International Journal of Child and Adolescent Resilience

Child Maltreatment, Altered Self-Capacities and Resilience: Testing a Moderated Mediation Model of Depression Symptoms and Alcohol Problems in Emerging Adulthood

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Abstract:

Objectives: Although it is well established that resilience moderates the effects of child maltreatment on mental health, less is known about the effects of resilience on pathways from child maltreatment to depression symptoms and alcohol problems. Previous researchers have found that difficulties with relationships, identity and affect control (i.e., altered self-capacities; Briere & Runtz, 2002), are important antecedents of child maltreatment and are linked to challenges in adulthood. The current study tested a moderated mediation model of the relationship between childhood maltreatment, altered self-capacities, resilience and both depression symptoms and alcohol problems during emerging adulthood.

Methods: Participants were 277 emerging adults (ages 18-24, M = 21.06; SD = 1.93; 69.3% female) recruited from the community who completed an online survey. Using PROCESS (Hayes, 2012), we examined a moderated mediation model of the relationship between child maltreatment, resilience, altered self-capacities, and both depression symptoms and alcohol problems.

Results: Problems with identity and affect control mediated the relationship between child maltreatment and depression symptoms, whereas only problems with affect control

mediated the relationship between child maltreatment and alcohol problems. In addition, resilience moderated the relationship between child maltreatment and alcohol problems and positively attenuated the relationship between child maltreatment and depression symptoms through identity problems.

Conclusion and Implications: These findings provide a more nuanced understanding of the mechanisms that link child maltreatment to outcomes in emerging adulthood and highlight resilience and difficulties with identity and affect control as important prevention and intervention targets.

Acknowledgments:

This study was funded by the Social Sciences and Humanities Research Council of Canada and an Early Researcher Award from the Ontario Ministry of Research and Innovation to Dr. Goldstein. Dr. Wekerle's contribution is supported by a CIHR IGH Team Grant in Boys' and Men's Health (TE3-138302).

The authors wish to thank Preeyam Parikh for her work on this project.

Conflict of Interest:

The authors declare no conflicts of interest.

Keywords:

Resilience, self-functioning, trauma, identity, affect regulation, emerging adulthood

Introduction

The maltreatment of children (i.e., the abuse or neglect of a child under the age of 18 by a parent, caregiver, or another person in a custodial role) is an area of significant societal and public health concern. The consequences of childhood maltreatment are extensive and involve pervasive social, psychological, and physical health difficulties (Mangion & Buttigieg, 2014; WHO, 2014), including risk for subsequent development of depression (Ali et al., 1999; Antypa & Van Der Does, 2010; Dunn, Gilman, Willett, Slopen, & Molnar, 2012; Shea et al., 2005; Weich et al., 2009) and increased involvement in high-risk behaviors such as harmful alcohol use (Afifi, et al., 2012; Gilbert et al., 2009; Goldtein et al., 2013; Sartor et al., 2008; Tonmyr et al., 2010). Although the impacts of child maltreatment are seen throughout the lifespan, difficulties in some domains may be heightened during emerging adulthood, a time of transition and instability (Arnett, 2000).

Depression and Alcohol Problems in Emerging Adulthood

Emerging adulthood typically refers to the developmental period that occurs between the ages of 18 to 25 (Arnett, 2000). The theory of emerging adulthood is rooted in stage theories of development (Erickson, 1968), but has received increasing attention over the past decade due to recent demographic shifts, resulting in the delay of typical adult milestones such as job security, financial independence, marriage, and parenthood (Arnett, 2000; 2004; 2007). Arnett (2004) characterized emerging adulthood as a time of identity exploration, instability, self-focus, exploration of possibilities, feeling 'in-between', and has drawn specific theoretical links between difficulties in fulfilling each of the fundamental tasks faced by emerging adults, and engaging in potentially dysfunctional coping behaviors, such as harmful alcohol use (Arnett, 2005). The transitional stressors of emerging adulthood also correspond with vulnerability to developing depression (Tanner et al., 2007; Schulenberg & Zarrett, 2006).

Research has shown that depression in emerging adulthood corresponds to the challenges of this developmental stage, including its associated physical and psychological life transitions. These include leaving home, starting a career, along with prolonged identity exploration and feeling "in between" adolescence and adulthood – the convergence of which may contribute to identity crises and psychological distress (Weiss et al., 2012; Lee & Gramotnev, 2007). These transitions impact autonomy, family support, and social networks (Lane, 2014) and can negatively influence mental health outcomes. Although not all emerging adults experience difficulties during these transitions, there is great inter-individual variability (Schulenberg et al., 2004), with some emerging adults responding with considerable distress (Perrone & Vickers, 2003; Polach, 2004) including loneliness and depression (Hallowell et al., 1989; Kenny & Sirin, 2006; Tanner et al., 2007). The median age of onset for depression occurs during the 20's (Weiner, 1992), with approximately 25% of late adolescents and young adults having experienced a major depressive episode, which greatly increases risk of subsequent depression recurrence (Hart et al., 2001).

Alcohol problems are also more prevalent in emerging adulthood than during any other time of life (Simons-Morton et al., 2016). Indeed,18-24 year olds have the highest rates of past year drinking, binge drinking (including the highest amounts of monthly and weekly binge drinking) and hazardous drinking relative to other age groups and this places them at further risk for alcohol-related problems, including adverse physical, mental, and social consequences (Boak et al., 2015; Dawson et al., 2015; Reich et al., 2015; Whitehill et al., 2015; Willoughby et al., 2014). Based on his theory, Arnett (2005) suggested that increased substance use in emerging adulthood is also functionally related to the challenges of this developmental stage. For some emerging adults, the instability of this time of life that gives rise to increased negative affect may also motivate substance use.

Mechanisms Underlying the Relationship Between Child Maltreatment, Depression Symptoms and Alcohol Problems

Despite research documenting the higher prevalence of both depression and alcohol problems during emerging adulthood and a significant literature linking child maltreatment to both of these outcomes, there is a gap in the literature regarding the psychological

mechanisms that mediate these relationships and reflect developmentally timed psychosocial issues. One theory that has been proposed to account for some of the negative outcomes experienced by individuals with histories of child maltreatment is the theory of altered self-capacities (Briere, 1997; McCann & Pearlman, 1990). According to this theory, child maltreatment impacts the ability to relate to oneself and to others and is linked to three distinct but interrelated difficulties in functioning: 1) difficulties in establishing and maintaining meaningful social and interpersonal relationships (relational disturbance); 2) difficulties accessing and maintaining a stable sense of identity or self (identity disturbance); and 3) difficulties managing and/or tolerating aversive emotional states (affect dysregulation). Previous researchers have found that altered self-capacities are associated with an increased risk for engaging in dysfunctional patterns of behavior, including substance use (Briere & Gil, 1998; Grilo, et al., 1997), depression (Valdez, Bailey, Santuzzi, & Lilly, 2014), aggression (Allen, 2011), and suicide potential (Allen, 2013). To date, however, we are not aware of any other study that has examined a comprehensive model of the relationship between childhood maltreatment and alcohol problems in EA that has considered these three areas of functioning.

There is, however, some evidence for increased difficulties in these areas during emerging adulthood based on research using the Inventory of Altered Self Capacities (IASC; Briere, 2000), a measure designed to assess disturbances in relatedness, identity and affect control. In their standardization study for the IASC, Briere and colleagues (Briere, 2000; Briere & Runtz, 2002) found that IASC scores were higher for a university student sample compared to a community-recruited standardization sample, suggesting greater difficulties in the three self-other functions among emerging adults. Based on these findings, along with research identifying altered self-capacities as an area of particular difficulty among those with histories of maltreatment (e.g., Allen, 2013; Bigras, et al., 2015; Briere & Rickards, 2007), we anticipated that difficulties in interpersonal relationships, identity and affect control would be more pronounced in the context of childhood maltreatment and that altered self-capacities would mediate the relationship between child maltreatment and both depression symptoms and alcohol problems.

Resilience Attenuates Risk in Emerging Adulthood

Despite the increased risk of developing depression and alcohol problems, not all individuals with exposure to childhood maltreatment go on to experience mental health problems later in life (McGloin & Widom, 2001; Collishaw et al., 2007). Resilience is defined as the ability to adapt well in the face of trauma or adversity (Alim et al., 2008; Collishaw et al., 2007) and resilience factors such as perceived parental care, adolescent peer relationships, and the quality of adult love relationships, have been found to mitigate the mental health risks associated with childhood maltreatment (Collishaw et al., 2007). Resilience traits have also been found to mitigate a range of mental health outcomes among those exposed to childhood maltreatment, including depression (Green et al., 2010b; Pietrzak et al., 2010b; Wingo et al., 2010) and alcohol use and problems (Wingo et al., 2014; Green et al., 2010b). Nonetheless, studies on resilience as a moderator (i.e., buffer) of the relationship between childhood maltreatment and depression symptoms and alcohol problems in emerging adulthood are limited. Only one study examined this topic in adults with exposure to

childhood abuse and trauma (Wingo et al., 2014) and the researchers found that resilience reduced lifetime alcohol use problems as a main effect, and interacted with severity of childhood abuse to decrease harmful alcohol use. There is also limited research on the influence of resilience on depression in emerging adulthood following exposure to childhood maltreatment. Existing research shows that resilience has a direct effect on depression symptom severity among adolescents (Moran & Eckenrode, 1992) and adults exposed to childhood abuse (Wingo et al., 2010), with higher resilience predicting lower depression. In addition, resilience moderates and counteracts the effects of risk associated with a history of sexual abuse among emerging adults transitioning out of child welfare, with individuals scoring high on resilience demonstrating significantly fewer depression symptoms than those with lower resilience (Goldstein et al., 2013).

Although previous researchers have tested whether resilience attenuates risk for depression and alcohol problems among individuals exposed to childhood maltreatment, few have specified the mechanisms of risk that are attenuated by resilience. Research on resilience provides a critical perspective on the conditions under which the impact of child maltreatment on maladaptive outcomes may be reduced. Research on resilience as a moderator of the mediational pathways from child maltreatment to these outcomes provides an additional opportunity to determine the ways in which mechanisms that underlie the relationship between child maltreatment and maladaptive outcomes may be attenuated, providing critical information on the "when of the how" (Hayes, 2015, p.1). Indeed, researchers have already determined that resilience attenuates the indirect relationships between stress, anxiety/depression, and alcohol problems, with greater resilience weakening these pathways (Wang & Chen, 2015). We tested a similar moderated mediation model in which we anticipated that resilience would moderate the mediation effect of altered self-capacities. Specifically, we hypothesized that resilience would buffer the pathway from childhood maltreatment to altered self-capacities and depression symptoms and alcohol problems. The hypothesized moderated mediation model is illustrated in Figure 1.

Method

Participants and Procedures

Overall, 290 emerging adults consented to participate in the study and started the online survey; however, only 277 participants completed a sufficient number of the current measures (> 80%) to be included in the data analysis. The 277 participants ranged in age from 18 to 24 years old (M = 21.06; SD = 1.93; 26.4% male and 69.3% female; 4.3% did not complete the binary gender option) recruited from the community in a large urban Canadian city. In terms of ethnicity, 46.2% identified as Caucasian, 26.4% as Asian, 16.2% as South Asian, 9.6% as African or Caribbean, 4.7% as Middle Eastern or West Asian, and 1.1% identified as Aboriginal or First Nations. The majority of the sample were currently in school (73.3%) and were unemployed (51.1%) and living with a parent or parents (53.4%). A good proportion of the sample (36.9%) reported that they had lived independently at one time, but had moved back home to live with their parents.

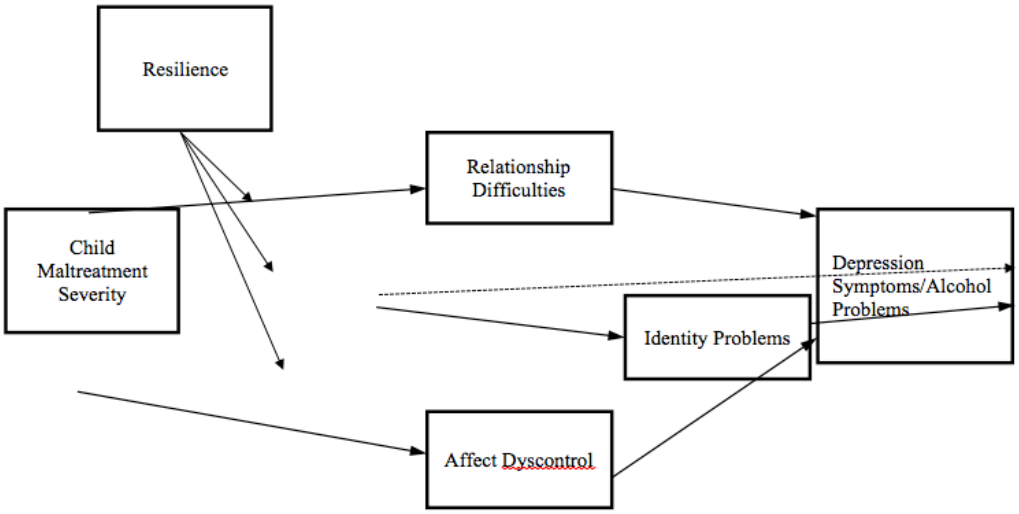

Figure 1. Hypothesized moderated mediation model with resilience moderating altered self-capacities (i.e., difficulties in relationships, identity disturbances and affect dysregulation) as mediators of the relationship between child maltreatment and depression symptoms and alcohol problems.

Participants were recruited from the community through advertisements posted around an urban university campus, online ads posted on community websites (Craigslist and Kijiji) and notices distributed by a psychology students' association and through Twitter postings targeting accounts with relevance for emerging adults (e.g., university Twitter accounts, youth advocacy groups). Participants who were interested in the study called or emailed a research assistant and were then sent a unique link to the online survey, which was administered via Fluidsurveys. At the end of the survey, participants had the option to enter their email address into a draw for a $50 giftcard to an online site. To retain anonymity of the survey responses, email addresses were stored in a separate database from the survey responses.

All procedures were approved by the institutional Research Ethics Board.

Measures

Childhood maltreatment. Childhood maltreatment was assessed with the Childhood Trauma Questionnaire – Short Form (CTQ-SF; Bernstein et al., 2003). The CTQ-SF is a 25-item questionnaire, measuring five types of maltreatment, including three types of abuse (physical, sexual, emotional) and two types of neglect (physical and emotional). Participants rate childhood experiences (e.g., "People in my family hit me so hard that it left me with bruises or marks") using a five-point Likert scale based on the frequency of the event (1=Never True, 2=Rarely True, 3=Sometimes True, 4=Often True, 5=Very Often True). A subscale score based on the sum of items is generated for each type of maltreatment. For the

current sample, internal consistencies for all but one of the maltreatment scales were good, with α's = .92, .90, and .97, for physical, emotional, and sexual abuse, respectively, and .66 and .92 for physical and emotional neglect, respectively. For the regression analyses, we used a single score representing the sum of all CTQ items. For analyses comparing maltreatment vs. no-maltreatment groups, we used cut-off scores established by Bernstein et al. (2003), to convert each of the maltreatment subscales into dichotomous scores, reflecting no or minimal abuse (0) and moderate or severe abuse (1) and created a single maltreatment score to indicate whether or not (yes/no) a participant had experienced moderate to severe abuse or neglect.

Altered Self-Capacities. Difficulties in relationships, identity, and affect control were assessed using the 63-item Inventory of Altered Self Capacities (IASC; Briere, 2000). Participants rate the extent to which they have experienced each item in the past 6 months, with responses ranging from 1 (never) to 5 (very often). The IASC consists of seven lower-order subscales, representing the three higher-order subscales. Difficulties with relatedness is assessed with three subscales (27 items): Interpersonal-Conflicts (e.g., having a lot of ups and downs in your relationship with people), Idealization-Disillusionment (e.g., looking up to people and then being very disappointed by them), and Abandonment Concerns (e.g., feeling afraid that someone you cared about might leave you). Identity problems is assessed with two subscales (18 items): Identity Impairment (e.g., Wishing you understood yourself better), and Susceptibility to Influence (e.g., Believing what somebody told you, even though it didn't make sense). Affect dyscontrol is assessed with two subscales (18 items): Affect Dysregulation (e.g., Your moods changing quickly) and Tension Reduction Activities (e.g., Throwing or hitting things during an argument as a way of getting out your anger). Because the scales have a different number of items, we combined subscales by averaging the items that loaded onto the three primary IASC dimensions. Internal consistencies for the seven subscales was good, with Cronbach's alphas ranging from .80 (Tension Reduction Activities) to .91 (Abandonment Concerns). Internal consistencies for the three higher order scales were also good: Difficulties with Relatedness (α = .95), Problems with Identity (α = .92), Affect Dyscontrol (α = .91).

Alcohol Use and Problems. Alcohol use and problems were assessed with the Alcohol Use Disorders Identification Test (AUDIT; Saunders, Aasland, Babor, de la Fuente, & Grant, 1993). The AUDIT is a 10-item measure, which covers multiple domains of alcohol use (e.g., how often do you have a drink containing alcohol) and problems (e.g., how often during that last year have you been unable to remember what happened the night before because of your drinking). Items are rated on a scale from 0 (never) to 4 (daily or almost daily). Scores for the current sample were based on the sum of all items and scores of eight or more reflect problem alcohol use. Internal consistency for the current sample was good (α = 0.88).

Depression Symptoms. Depression symptoms were assessed using the Centre for Epidemiological Studies – Depresssion scale (CES-D; Radloff, 1977). The CES-D is a 20-item measure of depressive symptoms, including poor sleep, low energy, low mood and hopelessness. Participants rate the extent to which they have experienced these symptoms over the past week on a scale from 0 (rarely or none of the time) to 3 (most or almost all the time). Higher scores indicate greater symptoms of depression and cut-off scores of 16 or higher are considered within the clinical range. The CES-D has demonstrated good internal

consistency and validity in predicting risk for depression in adolescents and emerging adults (Radloff, 1991). Internal consistency for the current study was excellent (α = 0.93).

Resilience Index. The resilience measure was based on a combination of items incorporating both internal and external resilience factors. This approach considers that resilience is multidimensional and includes both internal assets and resources and external factors that promote well-being, including social support and involvement in prosocial activities (Zimmerman et al., 2013). Internal resilience was measured using the Connor-Davidson Resilience Scale (CD-RISC; Connor & Davidson, 2003), which measures stress-coping ability using 25-items reflecting patience, self-efficacy, recognition of limits of control, tolerance of negative affect and viewing challenges as growth opportunities. Items are rated on a five point scale (0 = not true at all to 4 = true nearly all the time), with the total score reflecting the sum of all items. Participants were also asked about external resilience factors, including: 1) involvement with their community; 2) religious involvement; 3) parental monitoring; and 4) presence of an adult mentor. Parental monitoring was assessed using the six-item Parental Monitoring Scale (Silverberg & Small, 1991), which assesses the frequency with which emerging adults believe that their parents know their plans and whereabouts (e.g., When you go out, how often do you tell your parents who you are going out with?). Items are rated on a five-point scale from 1 (never) to 5 (always). In addition, participants were asked to indicate if they had another adult role model in their life, besides a parent (yes/no) and their past year frequency of involvement in community programs (not at all to more than once a week) and religious activities (not at all to more than once a week). A score of 0 or 1 was assigned to each resilience factor as follows: 1) Above the median on CD-RISC; 2) Above the median on parental monitoring; 3) involvement with religious activities at least monthly; 4) involvement with community activities at least monthly; and 5) presence of an adult mentor. A combined index score was created reflecting the number of resilience factors that participants endorsed, with scores ranging from 0 to 5.

Statistical Analysis

We first examined whether child maltreatment was associated with higher scores on the three IASC scales, resilience, and depression symptoms and alcohol problems. A multivariate analysis of variance (MANOVAs) was conducted in which the IASC scales, depression symptoms and alcohol problems, and resilience were the dependent variables and child maltreatment (yes vs. no) was the independent variable.

We then examined whether difficulties with relatedness, identity, and affect control mediated the relationship between history of childhood maltreatment and both depression symptoms and alcohol problems. We used PROCESS (Hayes, 2012; 2013) to examine the indirect effects of child maltreatment on alcohol problems via altered self-capacities. Bias-corrected bootstrap 95% confidence intervals were estimated for the three indirect effects based on 10,000 bootstrap samples. Confidence intervals that do not contain zero indicate a significant indirect effect. The model included the three IASC constructs as parallel mediators, with all three constructs included in the same model. Next, two moderation models were tested in which resilience was examined as a moderator of the

relationship between child maltreatment and both depression symptoms and alcohol problems; a significant interaction between child maltreatment and resilience is evidence of a significant moderation effect. Finally, two moderated mediation models were examined to test whether resilience moderated the mediation effect of altered self-capacities on the relationship between child maltreatment and alcohol problems/depression symptoms. This involves a moderated mediation or a conditional process model (Edwards & Lambert, 2007; Hayes, 2013), which allows direct or indirect effects of the independent variable (child maltreatment) on the dependent variable (alcohol problems and depression symptoms) through altered self-capacities (difficulties in the domains of interpersonal functioning, identity development, and affect regulation) to be dependent on the moderator (resilience). This is a first stage moderation model (Edwards & Lambert, 2007) with resilience moderating the path from child maltreatment to altered self-capacities. The hypothesized model is illustrated in Figure 1. To examine this moderated mediation model, we used the PROCESS macro (Hayes, 2012), which integrates moderation and mediation functions in SPSS Regression Models. PROCESS allows one to estimate the effects of multiple mediators on the dependent variable as well as the influence of a common moderator. To determine whether there is a significant moderated mediation effect, PROCESS provides an index of moderated mediation, which estimates the slope of the line representing the association between the moderator and the indirect effect (Hayes, 2015). In addition, the conditional indirect effect and 95% confidence intervals are calculated, which reflects conditional indirect effects at various levels of the moderator: low (-1 SD from the mean), moderate (at the mean) and high (+1 SD from the mean). Confidence intervals that do not include zero are considered significant. All variables were standardized prior to analysis so that parameter estimates from the PROCESS macro are interpreted as unstandardized parameter estimates.

Results

Analysis of Differences Between Child Maltreatment Groups

In total, 37.5% of the sample reported experiencing at least moderate child maltreatment. In terms of maltreatment types, 11.2% endorsed physical abuse, 12.6% endorsed sexual abuse, 21.7% endorsed experienced emotional abuse, 16.2% physical neglect and 18.1% emotional neglect. There was an overall effect of child maltreatment on all variables included in the multivariate model (difficulties in relationships, identity problems, affect dyscontrol, depression symptoms, resilience): Pillai's Trace $F(5, 271) = 13.96$, $p < .001$, $\eta 2 = 0.21$. As illustrated in Table 1, with the exception of the resilience measure, mean scores on all variables were higher for the maltreatment group than for the non-maltreatment group. Scores for the maltreatment group were lower on the resilience measure. For all analyses involving the alcohol problems score, only those who reported alcohol use in the past year were included (N = 223; 80.5% of the sample). The alcohol problems score was not included in the MANOVA due to the lower number of respondents for this measure, but a t-test revealed significantly higher alcohol problems for the maltreatment (N = 89) vs. the non-maltreatment (N = 134) group: $t (221) = -3.10$, $p < .01$.

Table 1. Means (SD) for the child maltreatment and non-child maltreatment groups.

IASC Scale	No Child Maltreatment (*N*=173)	Child Maltreatment (*N*=104)
Difficulties with relationships	16.24 (6.09)	21.92 (8.36)***
Identity problems	16.04 (6.32)	21.54 (8.05)***
Affect dyscontrol	14.57 (5.60)	20.72 (8.13)***
Depression symptoms	12.32 (9.00)	21.78 (12.81)***
Alcohol problems[a]	6.54 (5.27)	9.16 (7.37)**
Resilience index	2.24 (1.10)	1.75 (1.19)**

[a]Note. The sample size for alcohol problems was lower due to only those with past year alcohol use completing the alcohol problems measure: No Child Maltreatment (*N* = 134) and Child Maltreatment (*N* = 89). Means differ from each other at **$p < .01$; ***$p < .001$.

Bivariate Analyses

Descriptive statistics and inter-correlations for child maltreatment, altered self-capacities, alcohol problems, depressive symptoms and the resilience index are presented in Table 2. The negative association between gender and alcohol problems reflects greater alcohol problems among men (M = 9.87, SD = 7.25) compared to women (M = 6.86, SD = 5.79), t(208) = 3.11 p = .01. Severity of child maltreatment was positively and significantly associated with all three altered self-capacities: difficulties with relatedness, identity, and affect dyscontrol and with both depression symptoms and alcohol problems, whereas child maltreatment had a negative association with the two resilience scores. All three altered self-capacities were positively associated with alcohol problems and depression symptoms and negatively associated with the resilience measures. Finally, the resilience scores were negatively associated with depression symptoms, but there was not a significant relationship between resilience and alcohol problems.

Mediation Analysis

The first model tested the relationship between child maltreatment and depression symptoms via the three IASC constructs. Due to significant correlations between gender and both child maltreatment and alcohol problems, we included gender as a covariate in all models. There was a significant direct effect of child maltreatment on depression symptoms (B = 0.155, SE = 0.042, 95% CI [0.073, 0.238], p < .001). In addition, as listed in Table 3, severity of child maltreatment was associated with all three altered self-capacities (mediators), but only identity problems and affect dyscontrol were associated with depression symptoms. In addition, the total indirect effect of altered self-capacities on the relationship between child maltreatment and depression symptoms was significant (B = 0.236, SE = 0.041, 95% CI [0.162, 0.321]) and there were significant indirect effects of child maltreatment on depression symptoms through both identity problems and affect dyscontrol.

For the alcohol problems mediation model, the direct effect of child maltreatment on alcohol consequences was not significant (B = -0.035, SE = 0.031, 95% CI [-0.095, 0.025]) and only affect

Table 2. Bivariate correlations for key variables in the model ($N = 277$)[a]

	1	2	3	4	5	6	7	8
1. Gender								
2. Age	-.10							
3. CM Severity	-.15*	.05						
4. Relatedness	.07	-.08	.49***					
5. Identity	.07	-.04	.44***	.82***				
6. Affect control	.05	-.05	.51***	.88***	.80***			
7. Depression symptoms	.09	-.01	.47***	.61***	.61***	.65***		
8. Alcohol problems	-.20**	.01	.20**	.35***	.32***	.39***	.20**	
9. Resilience index	-.03	-.15*	-.29***	-.22**	-.22***	-.24**	-.29***	-.16*

[a]For correlations involving alcohol problems $N = 223$.
Note: CM = Child maltreatment.
*$p<.05$; **$p<.01$.; ***$p<.001$.

Table 3. Mediation models for depression symptoms and alcohol problems.

Mediator	CM Effect on Mediator	Mediator Effect on Outcome	Mediated Effect	Mediated Effect 95% Confidence Interval
	Depression Symptoms			
Relationship difficulties	0.263 (0.027)***	0.069 (0.156)	**0.018 (0.046)**	**-0.064 – 0.118**
Identity problems	0.238 (0.028)***	0.331 (0.123)**	**0.079 (0.031)**	**0.021 – 0.142**
Affect dyscontrol	0.266 (0.026)***	0.522 (0.156)**	**0.139 (0.049)**	**0.051 – 0.245**
	Alcohol Problems			
Relationship difficulties	0.276 (0.029)***	0.066 (0.118)	**0.018 (0.031)**	**-0.039 – 0.082**
Identity problems	0.250 (0.029)***	0.036 (0.095)	**0.009 (0.026)**	**-0.044 – 0.060**
Affect dyscontrol	0.277 (0.028)***	0.284 (0.115)*	**0.078 (0.037)**	**0.010 – 0.153**

Note. CM = Child Maltreatment; All models included gender as a control variable. Bolded mediated effects and confidence intervals are significant.

*$p<.05$; **$p<.01$; ***$p<.001$.

dyscontrol was uniquely associated with alcohol consequences. The total indirect effect of altered self-capacities on the relationship between child maltreatment and alcohol consequences was significant (B = 0.106, SE = 0.026, 95% CI [0.060, 0.160]) and there was a specific significant indirect effect of child maltreatment on alcohol consequences through affect dyscontrol (see Table 3).

Table 4. Results of the moderation analysis for depression symptoms and alcohol problems.

Variable	*B*	*SE*	95% CI
	Depression Symptoms		
Child maltreatment	0.335***	**0.046**	**.245 – .424**
Resilience	-1.465**	**0.538**	**-2.524 – -0.406**
Child maltreatment x resilience	-.047	**0.033**	**-.113 – 0.018**
	Alcohol Problems		
Child maltreatment	0.076***	**0.029**	**0.019 – 0.134**
Resilience	-0.745[b]	**0.370**	**-1.474 – -0.016**
Child maltreatment x resilience	0.058**	**0.021**	**0.016 – 0.099**

*$p < .05$; **$p < .01$; ***$p < .001$.

Moderation analysis

The second set of analyses tested whether resilience moderated the association between childhood maltreatment and both depression symptoms and alcohol problems. Results of the moderation analysis are presented in Table 4. For depression symptoms, the main effects of child maltreatment and resilience were significant, but there was no significant child maltreatment x resilience interaction. For alcohol problems, the main effect of child maltreatment was significant, there was a significant effect for resilience, and the child maltreatment x resilience interaction was significant. However, as illustrated in Figure 2,

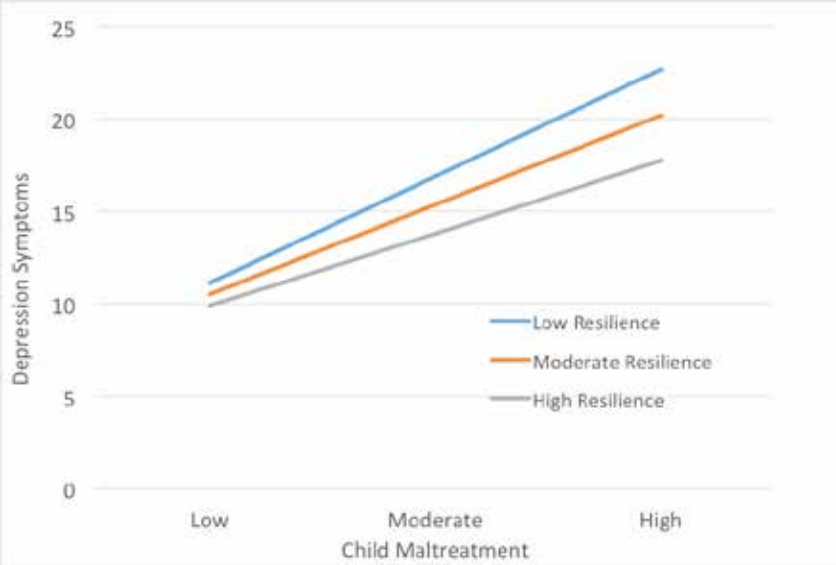

Figure 2. Hypothesized moderated mediation model with resilience moderating altered self-capacities (i.e., difficulties in relationships, identity disturbances and affect dysregulation) as mediators of the relationship between child maltreatment and depression symptoms and alcohol problems.

pattern of findings was somewhat different than expected. Although increasing resilience attenuated the effects of child maltreatment on alcohol problems, the buffering effect of resilience was less impactful at higher levels of child maltreatment.

Moderated Mediation Analysis

The final set of analyses tested a moderated mediation model in which resilience moderated the relationship between child maltreatment and the two outcomes (depression symptoms and alcohol problems) via altered self-capacities.

When depression symptoms were the outcome, we only included the two indirect effects that were significant in the mediation model: identity problems and affect dyscontrol. Regarding the moderated mediation effects, the index of moderated mediation, which reflects the slope of the line representing the association between the moderator and the indirect effect was significant for identity problems (B = 0.018, SE = 0.009, 95% CI [0.005, 0.040]), but not for affect dyscontrol (B = 0.017, SE = 0.014, 95% CI [-0.007, 0.047]). A further examination of the relationship indicated that there was a conditional indirect effect of child maltreatment on depression symptoms through identity difficulties at all levels of resilience, but the indirect effect increased in magnitude with increasing residence, with effects at low (-1 SD; B = 0.066, SE = 0.025, 95% CI [0.024, 0.122]), moderate (Mean; B = 0.086, SE = 0.028, 95% CI [0.033, 0.145], and high (+1 SD; B = 0.107, SE = 0.035, 95% CI [0.043, 0.180]) levels of resilience. The positive slope of the index of moderated mediation and the increasing magnitude of the indirect effects of difficulties with identity on the child maltreatment – depression symptoms relationship suggests that the association between child maltreatment, identity difficulties and depression symptoms increased as resilience increased. That is, greater child maltreatment was associated with increased identity problems and more

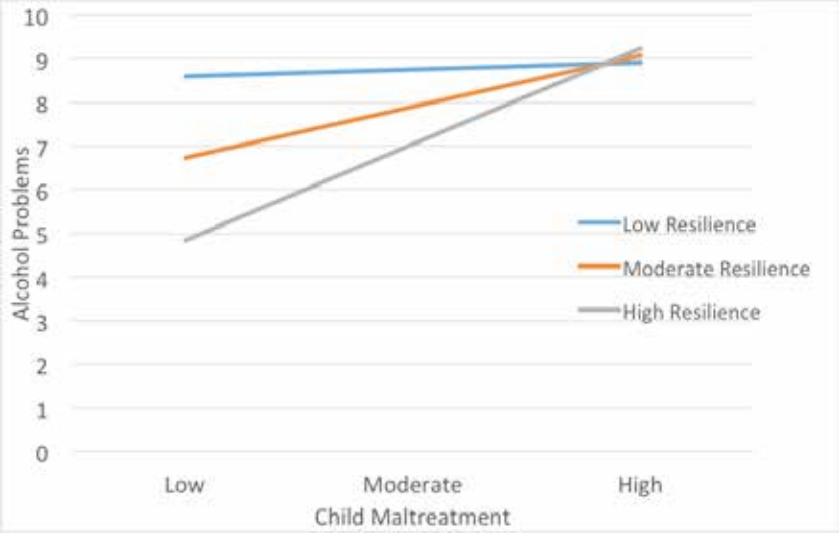

Figure 3.
Interaction of child maltreatment and resilience in predicting alcohol problems.

depression symptoms among those with low, moderate and high levels of resilience, but the size of the indirect effect was greater as resilience increased.

For alcohol problems, we tested moderated mediation for affect dyscontrol, which was the only significant indirect effect in the mediation model. The index of moderated mediation was not significant (B = 0.015, SE = 0.010, 95% CI [-.001, .037]), indicating that the indirect effect of affect dyscontrol on the child maltreatment-alcohol problems relationship was not conditional on resilience.

Discussion

The purpose of the current study was to explore the relationship between childhood maltreatment and depression symptoms and alcohol problems in emerging adulthood using Briere's framework of altered self-capacities (Briere, 2000; Briere & Runtz, 2007) and including resilience as a moderator of the relationship between child maltreatment and both depression symptoms and alcohol problems via altered self-capacities. We found support for our first hypothesis in that emerging adults who had experienced at least one type of moderate child maltreatment had significantly more difficulties with relationships, identity and affect control compared to those without maltreatment histories and experienced greater depression symptoms and alcohol problems. In addition, those with histories of child maltreatment had lower scores on a resilience index compared to those without maltreatment. These findings are consistent with Briere and Runtz (2002) and indicate that difficulties managing some of the critical tasks of emerging adulthood, including increased demands on relationship intimacy, explorations of self and identity and increased instability, may be particularly difficult for those with histories of child maltreatment and highlights the need to provide developmentally appropriate supportive services to emerging adults who have experienced child maltreatment.

Despite the increased difficulties that emerging adults with histories of child maltreatment face in the areas of relationships, identity and affect control, only identity problems and affect dyscontrol were significant mediators of the relationship between child maltreatment and depression symptoms and only affect dyscontrol was a significant mediator of the relationship between maltreatment alcohol problems. The evidence here suggests that emotion dysregulation is a critical factor for understanding the relationship between child maltreatment and both depression symptoms and alcohol problems in emerging adulthood. These findings are consistent with previous research highlighting emotion regulation difficulties as a critical factor in understanding alcohol problems (Dvorak et al., 2014) and depression (Kovacs, Joormann, & Gotlib, 2008) and current research regarding neurocognitive systems involving cognitive control and affective information processing, which are altered by child maltreatment and implicated in depression (Joormann & Quinn, 2014) and substance use disorders (for a review see Puetz & McCory, 2015). The current findings suggest that affect dyscontrol is a particularly important target for interventions aimed at preventing or reducing depression symptoms and alcohol problems among emerging adults with histories of child maltreatment. Findings regarding the mediating effects of identity difficulties on the child maltreatment – depression relationship are

consistent with previous research highlighting difficulties with self-organization as a precursor to the development of psychopathology (Briere, 1997; Cicchetti & Toth, 2005).

The current findings also suggest that the impact of child maltreatment should be considered in the context of other factors that may be protective, despite the risk context. Resilience emerged as a significant moderator of the relationship between child maltreatment and alcohol problems, but not depression. The lack of moderating effect for depression is consistent with previous research in which resilience did not moderate the impact of child abuse on depression (Wingo et al., 2010). In addition, in the present sample, the nature of the interaction for alcohol problems was somewhat unexpected. Although emerging adults with higher resilience scores had fewer alcohol problems at low and moderate levels of maltreatment, the buffering effects of resilience disappeared when maltreatment was high. These findings suggest that the effects of resilience are less compelling at higher or more severe levels of maltreatment. This is somewhat consistent with previous research in which resilience has been defined as an outcome and reflects positive adjustment or well-being in a range of areas (e.g., mental health, substance use, education, employment, etc.). In these studies, greater resilience (i.e., more positive outcomes) has been associated with less severe or fewer types of maltreatment (Hyman & Williams, 2001). Although resilience is protective for alcohol problems in the context of less severe maltreatment experiences, these effects may disappear when considering more severe or multiple types of maltreatment, as we did in our study.

It is not only the case that resilience influences outcomes, but that it can influence some of the primary mechanisms that underlie these outcomes. Indeed, previous researchers have found that resilience buffered the pathway from stress to anxiety/depression to alcohol dependence (Wang & Chen, 2015). However, in the current study, we found that only the indirect effect of identity on the child maltreatment – depression relationship was conditional on resilience. In addition, the nature of this moderation effect was not as expected: increasing resilience positively attenuated the child maltreatment – identity – depression relationship, indicating greater indirect effects of identity struggles on the child maltreatment – depression relationship among those with higher resilience. These findings contradict our initial hypothesis that the indirect effects of identity difficulties on the child maltreatment-depression symptoms relationship would be lower among those with greater resilience. However, the findings are somewhat consistent with recent research highlighting the complexity of the relationship between identity exploration and mental health in emerging adulthood, which is largely considered a time of identity confusion and instability (Kroger, Martinussen & Marcia, 2010) during which both adaptive and maladaptive identity processes are associated with internalizing symptoms (Ritchie et al., 2013). The finding that resilience positively attenuated the relationship between child maltreatment and identity difficulties and the pathway to depression symptoms may be due to the fact that the identity instability that marks this developmental stage is particularly distressing or confusing for those who have otherwise experienced greater adjustment via increased internal and external resilience factors. Thus, preparing these emerging adults for the identity instability that is typical during this time might help reduce potential negative emotional responses to these experiences and increase their use of internal and external resources for coping with identity challenges.

It should also be noted that we did not find moderated mediation effects for pathways from child maltreatment to emotion regulation and depression symptoms and alcohol problems. Although resilience has an overall moderating effect on the relationship between child maltreatment and both outcomes, the current findings suggest that this protective effect is not due to attenuation of affect control as a mediating mechanism. Other factors should be considered for understanding the ways in which resilience influences the mechanisms underlying the relationship between child maltreatment and mental health outcomes. Understanding how resilience operates on mechanisms associated with child maltreatment provides important information about specific intervention targets and who would most benefit from interventions. For example, mindfulness has been identified as an effective intervention for enhancing emotion regulation strategies (Farb, Anderson, Irving, & Segal, 2014) and has been conceptualized as a personality trait that might promote resilience among those with histories of trauma (Thompson, Arnkoff, & Glass, 2011). Individuals who are higher on resilience may be more able to engage with mindfulness interventions, resulting in the development of adaptive strategies to regulate emotions and, consequently, reductions in symptoms of depression and alcohol problems.

There are some limitations of the current study should be noted. First and foremost, the current study is cross-sectional. This is a significant limitation and longitudinal data is needed to validate directional hypotheses regarding moderated mediation. Although the temporal relationships between the variables in the current study make conceptual sense (i.e., child maltreatment reflects experiences prior to age 18, altered self-capacities are assessed on the basis of experiences in the past 6 months, depression and alcohol problems are typically conceptualized as outcomes associated with both child maltreatment and altered self-capacities) longitudinal data is needed to test these associations empirically, with child maltreatment assessed at the earliest timepoint and then mediators assessed at an earlier timepoint than outcomes. Second, although the sample was ethnically diverse in that almost 50% of participants identified as being from a minority group, the current study did not consider how diverse ethnic backgrounds contribute to experiences of maltreatment and impact outcomes during this critical developmental period. Third, the current study was limited to emerging adults recruited from the community. Previous research has documented that the process of emerging adulthood may look very different for individuals who are involved with systems of care, including child welfare, mental health, and justice systems (Munson et al., 2013). Finally, the small sample size may have limited our ability to detect significant effects. Although larger sample sizes are needed to replicate the current findings, it is also important to note that one of the advantages of bias-corrected bootstrapping is that these tests are much more powerful than traditional tests of mediation (Mackinnon, Fritz, Williams, & Lockwood, 2007).

Despite these limitations, this study provides evidence of the need for a more nuanced understanding of the ways in which mechanisms linking child maltreatment to outcomes in emerging adulthood are conditional on other aspects of the individual's experience, including aspects that are critical throughout development. Our findings suggest that more targeted prevention programming is needed based on the mechanisms that connect child maltreatment to outcomes in emerging adulthood. For example, alcohol-related interventions

should target emotion regulation when there is a history of child maltreatment. In addition, efforts to enhance resilience among those with maltreatment histories should consider both personal attributes and external factors, which likely influence each other (Luthar & Cicchetti, 2000) and can mitigate outcomes associated with child maltreatment. From a prevention perspective, health promotion strategies for youth with childhood maltreatment histories should involve an explicit focus on skills to facilitate healthy strategies for affect control. In addition, education around the consequences of using alcohol to cope, relative to other, healthier coping strategies, should be emphasized.

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