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The role of maltreatment in the development of coping strategies

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Abstract

Child maltreatment leads to deleterious effects in virtually every developmental domain, including cognitive, psychological, and behavioral functioning. Although difficulties with coping have been identified as contributing to these effects, less attention has been paid to the precise nature of maltreated children's coping difficulties, particularly in terms of the strategies they use to cope with negative emotions and how these strategies vary with age. We asked maltreated ($n = 195$) and comparison ($n = 103$) 10 to 17 year olds to describe emotional experiences and what strategies they used to cope with those emotions. Maltreated adolescents reported using more disengagement and antisocial strategies than did comparison adolescents. Differences between maltreated and comparison adolescents were consistent across age. Results have important implications for treatment and intervention efforts designed to improve coping strategies among vulnerable maltreated populations.

Keywords

Maltreatment; Coping; Adolescence; Emotion

1. Introduction

Exposure to child maltreatment increases children's risks for deficits in emotional functioning, including difficulties coping with stressful events and regulating emotions broadly (Cicchetti & Rogosch, 2009; Kim & Cicchetti, 2010; Pears & Fisher, 2005; Robinson, Sheffield Morris, Heller, Scheeringa, & Boris, 2009). Such emotional difficulties have been linked to adverse outcomes across multiple domains of functioning, in childhood and throughout life (Eisenberg, Sadovsky, & Spinrad, 2005; Heleniak, Jenness, Vander Stoep, McCauley, & McLaughlin, 2016). Despite these consistent trends, less is known about the precise nature of maltreated children's emotion difficulties, particularly in terms of how they cope with negative emotions. This lack of knowledge is especially noteworthy in adolescence, a time when children face a host of changes that may require a range of

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increasingly sophisticated coping and regulatory skills (Aldao & Nolen-Hoeksema, 2013; Lougheed & Hollenstein, 2012), skills likely lacking in maltreated populations.

In the present study, we took a novel methodological approach to examining coping strategy use in adolescents with a documented history of maltreatment. We asked maltreated adolescents and demographically-similar comparison adolescents to describe salient past sad- and anger-inducing events and what they did to modulate those emotions. We selected sadness and anger because these emotions tend to be elicited during high stress events and have been implicated in behavioral and mental health functioning (Eisenberg et al., 2001; Zeman, Shipman, & Suveg, 2002). We included a wide age range (10 to 17 years) to determine how maltreatment, in conjunction with age, relates both to the types of experiences adolescents think of as emotionally demanding and the strategies they use to cope with their emotions.

1.1. Coping and development

Extant theory and research on coping often distinguishes between primary and secondary control strategies (Rothbaum, Weisz, & Snyder, 1982). *Primary control* refers to efforts to change the emotion-inducing environment while *secondary control* refers to efforts to manage the emotions resulting from the situation (Rudolph, Hammen, & Burge, 1995). Within these two broad categories are several individual strategies (e.g., acceptance, reappraisal, and distraction) that have been identified (Compas et al., 2014; Skinner & Zimmer-Gembeck, 2007). Given the need for effective coping with negative experiences, and the potential for this need to increase with age as adolescents encounter increasingly complex or novel situations, investigations of coping in maltreated adolescents must cast a broad net with respect to the types of strategies that might be used. We took such an approach in the current investigation by coding for strategies such as problem-solving (primary control; Connor-Smith, Compas, Wadsworth, Thomsen, & Saltzman, 2000), and regulatory strategies, such as suppression (secondary control; Aldao, Nolen-Hoeksema, & Schweizer, 2010).

Across both the coping and emotion regulation literatures, greater use of primary control is associated with better mental health functioning (Rafnsson, Jonsson, & Windle, 2006; Sontag, Graber, Brooks-Gunn, & Warren, 2008). The associations between secondary control and functional outcomes, in contrast, tend to depend on the type of secondary control strategy employed (Santiago & Wadsworth, 2009). For example, acceptance and reappraisal tend to predict improved well-being (Garnefski, Rieffe, Jellesma, Terwogt, & Kraaij, 2007; Rafnsson et al., 2006); while suppression and rumination predict poorer outcomes (Betts, Gullone, & Allen, 2009). *Disengagement* strategies, or attempts to distance oneself from the stressor or related feelings, are also associated with negative outcomes (Aldao et al., 2010; Griffith, Dubow, & Ippolito, 2000).

When considering the types of strategies adolescents rely on to cope with negative emotions, it is important to consider development. Important changes occur, with age, in the frequency and types of challenges that require effective coping, and the likely skills employed. For instance, across the transition from early to middle adolescence, many youth change schools. Academic demands become more rigorous, and new social relationships are established

(Akos & Galassi, 2004; Brown & Larson, 2009). These changes, though exciting, can also be stressful and likely demand greater coping (Griffith et al., 2000). Concurrently, however, cognitive and executive function advances give adolescents a more sophisticated understanding of emotions and what types of coping efforts are likely to be successful (Zelazo & Carlson, 2012). Adolescents, as well, increasingly rely on their own effortful coping strategies, such as cognitive reappraisal, rather than on others, namely parents (Griffith et al., 2000). As we turn to next, these typical age-related changes in coping strategies may not be evident in maltreated adolescents.

1.2. Coping and maltreatment

Multiple factors in maltreating families likely undermine adolescents' ability to learn and practice effective coping strategies. For one, maltreating parents often mask emotional expression and interact in hostile and aggressive ways with family members (Wilson, Rack, Shi, & Norris, 2008). Adolescents, as a result, are unlikely to have been exposed to consistent or appropriate displays of coping (Shipman et al., 2007) that they would have learned to model themselves. Maltreating parents also tend to rely on punitive interaction styles that include yelling, expressions of anger, and physical threats and aggression when interacting with their children, not only those who are young preschoolers, but even those spanning into adolescence (Rogosch, Cicchetti, Shields, & Toth, 1995; Wilson et al., 2008). These parenting behaviors again fail to model appropriate coping when confronted with stress. Finally, due to often high levels of unpredictability in parent-child interactions and in the home generally (Coulton, Korbin, & Su, 1999), maltreated children, and especially adolescents (who have greater understanding of environment and coping skills), may learn or come to believe that they cannot control what happens to them, leading to feelings of helplessness (Renner & Slack, 2006). As a result of this learned helplessness, adolescents may not even try to change the emotional environment or attempt to use primary control strategies to regulate their emotions.

Maltreated adolescents instead may turn to a host of other coping strategies, such as disengagement or antisocial behaviors (using alcohol or engaging in self-harm), that do not change their emotions; although these strategies may still help the adolescents distance themselves psychologically from the emotional experience (Blechman & Culhane, 1993; Chapman, Gratz, & Brown, 2006; Snyder et al., 2016). The use of these strategies may even increase across the adolescent years, due to both the growing social demands placed on adolescents during this period and maltreated adolescents' greater awareness of their situation (Laye-Gindhu & Schonert-Reichl, 2005; Young et al., 2002). To date, though, differences in coping across age have not been adequately examined in adolescents exposed to maltreatment.

Finally, beyond simply having difficulties coping, maltreated adolescents may have a greater number of demands placed on them that require active coping efforts than non-maltreated adolescents. Maltreated adolescents in general endure a larger number of psychologically intense events, including the maltreatment itself (Gilbert et al., 2009), as well as exposure to domestic and community violence, poverty, and loss of loved ones (Costello, Erkanli, Fairbank, & Angold, 2002; Finkelhor, Turner, Shattuck, & Hamby, 2015), all of which often

co-occur with maltreatment. It is not clear whether the frequency or intensity of these experiences overwhelm maltreated adolescents and become the focus of their coping efforts, or whether adolescents can still focus on and cope with more normative developmental experiences (e.g., interpersonal conflicts). The types of events that maltreated adolescents feel require coping may have implications for the strategies they report using in response.

1.3. Coping and methodological issues

A novel component of the present study concerned our methodological approach to examining coping, which allowed for unique insight into adolescents' perceptions of both challenges that require coping and how adolescents think about modulating their responses. In most prior research, closed-ended, checklist-format questionnaires have been used to assess adolescents' coping and emotion regulation (Connor-Smith et al., 2000; Garnefski et al., 2007; Garnefski, Kraaij, & van Etten, 2005; Silk, Steinberg, & Morris, 2003). These questionnaires were often adapted from those used with adults, asking how often adolescents use specific strategies that adults commonly report (Garnefski et al., 2007). Because the strategies have been pre-identified, these questionnaires dictate in an a priori manner what strategies can even be reported. For example, the Responses to Stress Questionnaire (RSQ; Connor-Smith et al., 2000) first asks adolescents to think about recent stressful social experiences (e.g., fighting with other kids, having problems with a friend) and second asks how often specific strategies, including problem-solving, acceptance, and cognitive restructuring, are used to cope with those types of experiences. These questionnaires do not allow adolescents to report on strategies that are not listed and often ask about general strategy use rather than strategy use in a specific situation (Gullone & Taffe, 2012). Adolescents may endorse using strategies (e.g., reappraisal and acceptance) in general or during hypothetical situations. Whether those same strategies are the ones that adolescents personally use when confronted with a single demanding experience is not known.

Checklist questionnaires also pose challenges when attempting to compare maltreated and non-maltreated adolescents. Because maltreated adolescents have likely been exposed to more psychologically intense events, which may require or limit the use of certain coping strategies, their coping efforts may be focused on events not typically referenced on checklist (e.g., such as when coping with maltreatment or removal from home). Moreover, due to maltreated adolescents' atypical emotional socialization (Shipman et al., 2007), they may actually utilize coping strategies, such as disengagement, that are less likely to appear on checklists, potentially leading to misinterpretations of both how maltreated adolescents cope with their emotions and how they do (and do not) differ from non-maltreated adolescents.

Retrospective studies of adult survivors of sexual abuse offer some support for these possibilities. Specifically, when adults are asked to describe their most traumatic experience, some victims report the abuse but others do not (Bonanno, Noll, Putnam, O'Neill, & Trickett, 2003), and reports from the latter group tend to be similar to those of nonvictims and concern loss, romantic separation, or other personal challenges (Alexander et al., 2005; Bonanno et al., 2003). Non-victims and victims who do not report sexual abuse also appear similar on a range of mental health measures. However, victims who report the abuse as their

most distressing life event demonstrate higher levels of adjustment problems and post-traumatic stress symptoms (Bonanno et al., 2003; Katz et al., 2012) than victims who do not. These findings highlight the need to consider coping about maltreatment versus about other events separately, as the strategies may well differ.

1.4. Present study

We compared coping strategy use between adolescents with a documented history of maltreatment and demographically-similar comparison adolescents, ages 10 to 17 years. Participants completed a battery of measures. These included questions about events that elicited specific emotions (sad and angry) and what adolescents did to cope with those emotions. Given that we relied on adolescents' interview responses, and given that there may be relations between meta-emotion understanding and cognitive ability, we also measured cognitive functioning. Demographic details, including maltreatment history, were collected as well.

Hypotheses focused on comparisons between the maltreated and comparison groups, and between maltreated adolescents who described the maltreatment or its aftermath in response to emotion event prompts (referred to as maltreatment-related reporters) and maltreated adolescents who described events unrelated to the maltreatment (referred to as other-event reporters). First, group differences were anticipated in the types of events adolescents reported when asked to describe events that had made them sad or angry. A subset of maltreated adolescents was expected to report events related to abuse and removal, while other adolescents (maltreated and comparison) were expected to report developmentally normative experiences such as loss (e.g., of a grandparent, pet) or interpersonal conflict (Alexander et al., 2005; Bonanno et al., 2003; Gilbert et al., 2009). The psychological intensity of the experiences reported by the maltreated adolescents, particularly the maltreatment-related reporters, was expected to be substantially higher than the intensity reported by the comparison sample (Costello et al., 2002; Finkelhor et al., 2015).

Regarding coping strategies, maltreated adolescents were expected to utilize more disengagement and antisocial strategies; comparison adolescents were expected to report using more primary control strategies. These differences were expected to be most pronounced when comparing the maltreatment-related reporters to the comparison sample, and were expected to be moderated by age. With age, the use of primary and secondary control strategies would increase, while the use of disengagement would decrease. However, the changes across age were expected to be greater for the comparison compared to the maltreated adolescents.

2. Method

2.1. Participants

The final set of participants ($N = 298$, 134 boys) included 195 10- to 17-year-old maltreated adolescents ($M = 13.93 \pm 2.19$) and 103 10- to 17-year-old comparison adolescents ($M = 13.61 \pm 2.28$).¹ The sample size was adequate according to a priori power analyses indicating that a sample size of 200 subjects would be required to have 95% power for

detecting medium effects with multiple predictors when employing a 0.05 criterion of statistical significance (Kraemer, 1985).

Ethnicity varied: 20% of the adolescents identified as Caucasian, 47% as Hispanic non-Caucasian, 24% as multiethnic, and 7% as other; 2% did not report on race or ethnicity. The two samples were matched on age, sex, and ethnicity ($p > 0.18$); they differed in cognitive ability, $t(287) = 4.20$, $p < 0.001$. Maltreated adolescents had lower scores than comparison adolescents.

Maltreated adolescents were recruited from a local temporary residential care facility for children removed from caregivers following maltreatment exposure. Cases had been substantiated by Child Protective Services (CPS) and were deemed severe enough to warrant removal. Court minute orders contained information about the maltreated adolescents' city of origin before removal. The comparison sample was recruited in the same or demographically similar neighborhoods via posted flyers and advertisements (e.g., at community centers, schools, churches, or other neighborhood locations) and word of mouth. To be eligible, comparison adolescents must have been residing with at least one parent at the time of participation.

Additional eligibility criteria were that participants be fluent in English and free from chronic medical conditions. The maltreated adolescents had to be at the facility longer than 3 days to be eligible; for 40% of the adolescents ($n = 77$), this was their first formal removal from home in this case, although a sizeable number had been involved in prior social service investigations or dependency cases. Time since removal ranged from 5 to 5047 days ($M = 645$, slightly < 2 years). Fifteen additional maltreated adolescents were excluded due to having a diagnosis of autism ($n = 5$) or not completing all study measures ($n = 10$).

2.2. Materials and procedure

All study procedures were approved by the relevant university Institutional Review Board. For the maltreated adolescents, written permission (i.e., a court order and Memorandum of Understanding) was secured from Juvenile Court and Social Services, with specific guidelines regarding approaching adolescents at the facility, confidentiality, and data security. For the comparison adolescents, the study was described to parents via phone, and a convenient time and location was identified for parents who wished to participate. Their written consent was obtained at the start. Sessions were conducted in a semi-private location at the residential facility for maltreated adolescents or at home or in a university laboratory for comparison adolescents.

For all adolescents, after the researcher explained the study, their written assent was secured. The researcher then administered the study measures. Instructions and questions were read

¹Although children ages 6–9 also completed the study measures, they were not included in the current report given our interest in age-related changes in coping strategy use specifically across adolescence. The younger maltreated children required additional explanations and prompts to elicit responses, particularly relative to the comparison children. This may have made answers less comparable at the youngest ages, perhaps not because of differences in coping strategy use, but instead because of differences in how questions were asked and how well the young children could answer.

aloud. Cue cards containing response options were provided for all scales, and only those measures included in the present report are described in detail here.

A demographic questionnaire assessed age, ethnicity, language spoken at home, and grade in school. A coping narrative task, based on that developed by Davis, Levine, Lench, and Quas (2010), was administered. The researcher began by asking adolescents to describe a time when they felt really sad followed by a time they felt really mad. Adolescents who indicated that they could not remember a time that they felt the emotion in question were given two to three standardized examples as cues (mad example: “If another student steals something that belongs to you and breaks it.”). Once adolescents described an event, the researcher asked what they did to make their feelings go away. Pre-scripted follow-up prompts (“Please tell me more about that time.”) then elicited additional details. Adolescents were given an indefinite amount of time to respond to the prompt, although all adolescents responded within a minute.

Finally, the Vocabulary and Matrix Reasoning subscales of the Wechsler Abbreviated Scale of Intelligence were administered (WASI; Wechsler, 1999). This is a widely used standardized measure of cognitive ability with high reliability and validity. Age normed scores were used to create composite IQ scores (Wechsler, 1999).

At the end of the session, adolescents were debriefed and thanked. Adolescents in the comparison group received a small honorarium for their participation; adolescents at the residential facility were not allowed compensation. Court minute orders from the maltreated adolescents’ adjudication/disposition hearings were collected to code for maltreatment history.

2.3. Coding

2.3.1. Coping narratives—Coping narratives were coded by two trained doctoral students following models in prior studies (Connor-Smith et al., 2000; Davis et al., 2010). Coders established reliability (mean kappa = 0.85; range = 0.52–1.00) on approximately 15% of the narratives, and the remaining 85% were distributed between the coders.

First, details of the sad and mad events reported were coded. Type of event was coded as one of the following: loss, abuse/removal, friends/family in trouble, not getting basic needs met, interpersonal conflict, being hurt or sick, not getting wants met, multiple events, or other. Next, the *physical severity* and *psychological intensity* (Taylor & Weems, 2009) of the reported events were coded, which enabled us to account for potential differences in coping based on details of the events themselves. Psychological intensity reflected the perceived level of helplessness or horror likely associated with the event experience, scored as (0) low, (1) moderate, or (2) high (see Appendix). Physical severity referred to the perceived level of physical harm or damage to the adolescent’s physical integrity caused by the event, scored as (0) minimal or non-severe, (1) moderately severe, or (2) severe.

Second, coping strategies were coded. We modified procedures employed by Connor-Smith et al. (2000) and Davis et al. (2010) to capture three general categories: primary control, secondary control, and disengagement. *Primary control* strategies emphasized changing the

emotion-inducing environment (e.g., problem-solving). *Secondary control* strategies emphasized efforts to regulate or manage the emotions resulting from the situation. Examples of secondary strategies included positive thinking, acceptance, reappraisal, secondary social support, suppression, distraction, meta-cognitive, crying, venting, conflict, and self-soothing behaviors (Connor-Smith et al., 2000; Morling & Evered, 2006). *Disengagement* reflected efforts to escape or active avoidance of the situation, including avoidance, sleep, generally disengaging, or “doing nothing” (Connor-Smith et al., 2000; Sheppes, Scheibe, Suri, & Gross, 2011; Silk et al., 2003). Within these three categories, strategies were further coded as (1) *antisocial* (i.e., extreme acts such as violence, self-harm, substance use, or suicide attempts) or (0) *not antisocial* (i.e., no clear indication of antisocial tendencies) (Blechman & Culhane, 1993; Snyder et al., 2016).

2.3.2. Maltreatment case files—Court minute orders for the maltreated adolescents were coded for abuse and removal details via three trained coders. They established reliability (> 85% agreement on all variables) on approximately 10% of the files. Disagreements were discussed and resolved, and the remaining files were distributed evenly across the coders.

Given difficulties associated with case file documentation of maltreatment, we took a conservative approach and classified adolescents’ experiences based on only substantiated maltreatment incidents reported in the files, according to the California Penal Code 300 WIC subsections. Approximately 30% of our sample had experienced more than one substantiated type; they were classified into categories based on the following ranking: sexual abuse then physical abuse then neglect (Pears & Fisher, 2005). Overall, 13% had experienced sexual abuse (regardless of neglect or physical abuse) and were classified as sexual abuse victims; 17% had endured physical abuse (regardless of neglect) and were classified into a physical abuse group; 58% had endured neglect, without any instances of sexual or physical abuse (12% of the sample was either missing court minute orders or contained only ambiguous documentation; these adolescents are not included in maltreatment type analyses).

3. Results

3.1. Preliminary analyses

Preliminary analyses revealed no significant differences between groups (maltreated vs. comparison) in their reasons for not reporting a sad or mad event. For the sad event, 29 (14.9%) of the maltreated and 15 (14.6%) comparison adolescents did not report an event. For the mad event, this included 41 (21.0%) of maltreated and 22 (21.4%) of comparison adolescents. Stated reason for not reporting an event included they had never experienced the emotion, could not recall a specific event, or did not want to discuss one. Across both groups, adolescents who did not report an event largely indicated that they never felt the emotion in question; n s = 23 and 44 for sad and mad events, respectively. Additional analyses comparing those who reported versus did not report an event revealed that adolescents who reported an event were older ($M = 13.98$) and more likely to be a boy

(25.0%) than adolescents who did not (age $M = 13.00$; % girls = 12.0%), $t(294) = 2.73$, $p = 0.01$, and $\chi^2(1) = 7.04$, $p = 0.01$. No other differences emerged.

3.2. Types of emotional events

Our first set of analyses concerned the types of events that adolescents reported. The types of events, by group are presented in Table 1. Two trends are evident from the descriptive data. First, for both emotions, while a subset of the maltreated adolescents reported the abuse or removal in response to the prompt, the majority did not. Specifically, 56 (29%) of the maltreated adolescents reported abuse or removal when prompted to describe a sad event, and 21 (11%) did so when prompted to describe a mad event. These groups of adolescents are hence forth referred to as maltreatment-related reporters. Second, the types of events described by the remaining maltreated adolescents, referred to as other-event reporters, looked largely similar to those described by the comparison sample. Indeed, the most common event reported among the other-event reporters and comparison adolescents was loss for sad events and interpersonal conflict for mad events. The number of adolescents reporting these events did not differ significantly between the two groups. The only difference in type of event emerged for mad events between the other-event reporters and comparison adolescents in the percentage who described an event involving not having their wants met, $\chi^2(1) = 11.17$, $p = 0.001$. The comparison adolescents reported such events more often ($n = 23$) than did the other-event reporters ($n = 12$).

For subsequent analyses, unless otherwise noted, comparisons were made among the three groups: maltreatment-related reporters, other-event reporters, and comparison adolescents. Mixed model (group) analyses of covariance (ANCOVAs) were conducted predicting physical severity and psychological intensity. Age in years was also entered (as a continuous covariate), as was the age x group interaction. For both sad and mad events, no main effects or interactions emerged for physical severity. However, for psychological intensity, when both sad and mad events were considered, main effects of age and group emerged but were qualified by an age x group interaction, $F(1, 227) > 4.21$, $p < 0.042$. First, regarding group differences, both maltreatment-reporters and other-event reporters discussed sad and mad events that were significantly more psychologically intense than the events reported by the comparison adolescents. The interaction further indicated that, for the other-event reporters and comparison adolescents, age was positively associated with psychological intensity, $r > 0.21$, $p < 0.040$. For the maltreatment-related reporters, age was unrelated to psychological intensity, $r = -0.10$, *n.s.* For the latter adolescents, psychological intensity was high ($M = 1.93$), regardless of age.

3.3. Coping strategies

The main goal of the present study was to examine whether maltreated and comparison adolescents differed in the types of coping strategies they reported using when faced with self-selected emotional events. The maltreated adolescents reporting maltreatment versus other events were kept separate in these analyses because the intensity of the events differed [$t(162) = -4.38$, $p < 0.001$] and because of the possible uniqueness of maltreated adolescents who elected to describe experiences related to their maltreatment versus some other event (Bonanno et al., 2003). The number of strategies reported ranged from 0 to 3 (M

= 1.53 strategies for sad and 1.25 for mad events), similar to previous studies (Davis et al., 2010). In the subsequent analyses, adolescents who did not report any strategies across either the sad or mad events were not included.

The frequency of reporting each strategy is presented in Table 2. Overall, the most commonly reported strategies were primary control, secondary social support, distraction, suppression, avoidance, and “nothing”. Other strategies had very low base rates (i.e., < 5% of the entire sample reported using these strategies across the two events). These included positive thinking, reappraisal, acceptance, general disengagement, and meta-cognitive strategies. These are not considered further, although we return to the issue of adolescents not mentioning such strategies in the Discussion. An initial examination of differences across groups revealed that, for sad events, the groups differed on primary control, secondary social support, suppression, distraction, sleep, and “doing nothing.” For mad events, no significant differences in strategies reported.

To examine direct and combined differences across group and age in coping, binary logistic regressions were conducted. First, age, group (comparison adolescents served as the reference group), psychological intensity, and cognitive ability were considered (Model 1). Interactions between age and group were then added to test whether strategy use differed across development (Model 2). Dependent measures were the types of strategies reported. To reduce the number of comparisons, however, only strategies in which the differences across the three groups were at least marginal ($p = 0.10$) were tested here: These included primary control, secondary social support, suppression, distraction, and disengagement (subcategories for disengagement were combined since the patterns were largely the same).

The logistic regression results for sad events are summarized in Table 3. Overall, regarding group differences, maltreated adolescents (both maltreatment-related and other-event reporters) were more likely to report using disengagement strategies relative to comparison adolescents ($OR = 0.26$ and 0.42 , respectively). Conversely, comparison adolescents were 7.77 times more likely to report using suppression than were other-event reporters. When strategies reported in response to mad events were examined, no significant group or the group \times age interaction emerged (Table 4). However, a main effect of age emerged for primary control, such that with increasing age, adolescents reported fewer primary control strategies.

3.3.1. Antisocial strategies—As mentioned, all strategies reported were further coded for the extent to which the strategies reflected antisocial behaviors as a means of coping. One hundred seventy adolescents (81.7%) across samples did not report any antisocial strategies during either the sad or mad events, whereas 20 (9.6%) reported one antisocial strategy, 13 (6.3%) reported two, and 5 reported three (2.4%). Binary logistic regressions were conducted separately for sad and mad events to ascertain the effects of age, group, and their interaction (included in Model 2), while taking into account psychological intensity and cognitive ability, on the likelihood of adolescents reporting an antisocial strategy.

For sad events, Model 1 was significant, $\chi^2(5) = 32.43$, $p < 0.001$. Maltreatment-related reporters were 3.30 times more likely to report using antisocial strategies than comparison

adolescents. Greater psychological intensity was also associated with a greater likelihood of reporting antisocial strategies to cope with sad emotions. For mad events, Model 1 was statistically significant, $\chi^2(5) = 14.81, p = 0.011$. Age was positively associated with a greater likelihood of utilizing antisocial strategies in response to mad events.²

4. Discussion

The primary goal of the present study was to examine differences between maltreated and comparison adolescents in coping efforts, including differences in such efforts across age. Several key findings emerged, highlighting not only the need to consider the types of events adolescents think about when faced with situations that demand coping skills, but also the value of allowing adolescents the opportunity to describe in narrative detail their own coping efforts.

4.1. Characteristics of the emotional event

Prior to examining differences in coping across maltreated and comparison adolescents, it is crucial to understand what types of events the youth think about when prompted to recall emotional experiences, as these events varied across group in type and intensity. That is, we expected and found that maltreated and comparison adolescents differed significantly both in the types of emotional events that they reported and in the characteristics of those events. Some maltreated adolescents indeed reported events related to abuse and removal, but not all maltreated adolescents did so. And, as might be expected, these maltreatment or removal-related events were more psychologically intense relative to the types of events reported by the comparison adolescents. However, a large subset of maltreated adolescents, as mentioned, reported on events unrelated to their earlier maltreatment and removal experiences, and in fact, there were minimal differences between the types of events these maltreated adolescents reported and the event types reported by the comparison group. That different groups of maltreated adolescents seem to exist is consistent with other research on survivors of maltreatment: Some think about their abuse experiences or the consequences of those experiences more often than others when prompted with specific emotion cues (Alexander et al., 2005; Bonanno et al., 2003; Katz et al., 2012). Adult survivors who reference their former maltreatment experiences when asked about distressing life events are at greater risk for mental health problems across life than those who do not (Alexander et al., 2005; Bonanno et al., 2003). Our findings hint that this tendency may emerge in at least adolescence, with some but not all victims focusing on maltreatment-related experiences when prompted to report negative events. Whether these adolescents are then the ones who exhibit high levels of mental health problems is an important next step in this work. If so, future work will need to determine whether certain interventions are effective at changing these thought processes, and whether doing so can alter mental health functioning in especially vulnerable maltreated adolescents.

²Given that the maltreated adolescents differed in whether they reported on an event related to abuse and/or removal, and that these differences predicted to some extent their use of strategies, we conducted additional exploratory analyses to better understand underlying characteristics of the maltreated adolescents in these potentially distinct groups. To do so, we selected, from the other-event reporters, those who described moderate to high intensity events, thereby controlling for intensity, and compared these adolescents to the maltreated-related reporters, testing for differences in age, sex, cognitive ability, maltreatment type, and placement history (i.e., the number of placements, or days in current placement). Overall, no differences emerged: $t(165-180) < 1.30, n.s.$; $\chi^2_s(1-2) < 5.08, n.s.$

While the maltreated other-event reporters and comparison adolescents did not differ in general on the types of events that they reported, they did differ in the psychological intensity of those events, as we anticipated. The maltreated adolescents reported events that were significantly more psychologically intense, even when reporting on events not directly related to abuse and its aftermath. The specific experiences of child maltreatment and removal are distressing and challenging and come with a host of stressors, including potentially unpredictable violence, separation from loved ones, placement changes, legal involvement, and being cared for by unfamiliar adults (Melinder, Baugerud, Ovenstad, & Goodman, 2013; Quas, Wallin, Horwitz, Davis, & Lyon, 2009; Villodas, Litrownik, Newton, & Davis, 2015). Beyond these experiences, maltreated adolescents may be exposed to other extreme emotional events, such as crime, community violence, poverty, parental incarceration, and loss of loved ones (Finkelhor et al., 2015; Parke & Clarke-Stewart, 2003), or at least be exposed more often than comparison adolescents. Thus, even when maltreated and comparison adolescents described the same type of event (e.g., loss), the intensity of that loss often seemed to vary. As an example, for several maltreated adolescents, loss referred to death of a parent, relative, or friend. For some of the comparison adolescents, loss came in the form of the death of a pet. Both events may elicit feelings of distress or helplessness and are sad, but likely differ in intensity.

4.2. Coping strategies

The types of emotional events reported, including their psychological intensity, have important implications for the use of coping strategies across the groups of adolescents. We expected comparison adolescents would report using more primary control strategies to cope with their emotions while maltreated adolescents would engage in more disengagement and antisocial strategies. This expectation was partially supported. First, maltreatment exposure did not predict the use of primary control. Instead, both age and psychological intensity were related to the use of such strategies. Specifically, psychological intensity was associated with greater likelihood of reporting primary control for sad events, and increasing age was associated with greater likelihood of reporting primary control for angry events. These effects may have been largely driven by the lack of control associated with high intensity events. Primary control strategies refer to efforts to change a stressful or emotion-inducing situation (Rudolph et al., 1995). When the experience in question is largely out of an adolescent's control, primary control may be both unlikely and, if used, ineffective.

With age, adolescents reported increasingly more psychologically intense events, which may reflect normative age-related experiences (e.g., romantic conflicts; Collins, Welsh, & Furman, 2009; Costello et al., 2002) and stressors (e.g., crime exposure; Finkelhor et al., 2015). Overall, then, a reduced use of primary control strategies may be less related to maltreatment exposure, and more to some underlying, and improving, understanding in the adolescents that certain events are out of their control and therefore using primary control is not possible (Compas, Connor-Smith, Saltzman, Thomsen, & Wadsworth, 2001).

As we predicted, the two maltreated groups reported using disengagement strategies more than the comparison group. Given previous work that maltreating parents often fail to teach their children effective ways to reduce distress and feelings of anger and sadness (Shipman

et al., 2007), and instead tend to ridicule, belittle, or neglect their children in emotional situations (Wilson et al., 2008), maltreated adolescents may, in turn, disengage from situations that evoke intense negative emotions. Of note, in a maltreating or abusive environment, disengagement may be both adaptive and protective. Theoretically, in such environments, displays of anger may well serve as cues for potential threat or harm, which themselves are demanding of adolescents' attentional resources (Pollak, 2003). Insofar as maltreated adolescents attend to, recognize, and then disengage from threats effectively and quickly, they may protect themselves from further harm. This disengagement, therefore, could be considered adaptive in certain maltreatment contexts, but may be maladaptive and lead to negative outcomes when employed in normative emotional situations in which other coping strategies may be effective and when adolescents fail to learn a wide range of coping responses (Lougheed & Hollenstein, 2012). Importantly, previous research has demonstrated links between disengagement and poor emotional and behavioral functioning (Aldao et al., 2010; Griffith et al., 2000; Silk et al., 2003), suggesting that maltreated adolescents' reliance on disengagement may place them at heightened risk for poor outcomes.

For secondary control strategies, only one difference across groups emerged. The comparison adolescents were more likely to report suppression during sad events than both maltreated groups. This finding was somewhat surprising in light of research linking suppression to negative outcomes (Aldao et al., 2010; Betts et al., 2009). Suppression involves inhibiting the behavioral expression and thoughts associated with experiencing an emotion (Gross, 1998), meaning that suppression may decrease the behavioral expression of negative emotion, but may not in fact reduce the experience of negative emotions. As such, negative emotions may continue to linger and remain unresolved. However, suppression also demands impulse control and executive functioning, both of which are often impaired in maltreated adolescents (DePrince, Weinzierl, & Combs, 2009; Pears & Fisher, 2005; Shields & Cicchetti, 1998; Shields, Cicchetti, & Ryan, 1994). As such, suppression may be too behaviorally and cognitively demanding for many maltreated adolescents to successfully employ when coping with intense negative feelings, a possibility in need of more careful investigation in the future.

Additional analyses tested whether the three groups differed in the extent to which adolescents reported using antisocial strategies to cope with their feelings. Maltreatment-related reporters, as might be expected, were more likely to report these strategies, particularly for sad events. Antisocial strategies reflected extreme acts, such as violence, self-harm, substance use, or suicide attempts. Given that the maltreated adolescents in the other-event group did not report using antisocial strategies more often than the comparison adolescents, our findings suggest that the maltreatment-related reporters may be a particularly vulnerable subset of maltreated adolescents. No differences in demographic, type of maltreatment, or placement characteristics emerged between the two maltreatment groups. Instead, it seems that maltreatment exposure and its aftermath may be more salient for some maltreated adolescents relative to others, and that, when salient, maladaptive coping is likely. That being said, the present study cannot attest to causation, so it is also possible that maltreated adolescents with antisocial coping tendencies are more negatively impacted by their abuse and/or removal and therefore tend to fixate more on those events relative to maltreated adolescents with better coping skills.

4.3. Broader implications for coping literature

A point worth noting with regard to the present study's results is that very few youth reported the types of coping strategies commonly studied in extant research, such as reappraisal and rumination. These strategies are thought to confer either risks or benefits to individuals' mental health and overall well-being and as a result are commonly studied. For example, ample evidence suggests that reappraisal and acceptance are linked to a host of positive outcomes, such as better social functioning, fewer symptoms of depression, and better overall well-being (Garnefski et al., 2007; Rafnsson et al., 2006; Rudolph & Heller, 1997; Windle & Windle, 1996). In contrast, rumination and suppression have been associated with a range of negative outcomes, including increased internalizing and externalizing problems (Aldao et al., 2010; Betts et al., 2009). In addition, a more recent study found that having a range of strategies (i.e., having a larger repertoire of strategies) rather than relying primarily on only one or two strategies seems to reduce risk, such as for internalizing problems (Lougheed & Hollenstein, 2012). Of note, while these trends have emerged most consistently in studies with adults, similar patterns have emerged with adolescent samples (Aldao et al., 2010; Garnefski et al., 2007).

When we asked adolescents about how they coped with specific negative personal experiences, very few (regardless of maltreatment history) spontaneously reported most of the strategies most commonly examined in prior work, that is, reappraisal, acceptance, or rumination. A likely explanation for differences between the types of commonly reported strategies in our sample and those studied in prior work concerns how coping was measured. We gave adolescents open-ended prompts asking them to nominate ways in which they coped with their feelings rather than a checklist containing behaviors indicative of specific coping strategies (Connor-Smith et al., 2000; Garnefski et al., 2005; Garnefski et al., 2007; Silk et al., 2003). Checklists thus provide valuable information about those strategies included in the list, but do not allow adolescents to freely report on other strategies that they employ (Connor-Smith et al., 2000; Gullone & Taffe, 2012). Nor do checklists typically assess strategies in the context of specific emotions or events or antisocial behaviors. Thus, the types of strategies that adolescents endorse using during general, hypothetical situations may not map onto what they truly do when confronted with emotional distress. In fact, findings from the present study suggest that, when confronted with intense, emotional events adolescents tend to use more basic behavioral strategies than would be expected based on the extant literature. Future studies using a multi-method approach (e.g., observational and other-report) could help address whether the limited reporting of certain strategies was due to adolescents not being able to self-report on the full range of strategies they use when attempting to modify their feelings, or whether adolescents do indeed rely on more basic, behavioral strategies.

4.4. Limitations and future directions

Although the present study represents a significant, novel step in investigating potential emotion-related mechanisms that may contribute to long-term consequences of maltreatment, it represents only one step. Limitations must also be acknowledged. First, adolescents in the comparison sample may have experienced some form of maltreatment in the past. However, any maltreatment in the comparison sample would potentially attenuate

group differences; therefore the approach is possibly slightly more conservative than it would be if the comparison sample was comprehensively screened.

Second, the maltreated adolescents placed at the residential facility from which the study was conducted experienced particularly extreme forms of maltreatment, both in terms of the types and severity of maltreatment experienced, and in terms of the of availability, for these adolescents, of an alternative placement other than a large group home. Specifically, the maltreated adolescents residing at the residential facility often remained there for extended periods of time due to high levels of behavioral problems, running away, previous placement failures, or no alternative caregiver willing to take the adolescent. Thus, the sample was likely extreme compared to other maltreated samples. This allowed for a compelling test of how coping might differ across samples. However, this group is unlikely to be representative of all maltreated adolescents, and future research will need to expand the model and findings uncovered here to other samples of maltreated adolescents and possibly to other adolescents exposed to high levels of adversity.

Third, although the present study was novel in that adolescents were given open-ended prompts and allowed to nominate their own emotional events and coping strategies, future studies would benefit from even more comprehensive coping narratives. For example, in the present study, adolescents were not asked follow-up questions about specific facets of the emotional events, such as when the event took place and how old they were at the time. As such, we were unable to code for a more fine grained analyses of the events (such as to whom the adolescent turned to for social support or with whom the adolescent engaged in interpersonal conflict). Adolescents were also not asked to elaborate on individual strategies they reported. Moreover, given that temporal understanding increases with age (Pathman, Doydum, & Bauer, 2013), a major limitation of the self-report design of the coping narratives is that there may have been important developmental differences in the length of time that had elapsed between the events in question and the youths' retelling of the events. Future studies examining the length of the delays between the events and adolescents' recall, as well as the age of the adolescent at the time of the events, could unpack some of these issues. Future studies might also ask about other emotional events (e.g., fear-inducing) and possibly counterbalance the order of questions to assess how adolescents cope with different types of negative emotional experiences and to ensure that their reports to one event do not affect their reports to another.

4.5. Implications of findings

With regard to clinical and intervention implications of the present study, it seems that maltreated adolescents may be overly reliant on disengagement and antisocial strategies. This reliance on disengagement may place them at greater risk for poor behavioral outcomes (Aldao et al., 2010; Griffith et al., 2000; Silk et al., 2003). That being said, maltreated and comparison adolescents reported *similar* levels and frequent use of primary and secondary control (particularly secondary control). In light of these findings and in light of some of the events in the lives of maltreated adolescents residing in out-of-home care being out of their control (making primary control coping perhaps less feasible), intervention efforts with maltreated adolescents should perhaps be focused on reducing maltreated adolescents' use

of disengagement and antisocial strategies and enhancing their use of secondary strategies. This approach is highly consistent with some evidence-based intervention programs such as trauma-focused cognitive behavioral therapy (Silverman et al., 2008). Overall, the negative outcomes so often associated with maltreatment exposure may perhaps be mitigated if maltreated adolescents relied more heavily on such strategies relative to disengagement.

In conclusion, findings from the present study provide novel insights into the coping skills of maltreated adolescents and how their abilities differ from those of comparison adolescents. Overall, maltreated adolescents reported more psychologically intense emotional experiences, including those relating to maltreatment and removal from home. These extreme events had crucial implications for coping, with adolescents in the maltreated groups reporting more disengagement strategies relative to the comparison adolescents. Adolescents in the maltreatment-related group also reported more antisocial strategies relative to the comparison adolescents. Given that coping deficits have been linked to a host of negative outcomes commonly found in maltreated populations, including behavioral and mental health functioning, the present study has important implications for the treatment and intervention of such a vulnerable developmental population.

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Appendix A.: Example descriptions of sad and mad events

Maltreated group

“Last Monday, my ex-girlfriend died of an overdose. This Thursday is her funeral. She ran away from her group home, because they were going to send her to rehab. She went a little crazy and died from an overdose with a 45-year-old man.”

(Sad, High Psychological Intensity)

“I went to the beach with a friend and his dad said he would get me a toy from Target, but he didn’t. Then he said he would get me something for me next time I come over, but he didn’t.”

(Sad, Low Psychological Intensity)

“They were trying to put me in a mental hospital. I was trying to drink bleach, but didn’t want anyone to find out, but they did and the cops were coming and I was getting really mad because they wouldn’t let me drink bleach or cut myself. The cops told me to relax and I got really mad.”

(Mad, High Psychological Intensity)

“I was playing football and some kid kept tackling me after the play was dead! I didn’t really know him. I just let it slide the first couple of times. After he kept

doing it, on the last play he jumped on me at the end of the play and I hit him in the face.”

(Mad, Low Psychological Intensity)

Comparison group

“When a close friend of mine died in a car accident. I don’t know how to explain it. It just shocked me.”

(Sad, High Psychological Intensity)

“One time when my friend and I got in a fight and I thought I was going to lose her and then she started playing with me and we got together again. It was at school and she was my best friend. My friend and I thought we were gonna lose each other but we figured it out by talking.”

(Sad, Low Psychological Intensity)

“When I got kicked out of the house because my dad found out I smoked weed, so I left to my friend’s house and stayed there for two days. When I came back home I punched my dad.”

(Mad, High Psychological Intensity)

“Probably when I was not on the best terms with my parents, when I got, like, bad grades. I felt like they were overreacting at the time and they were kind of picking on me. I just felt like I wanted to do what I wanted to do and my parents were overreacting and I would fix it later.”

(Mad, Low Psychological Intensity)

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Table 1

Frequency distribution of sad and mad events by maltreatment status.

	<u>Comparison</u>		<u>Maltreated</u>	
	Sad events	Mad events	Sad events	Mad events
Loss	38	2	62	5
Removal or abuse	0	0	56	21
Interpersonal conflict	19	45	13	83
Friends/family in trouble	6	0	9	5
Hurt or sick	5	3	5	3
Not getting wants met	8	23	1	12
Violence exposure	0	0	3	1
Multiple events or other	11	8	15	20
No event reported	16	22	29	41
Total	103	103	193	191

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Table 2

Frequency distribution of strategies for sad and mad events by group.

	Comparison	Other-event reporters	Maltreatment-related reporters	Statistic	p-Value
Sad events					
Primary control*	13	9	1	$\chi^2 = 7.20$	0.027
Secondary control					
Secondary social support*	37	28	16	$\chi^2 = 6.35$	0.042
Suppression*	19	12	3	$\chi^2 = 8.78$	0.012
Cried	6	12	6	$\chi^2 = 1.13$	0.567
Venting	3	10	5	$\chi^2 = 2.82$	0.244
Self-soothing	8	10	5	$\chi^2 = 0.008$	0.996
Conflict	0	0	1	$\chi^2 = 4.30$	0.116
Distraction*	34	38	11	$\chi^2 = 6.26$	0.044
Disengagement					
Avoidance	4	11	8	$\chi^2 = 4.09$	0.129
Sleep*	2	2	6	$\chi^2 = 8.50$	0.014
Nothing*	9	16	15	$\chi^2 = 7.01$	0.030
Mad events					
Primary control	16	22	5	$\chi^2 = 2.28$	0.320
Secondary control					
Secondary social support	18	14	5	$\chi^2 = 3.80$	0.150
Suppression	6	7	4	$\chi^2 = 0.20$	0.907
Cried	3	5	1	$\chi^2 = 0.59$	0.746
Venting	7	15	8	$\chi^2 = 2.31$	0.315
Self-soothing	4	13	6	$\chi^2 = 3.47$	0.177
Conflict	6	10	3	$\chi^2 = 0.38$	0.826
Distraction	19	27	11	$\chi^2 = 1.97$	0.374
Disengagement					
Avoidance	19	21	10	$\chi^2 = 0.32$	0.850
Sleep	1	5	3	$\chi^2 = 2.60$	0.273

	Comparison	Other-event reporters	Maltreatment-related reporters	Statistic	<i>p</i> -Value
Nothing	9	15	11	$\chi^2 = 3.85$	0.146

* $p < 0.05$.

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Table 3
Summary of logistic regression analysis for variables predicting strategy use - sad events.

	Primary control			Secondary social support			Suppression			Distraction			Disengagement		
	B	SE	e ^B	B	SE	e ^B	B	SE	e ^B	B	SE	e ^B	B	SE	e ^B
Model 1															
Age	0.22	0.12	1.24	v	0.06	0.97	-0.05	0.09	0.95	0.07	0.06	1.08	0.07	0.07	1.07
Other-event reporters	0.24	1.21	1.27	1.01	0.44	2.74	2.05**	0.71	7.77	0.72	0.47	2.05	-1.33**	0.47	0.26
Mal-related reporters	0.93	1.12	2.53	0.03	0.38	1.04	0.95	0.68	2.58	0.78	0.41	2.19	-0.86*	0.36	0.42
Psychological intensity	-1.55**	0.40	0.21	0.42	0.22	1.52	0.33	0.28	1.39	-0.16	0.21	0.85	0.12	0.24	1.12
Cognitive ability	0.04*	0.02	1.04	0.01	0.01	1.00	-0.01	0.01	0.99	0.02	0.01	1.02	-0.02*	0.01	0.98
Constant	-1.74		-1.64			-3.48			-1.21			2.04			
χ^2	33.81**		9.74			12.15*			11.66*			23.84**			
df	5		5			5			5			5			
Model 2															
Age × other-event	-15.63	2200.28	0.000	0.03	0.18	1.03	-0.60	0.43	0.55	0.03	0.20	1.03	0.27	0.20	1.30
Age × mal-related	-15.06	2200.28	0.000	-0.25	0.19	0.78	-0.56	0.44	0.52	0.06	0.20	1.06	0.04	0.17	1.04
Constant	-70.00		-3.99			-4.88			-1.11			-0.26			
χ^2	3.54		4.37			2.47			0.13			2.32			
df	2		2			2			2			2			

* $p < 0.05$.

** $p < 0.01$.

Table 4

Summary of logistic regression analysis for variables predicting strategy use - mad events.

	Primary control			Secondary social support			Suppression			Distraction			Disengagement		
	B	SE	e ^B	B	SE	e ^B	B	SE	e ^B	B	SE	e ^B	B	SE	e ^B
Model 1															
Age	-0.20*	0.08	0.82	0.07	0.09	1.08	-0.13	0.12	0.88	0.15	0.08	1.16	0.00	0.06	1.00
Other-event reporters	1.20	1.20	3.33	0.62	0.84	1.86	-0.11	1.38	0.90	0.24	0.87	1.27	-0.75	0.66	0.48
Mal-related reporters	1.25	1.14	3.50	-0.31	0.73	0.73	0.20	1.23	1.22	0.15	0.77	1.16	-0.41	0.57	0.66
Psychological intensity	-0.23	0.30	0.80	0.21	0.31	1.23	0.05	0.42	1.05	-0.18	0.28	0.84	-0.25	0.23	0.78
Cognitive ability	-0.05*	0.01	0.97	0.01	0.01	1.01	0.05**	0.02	1.05	0.02	0.01	1.02	-0.01	0.01	0.99
Constant	-2.32			-1.99			-2.65			-1.73			0.17		
χ^2	15.51**			6.49			9.16			6.56			2.58		
df	5			5			5			5			5		
Model 2															
Age × other-event	0.23	0.25	1.26	0.16	0.37	1.18	-0.98	0.95	0.38	0.00	0.46	1.00	-0.08	0.31	0.93
Age × mal-related	0.34	0.25	1.40	0.17	0.37	1.18	-0.52	0.93	0.59	-0.10	0.45	0.91	-0.22	0.30	0.80
Constant	-2.04			-1.61			-4.36			-1.92			-0.28		
χ^2	2.68			0.21			3.69			0.37			1.48		
df	2			2			2			2			2		

* $p < 0.05$.

** $p < 0.01$.