3. Past History of Clinical Depression	.203 **	.168 **	–							
4. Total CEA Events	.009	.070	.039	–						
5. Total CPA Events	.067	.062	.052	.524 **	–					
6. Total CSA Events	-.009	-.005	-.033	.279 **	.219 **	–				
7. Number of CEA Perpetrators	-.022	-.001	.140 *	.036	.057	.023	–			
8. Number of CPA Perpetrators	-.109	-.002	.052	-.031	.012	-.023	.303 **	–		
9. Number of CSA Perpetrators	-.001	.138 *	.206 **	-.054	-.003	.038	.279 **	.255 **	–	
10. Number of Prospective Depressive Episodes	.312 **	.285 **	.270 **	.162 **	.113	.113	.139 *	-.049	.186 **	–
Mean	–	4.52	–	4.06	1.45	1.01	1.74	1.26	.43	1.30
Standard Error	–	.282	–	.234	.088	.118	.087	.073	.042	.109

Note.

*
$p < .05$;

**
$p < .01$;

CEA = childhood emotional abuse; CPA = childhood physical abuse; CSA = childhood sexual abuse.

Table 3

Hierarchical Regression Model of the Association between Number of Perpetrators of Childhood Emotional Abuse and Number of Prospective Depressive Episodes

Predictor	B	S.E.	t	p	R²	ΔR²	f²
Step 1					.169	–	
Cognitive Risk Status	.787	.217	3.618	<.001			
Baseline Depressive Symptoms	.068	.022	3.089	.002			
Past History of Clinical Depression	.753	.207	3.634	<.001			
Step 2				.021	.196	.027	
Cognitive Risk Status	.799	.215	3.709	<.001			
Baseline Depressive Symptoms	.065	.022	2.964	.003			
Past History of Clinical Depression	.751	.205	3.660	<.001			
Total Number of Emotional Abuse Events	.053	.028	1.871	.062			
Total Number of Physical Abuse Events	−.005	.075	−.068	.945			
Total Number of Sexual Abuse Events	.080	.049	1.644	.101			
Step 3				.036	.208	.012	
Cognitive Risk Status	.820	.214	3.825	<.001			
Baseline Depressive Symptoms	.066	.022	3.003	.003			
Past History of Clinical Depression	.688	.206	3.333	.001			
Total Number of Emotional Abuse Events	.052	.028	1.856	.066			
Total Number of Physical Abuse Events	−.009	.075	−.114	.090			
Total Number of Sexual Abuse Events	.078	.049	1.606	.109			
Number of Emotional Abuse Perpetrators	.139	.066	2.109	.036			.02

Table 4

Hierarchical Regression Model of the Association between Number of Perpetrators of Childhood Sexual Abuse and Number of Prospective Depressive Episodes

Predictor	B	S.E.	t	p	R²	ΔR²	f²
Step 1					.169	–	
Cognitive Risk Status	.787	.217	3.618	<.001			
Baseline Depressive Symptoms	.068	.022	3.089	.002			
Past History of Clinical Depression	.753	.207	3.634	<.001			
Step 2				.021	.196	.027	
Cognitive Risk Status	.799	.215	3.709	<.001			
Baseline Depressive Symptoms	.065	.022	2.964	.003			
Past History of Clinical Depression	.751	.205	3.660	<.001			
Total Number of Emotional Abuse Events	.053	.028	1.871	.062			
Total Number of Physical Abuse Events	−.005	.075	−.068	.945			
Total Number of Sexual Abuse Events	.080	.049	1.644	.101			
Step 3				.014	.213	.017	
Cognitive Risk Status	.846	.214	3.944	<.001			
Baseline Depressive Symptoms	.058	.033	2.624	.009			
Past History of Depression	.646	.208	3.106	.002			
Total Number of Emotional Abuse Events	.059	.028	2.078	.039			
Total Number of Physical Abuse Events	−.004	.074	−.057	.955			
Total Number of Sexual Abuse Events	.070	.049	1.444	.150			
Number of Sexual Abuse Perpetrators	.349	.131	2.476	.014			.02