Linking Childhood Emotional Abuse and Psychological Problems in Adulthood: A Replication and Extension Study

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Abstract

Childhood abuse is a common experience that can leave lasting effects on an individual's well-being. This study aims to replicate Christ et al.'s 2019 study exploring the independent effects of childhood abuse subtypes on depressive symptoms, interpersonal problems, and emotion dysregulation in a sample of female adults. In our replication, we recreated the statistical analysis from the original study, which ultimately revealed consistent findings. The main finding of this study was that when controlling for other types of abuse, childhood emotional abuse was the only subtype found to be significantly associated with depressive symptoms, interpersonal problems, and emotional dysregulation in adulthood. Extending upon this work we saw that individuals with depressive symptoms were more likely to experience social inhibition than that of the other interpersonal problem domains, while individuals who struggle with emotion dysregulation were more likely to be non-assertive. Emotion dysregulation was also revealed to mediate the effect depressive symptoms had on interpersonal problems. These findings indicate important pathways regarding the impact of childhood emotional abuse on psychological and emotional problems later in life, which have implications on future intervention and treatment research for childhood abuse survivors.

Introduction

Childhood Abuse

Childhood abuse is a common experience worldwide, with approximately one in four children experiencing child abuse or neglect in their lifetime (Brown et al., 2022). This abuse is defined as any act or series of acts by a parent or other caregiver that results in harm, potential for harm, or threat of harm to a child. Childhood abuse is commonly broken down into five sub-types including, physical abuse, emotional or psychological abuse, physical neglect, emotional or psychological neglect, and sexual abuse. Physical abuse refers to all forms of physical harm or violence, while emotional abuse refers to chronic beratement, dismissive and hostile behavior towards a child, or intentionally scaring a child. When a child does not receive the care and nurturing that they need they are considered to be physically neglected. Similarly, when a child's need for love, warmth, and security is ignored, and they continuously experience a lack of positive attention, they are considered to be emotionally or psychologically neglected. This form of neglect also includes cases where children witness violence between caregivers or parents. The last category, sexual abuse, refers to when an adult forces any form of sexual exploitation or contact upon a child (Ministerie van Algemene Zaken, 2016).

Exposure to childhood abuse has continuously been found to have potential lasting consequences on an individual, including poor physical health, emotional health, mental health, social problems, and even death. Per every 1000 children, 2.2 lose their life annually to childhood maltreatment, making homicide the second leading cause of death in children under the age of one (Brown et al., 2022). Childhood abuse has also long been considered a risk factor for the development of a range of psychopathologies later in life, including conduct disorder, antisocial personality disorder, anxiety, depression, and more (McCrory et al., 2012). With the

high prevalence of childhood abuse, exploring the underlying pathways involved in its pervasive effect on well-being is of utmost importance. Knowledge in these areas could provide key information for developing successful intervention and treatment techniques, in turn elevating the overall well-being and quality of life of childhood abuse survivors.

Depression

Depression is a common mental illness causing approximately 17.3 million adults and 1.9 million children in the United States significant distress or impairment in their ability to function (*Depression Statistics - Depression and Bipolar Support Alliance*, 2019). The DSM-5 outlines depression as feelings of sadness, low mood, and loss of interest in usual activities persisting for at least two weeks and marking a change from an individual's previous or normal level of functioning. Other common symptoms of depression, include a change in appetite; sleeping too much or not sleeping well; fatigue and low energy most days; feeling worthless, guilty, or hopeless; difficulty concentrating that may interfere with daily tasks; movements that are unusually slow or agitated; and thoughts of death or suicide (Schimelpfening, 2022).

Several factors have been found to play a role in the development of depression including biochemistry, genetics, some personality traits, and exposure to certain environments. Across the varying subtypes, childhood abuse has consistently been a main environmental factor associated with depression. A study looking at childhood abuse found physical and sexual abuse to be correlated with both depression and abusive parenting in adulthood. Significantly higher levels of depression were seen in women who experienced violent sexual abuse, and it was found to be a stronger predictor of current depressive symptoms than physical abuse (Hall et al. 1993). Researchers studying adult psychiatric outpatients found childhood physical abuse to have a stronger association with anxiety, while childhood sexual abuse was equally associated with both

depression and anxiety and childhood emotional abuse had a stronger association with the symptomatology and diagnosis of depression (Gibb et al. 2003).

While inconsistencies have been prevalent in the findings exploring each unique subtype's relationship to depression, childhood emotional abuse has consistently been found to predict symptoms of the disorder. A recent study found that neglect, antipathy, and emotional abuse all had a stronger association with adult depressive symptoms than that of physical abuse. Childhood emotional abuse, in particular, was found to have a strong correlation with mentalizing incapacity and depressive symptoms in comparison to other maltreatment subtypes (Lippard et al. 2020). Hopelessness, a common feeling related to depression, was also found to mediate the effect of childhood emotional abuse on depressive symptoms later in life (Courtney et al. 2008).

Across this past research, few studies have taken into account the intercorrelations between the childhood abuse subtypes when exploring their effects on depressive symptoms and other psychological or emotional difficulties. Co-occurrence of different maltreatment types is widespread and can result in a greater likelihood of developing mental health problems. In the current study, we seek to replicate and expand upon Christ et al.'s 2019 paper examining the independent impacts of childhood emotional abuse, physical abuse, and sexual abuse on depressive symptoms, emotion dysregulation, and interpersonal problems.

Interpersonal Problems

Interpersonal problems are difficulties that individuals experience in their relationships with others, such as conflict, social isolation, and difficulty forming and maintaining close relationships. These problems have consistently been associated with past experiences of trauma, but few studies have explicitly looked at the relationship between childhood abuse and

interpersonal problems. Though a 2014 study did find a significant association between emotional abuse, emotional neglect, and sexual abuse during childhood, and interpersonal distress in adulthood (Huh et al., 2014).

Researchers have also identified interpersonal problems as a vulnerability factor for depression (Joiner et al., 2009). Though other studies have found depressive symptoms to predict interpersonal problems or found them to be involved in the maintenance of depression (Joiner, 1999). Individuals with depression are more likely to have difficulties in their relationships, including poor communication, low social support, and negative social interactions (Marcus et al., 1992). Further research is necessary in this area to understand the effects of both childhood abuse and depression on interpersonal problems, and the various types of interpersonal problems.

Emotion Dysregulation

Emotion dysregulation refers to difficulties in managing and regulating emotions, such as difficulty identifying emotions, difficulty expressing emotions appropriately, and difficulty regulating emotional arousal. Emotion dysregulation is a common feature of depression and has been linked to both the onset and maintenance of depressive symptoms. Those with depression have been found to have greater difficulties with emotion regulation compared to individuals without depression (Bradley et al., 2011). Research has also shown that individuals who struggle with emotion dysregulation are more likely to face difficulties including a greater tendency to engage in maladaptive strategies for regulating emotions, such as avoidance, rumination, and suppression, which can exacerbate symptoms and lead to poorer outcomes in treatment (Aldao et al., 2010).

Goals

The current study seeks to replicate Christ et al.'s study examining the unique impacts of childhood emotional abuse, physical abuse, and sexual abuse on depressive symptoms, emotion dysregulation, and interpersonal problems, as well as expand upon this research. We aim to further examine the specific relationship between depressive symptoms, emotion dysregulation, and interpersonal problems. Additionally, we will explore the specific types of interpersonal problems and their relationships to bothe depressive symptoms, and emotion dysregulation. Finally, we hope to answer whether emotion dysregulation plays a role in the relationship between depression and interpersonal problems in adulthood. We hypothesize that our replication will echo the findings of past research, and that in our expansion, both depression and emotion dysregulation will be associated with all domains of interpersonal problems. Furthermore, we hypothesize that emotion dysregulation will mediate the relationship between depressive symptoms and interpersonal problems.

Materials and Methods

Design and procedures

Data collection for the original cross-sectional study took place from April to May of 2017, and was conducted at the VU University in Amsterdam, The Netherlands in collaboration with the research department of Arkin. The study received approval from the VU University ethics committee prior to data collection. Christ et al. recruited participants through advertisements on campus, on social media, and on online research participation platforms. After providing written informed consent, participants completed a set of self-report, forced-choice, questionnaires in the secured online survey platform, Net-Q. Completion of the questionnaires

took approximately 45 minutes and was supervised by a research assistant. 10 Euros or 50 minutes of course credit was provided to participants upon completion of the assessment.

Participants

In order to participate in the original study, individuals were required to be female, currently studying in the Netherlands, and proficient enough in Dutch to effectively administer the self-report questionnaires. 276 individuals with a mean age of 21.7 met the inclusion criteria and volunteered to participate. 91.7% of the participants were born in the Netherlands, 66.3% were single, 42% were living with their parents, 35.1% were living with roommates, and 50.4% were studying psychology.

Measures

Demographics. For the purpose of the original researchers study, participants' age, country of birth, parent's country of birth, relationship status, living situation, and field of study were all collected in the self-report assessment. Out of the total sample, 91.7% were born in the Netherlands, 4.3% were born in another European country, and 4% were born in a non-European country. 66.3% of the participants stated that they were single, while the other 33.7% reported currently being in a relationship of some sort.

Childhood abuse. The severities of childhood emotional abuse (CEA), childhood physical abuse (CPA), and childhood sexual abuse (CSA) were measured by the Childhood Trauma Questionnaire (CTQ-SF). The scales for CEA and CPA consist of five items, while the scale for CSA consists of only four items. Each item on these scales is rated on a 5-point, Likert-like scale, with options ranging from "Never true" to "Very often True". The total scores for each type of childhood abuse were calculated by summing up all items, with the CSA total score also multiplied by a factor of 5/4 to ensure it's comparability alongside other variables. The

Dutch CTQ-SF has been found to have good validity and reliability. The internal consistency of the CTQ-SF in this study was good for the CEA scale (α = .80), acceptable for the CPA scale (α = .76), and excellent for the CSA scale (α = .91).

Depressive symptoms. The Quick Inventory of Depressive Symptomatology (QIDS-SR-16) was used to measure depressive symptoms. Based on DSM-IV diagnostic criteria for clinical depression, this 16-item self-report questionnaire assesses the severity of depressive symptoms over the last 7 days, with total scores ranging from 0-27. The internal consistency of the QIDS-SR in this study was acceptable (α = .76).

Emotion dysregulation. The Difficulties in Emotional Regulation Scale (DERS) was used to measure emotion dysregulation. This 36-item self-report questionnaire measures difficulties with emotion regulation across various domains, including non-acceptance of emotional responses, impulse control difficulties, lack of emotional awareness, and lack of emotional clarity. The scale's total scores can range from 36-180. The internal consistency of the DERS in this study was high (α = .93).

Interpersonal problems. For the purpose of this study, interpersonal problems were evaluated using the Inventory of Interpersonal Problems (IIP-32), a self-report questionnaire that has been found to have both a good internal consistency and test-retest reliability. The 32-item scale is made up of 8 subscales, each associated with a different domain of interpersonal problems. The domains of interpersonal problems in the IIP-32 include, domineering/controlling (α = .68), socially-inhibited (α = .80), vindictive/self-centered (α=.78), cold/distant (α =.76), nonassertive (α = .77), overly accommodating (α = .71), self-sacrificing (α =.72), and intrusive/needy (α = .74). In this study, the IIP-32 showed acceptable to good internal consistency across all sub-scales.

Statistical analyses

Replication

To begin statistical analyses, we first imported the dataset of the original researcher into Rstudio (Christ et al.). Descriptive statistics, including mean, standard deviation, and range were calculated for all variables, and the results were reported in a table. Univariate linear regression analyses examined the relationships between the continuous variables, CEA, CPA, CSA, and outcome variables, depressive symptoms, emotional dysregulation, and interpersonal problems. Multivariate linear regression analyses were conducted to determine whether the three type(s) of childhood abuse were independently associated with the outcome variables. All linear regression assumptions were met, including linearity, homoscedasticity, normality of the residuals, and absence of multicollinearity. Normality assumptions were tested through visual analysis of residual plots, and multicollinearity was tested using the "vif" function in the *car* package. Scatter plots with color coded, fitted linear regression lines were plotted using *ggplot2* for the type(s) of childhood abuse found to be independently associated with any of the outcome variables.

Mediation analyses were performed to test the potential mediating effects of emotion dysregulation and interpersonal problems on the relationship between CEA and depressive symptoms. To measure the presence and magnitude of the mediation, the "mediate" function in the *mediation* package was utilized. The function calculated bias-corrected 95% bootstrap confidence intervals based on 5000 bootstrap samples to determine the indirect effects, total effect, and the proportion of the total effect explained by the mediator. Figures depicting the mediation model pathways were created using the *diagram* function. All of the following analyses used an alpha level of 0.05 and confidence intervals of 95%.

Extension

To begin statistical analyses, we first imported the dataset of the original researcher into Rstudio (Christ et al., 2019). To calculate descriptive statistics, depressive symptoms were grouped by severity according to the QIDS-SR scoring guidelines, resulting in a group with no depressive symptoms (0-5), a group with mild symptoms (6-10), a group with moderate symptoms (11-15), and a group with severe symptoms (16+). The mean scores for emotion dysregulation and interpersonal problems were calculated for each group, and applied to color coded histograms. Simple linear regression models examined the relationships between the independent variables, depressive symptoms and emotion dysregulation, and the eight interpersonal problem domains. The results of these models were reported in a table. All linear regression assumptions were met, including linearity, homoscedasticity, and normality of the residuals, which was tested through visual analysis of residual plots.

Mediation analyses were performed to test the potential mediating effects of emotion dysregulation on the relationship between depressive symptoms and interpersonal problems. To measure the presence and magnitude of the mediation, the "mediate" function in the *mediation* package was utilized. The function calculated bias-corrected 95% bootstrap confidence intervals based on 5000 bootstrap samples to determine the indirect effects, total effect, and the proportion of the total effect explained by the mediator. Figures depicting the mediation model pathways were created using the *diagram* function. All of the following analyses used an alpha level of 0.05 and confidence intervals of 95%.

Results

Replication

Descriptive statistics

The means, standard deviations, and ranges for the measures of childhood abuse, depressive symptoms, emotion dysregulation, and interpersonal problems are reported in Table 1.

Table 1. Descriptive statistics of the measures childhood abuse, depressive symptoms, emotion dysregulation, and interpersonal problems in female college students.

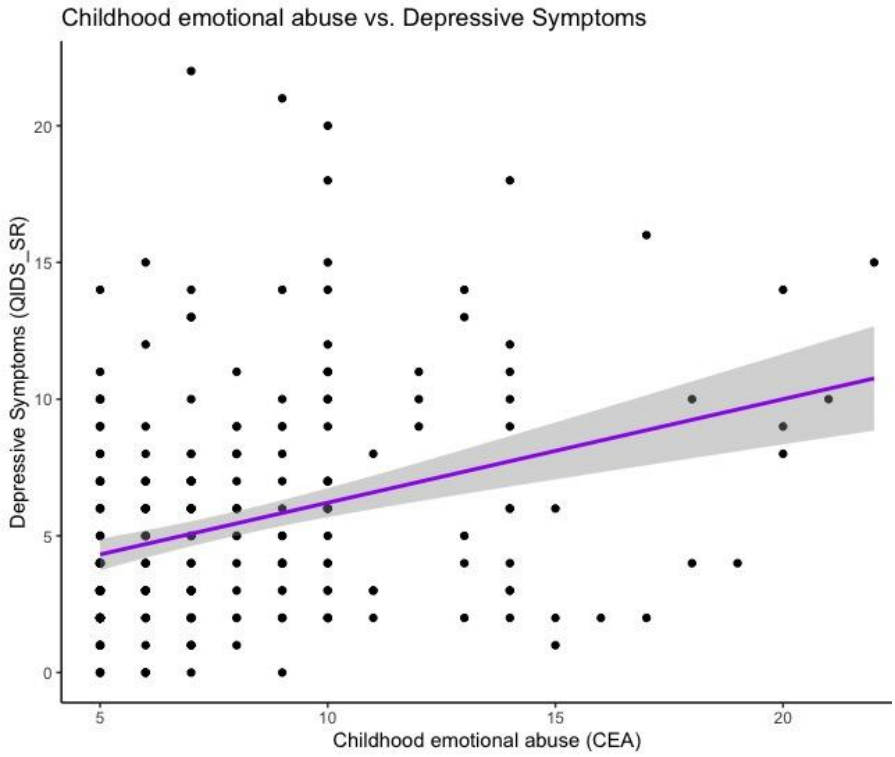
	Mean	Sd	Range
Childhood emotional abuse (CEA)	7.8	3.4	5-22
Childhood physical abuse (CPA)	5.7	1.8	5-18
Childhood sexual abuse (CSA)	5.7	2.6	5-21
Depressive symptoms	5.4	4.0	0-22
Emotion dysregulation	84.9	19.9	44-139
Interpersonal problems	34.6	13.9	3-78
Vindictiv/self-centered	2.4	2.5	0-15
Cold/distant	2.6	2.6	0-11
Socially inhibited	3.6	3.1	0-14
Nonassertive	5.5	3.3	0-16
Overly accommodating	6.6	3.4	0-16
Self-sacrificing	6.6	3.2	0-15
Intrusive/needy	4.3	3.1	0-15
Domineering/controlling	3	2.6	0-13

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

Univariate linear regression analyses

Univariate linear regression analyses examined the associations between the predictor variables, CEA, CPA, and CSA, and outcome variables, emotion dysregulation, depressive symptoms, and interpersonal problems. Childhood emotional abuse (CEA) was significantly associated with emotion dysregulation (b = 1.14, t = 3.33, p = .001, R^2 = .04), depressive symptoms (b = 0.38, t = 5.72, P-value < .001, R^2 = .11), and interpersonal problems (b = *1.13* t = 4.81, p < .001, R^2 = .08). Scatter plots with fitted regression lines for these associations are shown in Figures 1-3. Childhood physical abuse (CPA) was significantly associated with both depressive symptoms (b = 0.33, t = 2.45, p = .015, R^2 = .02) and interpersonal problems (b = 1.23, t = 2.66, p = .008, R^2 = .03), but not emotion dysregulation. Childhood sexual abuse (CSA) was not associated with any of the outcome variables.

Fig 1. Childhood emotional abuse vs. depressive symptoms.



Multivariate linear regression analyses

In multivariate linear regression models predicting outcome variables from CEA, CPA, and CSA, significant overall models were found for depressive symptoms ($F(3,272) = 11.34$, $p < .001$, $R^2 = 0.1014$), emotion dysregulation ($F(3,272) = 3.955$, $p = .009$, $R^2 = .04$), and interpersonal problems ($F(3,272) = 7.726$, $p < .001$, $R^2 = 0.07852$). Childhood emotional abuse was the only form of abuse independently associated with depressive symptoms ($b = 0.42$, $t = 5.23$, $p < .001$), emotion dysregulation ($b = 1.33$, $t = 3.22$, $p = .001$), and interpersonal problems ($b = 1.09$, $t = 3.87$, $p < .001$). Multicollinearity was not present in these models, as all variance inflation factors (VIFs) were less than 1.5.

Fig 2. Childhood emotional abuse vs. emotion dysregulation.

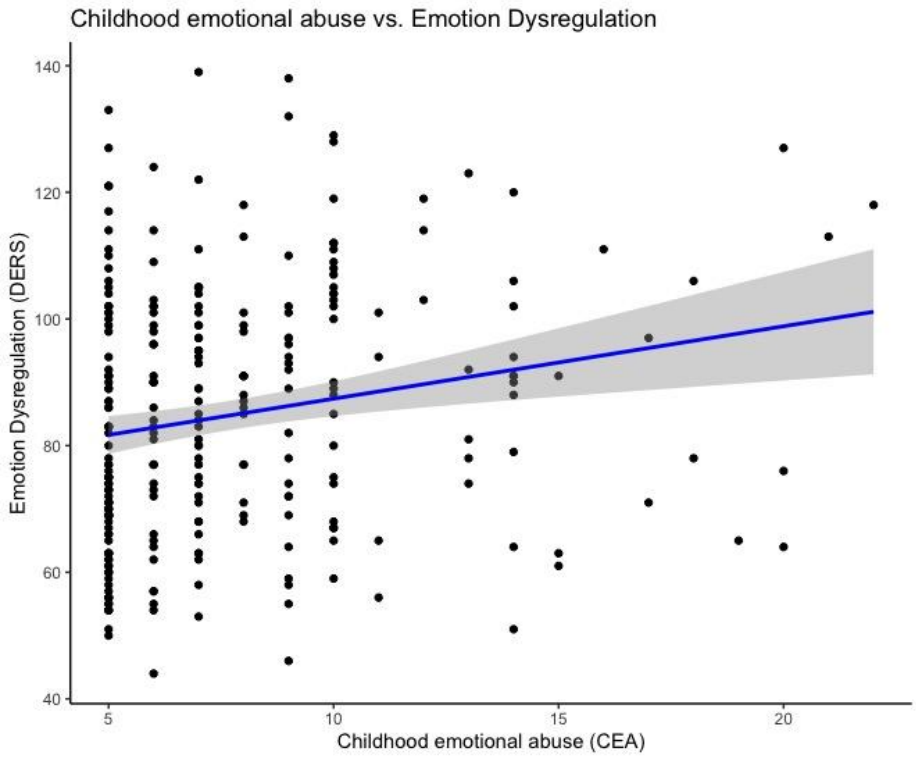
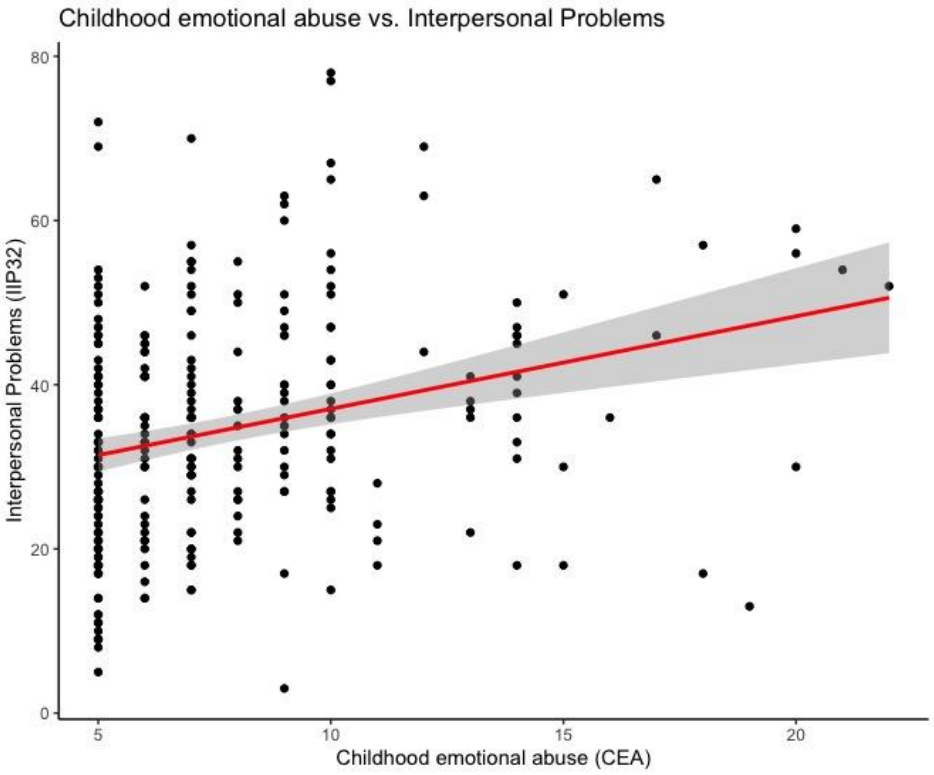


Fig 3. Childhood emotional abuse vs. interpersonal problems.



Mediation analyses

In a simple mediation model emotion dysregulation significantly mediated CEA's effect on depressive symptoms (*Figure 4*). This model found that 34% of the total effect ($b = 0.38$) was explained by the indirect effect ($b = 0.13$). Interpersonal problems were also found to significantly mediate the effect of CEA on depressive symptoms (*Figure 5*), as the indirect effect ($b = 0.12$) explained 31% of the total effect ($b = 0.38$).

Fig 4. Model of CEA as predictor of depressive symptoms, mediated by emotion dysregulation.

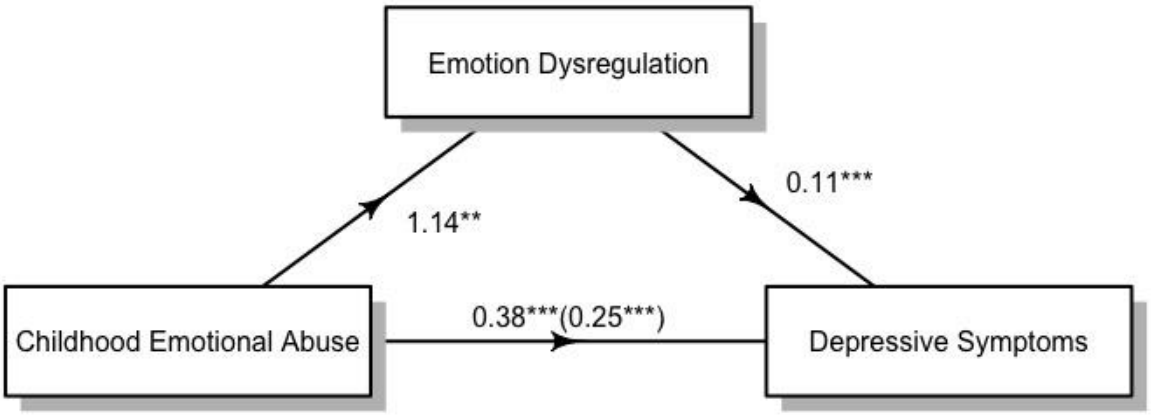
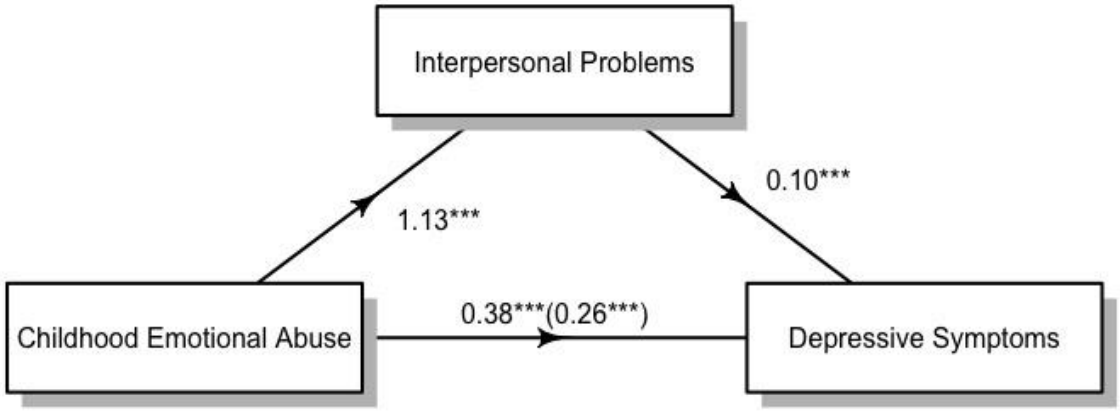


Fig 5. Model of CEA as predictor of depressive symptoms, mediated by interpersonal problems.



*Note: p-value = 0 *** 0.001 ** 0.01 * 0.05.*

Extension

Descriptive Statistics

After grouping the data by depressive symptom severity according to the QIDS-SR scoring guidelines, the mean severity levels for emotion dysregulation (*Figure 6*) and interpersonal problems (*Figure 7)* were calculated for each group. Participants with no depressive symptoms (score 0-5) reported a mean score of 76.9 in emotion dysregulation, and of 30.2 in interpersonal problems. Those with mild depressive symptoms (score 6-10) reported a

mean of 92.3 in emotion dysregulation, and 39.4 in interpersonal problems. An average score of 107 in emotion dysregulation, and 42.7 in interpersonal problems was reported by participants with moderate depressive symptoms (11-15). Individuals with severe depressive symptoms (16+) reported the highest average scores in both emotion dysregulation (122), and interpersonal problems (59.3).

Fig 6. Depressive symptom severity vs. average emotion dysregulation score.

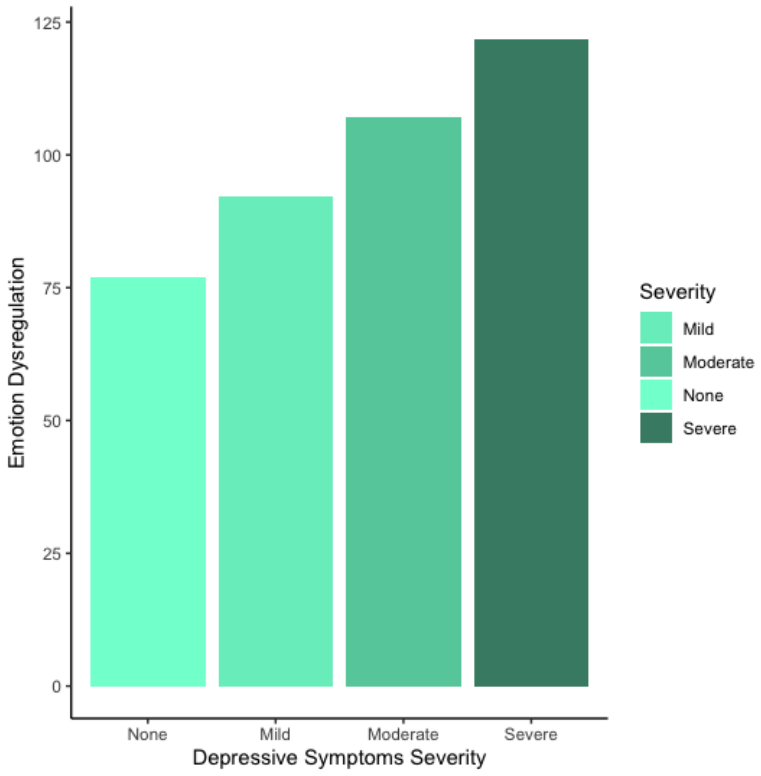
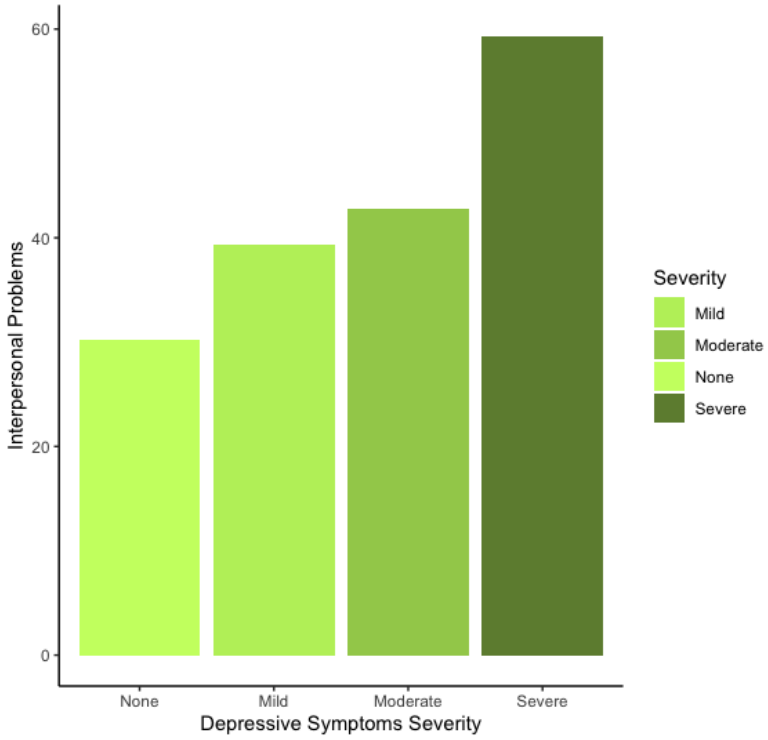


Fig 7. Depressive symptom severity vs. average interpersonal problems score.



Simple Linear Regression Models

Depressive symptoms were found to significantly predict all eight domains of interpersonal problems, except intrusive/needy (*Table 2*). Depressive symptoms predicted the largest increase in social inhibition, with a *B-coefficient* of 0.26 (t = 5.76, $p < .001$, $R^2 = .108$). Emotion dysregulation was also found to significantly predict all eight eight domains of interpersonal problems, except intrusive/needy (*Table 3*).

Table 2. Depressive Symptoms predicting interpersonal problem domains.

Simple Linear Regression Models

Depressive symptoms predicting interpersonal problem domains

	B	SE	t.value	R.squared	p.value
Vindictive/self-centered	0.11	0.37	2.79	0.028	0.0056**
Cold/distant	0.2	0.04	5.36	0.095	<0.001***
Socially inhibited	0.26	0.05	5.76	0.108	<0.001***
Nonassertive	0.24	0.05	4.97	0.083	<0.001***
Overly accomodating	0.25	0.05	5.01	0.084	<0.001***
Self-sacrificing	0.22	0.46	4.82	0.078	<0.001***
Intrusive/needy	0.06	0.05	1.34	0.007	0.1826
Domineering/controlling	0.16	0.04	4.18	0.060	<0.001***

Significance Key: 0 *** 0.001 ** 0.01 * 0.05.

Table 3. Emotion Dysregulation predicting interpersonal problem domains.

Simple Linear Regression Models

Emotion dysregulation predicting interpersonal problem domains

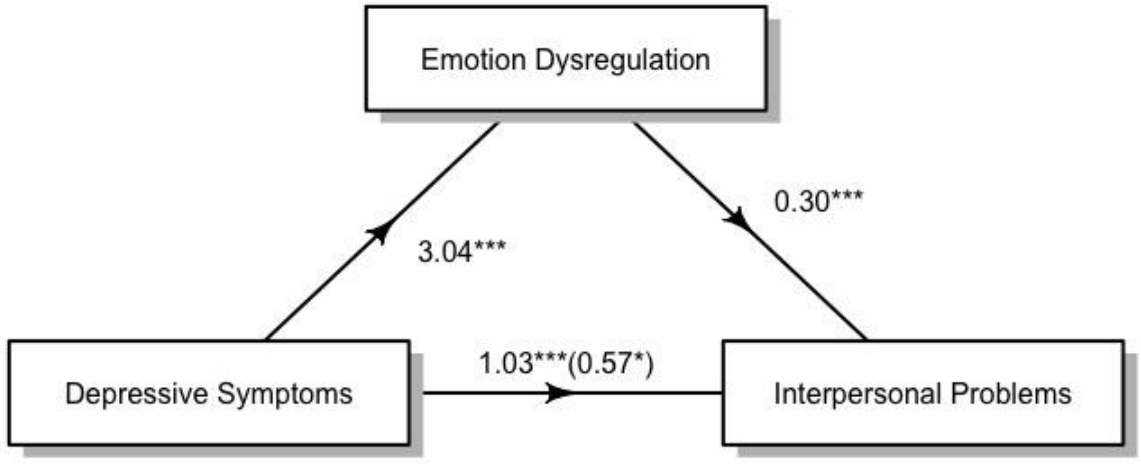
	B	SE	t.value	R.squared	p.value
Vindictive/self-centered	0.03	0.007	4.10	0.058	<0.001***
Cold/distant	0.05	0.007	7.23	0.160	<0.001***
Socially inhibited	0.07	0.009	8.55	0.211	<0.001***
Nonassertive	0.08	0.009	8.35	0.083	<0.001***
Overly accomodating	0.06	0.010	6.76	0.143	<0.001***
Self-sacrificing	0.04	0.009	4.58	0.071	<0.001***
Intrusive/needy	0.01	0.009	1.14	0.005	0.257
Domineering/controlling	0.03	0.008	3.34	0.039	<0.001***

Significance Key: 0 *** 0.001 ** 0.01 * 0.05.

Mediation Model

In a causal mediation model, emotion dysregulation significantly mediated the relationship between depressive symptoms and interpersonal problems (*Figure 8)*. The indirect effect (b = 0.452) explained 44% of the total effect (b = 1.025).

Fig 8. Model of depressive symptoms as predictor of interpersonal problems, mediated by emotion dysregulation.



*Note: p-value = 0 *** 0.001 ** 0.01 * 0.05.*

Discussion

The replication analysis results were consistent with the findings of the original study (Christ et al., 2019). Our findings revealed childhood emotional abuse to be the only abuse subtype independently predictive of depressive symptoms, emotion dysregulation, and interpersonal problems. This suggests that associations found between other types of abuse and these variables in the past may have been a result of the coexistence of childhood abuse types. Emotion dysregulation and interpersonal problems both mediated the relationship between childhood emotional abuse and depressive symptoms.

Our extension revealed that depressive symptoms predict all domains of interpersonal problems, except intrusive and needy. Depression had the strongest association with social

inhibition, which was consistent with past research (Simon et al., 2015). Emotion dysregulation also predicted all domains of interpersonal problems, except intrusive and needy. The significant relationship between that of emotion dysregulation and interpersonal problems was consistent with past research, yet few studies have explored this relationship in regards to specific domains (Solbakken et al., 2021). Our findings suggest that those who have difficulties regulating their emotions are most likely to be non-assertive in their interpersonal relationships.

The findings from both our replication and extension indicate a potential pathway from childhood emotional abuse to interpersonal problems in adulthood. Childhood emotional abuse may increase the likelihood of developing depressive symptoms in adulthood. These depressive symptoms may lead to issues with emotion regulation and in turn, interpersonal problems in adulthood. We conclude that childhood emotional abuse is an important risk factor in developing psychological, and interpersonal difficulties later in life for females. This pathway identifies potential areas for future research into intervention and treatment methods aimed at reducing the potential long term effects of childhood emotional abuse and adult depression.

The all female sample proved to be a limitation, as the results are not able to be applicable across genders. The sample was also made up of only college students, with a small, new to adulthood, age range. This could have skewed the results as young adults may have been exposed to childhood abuse more recently than that of older adults, which could lead to the presentation of higher psychological or emotional difficulties. With the majority of participants under the age of 25, the lack of full development of participants' brains could have also led to higher rates of psychological or emotional problems. In regards to measures, looking at a clinically depressed sample might be useful to see if these results hold true in a diagnostic context.

Future research in this area should examine new and wider populations with a higher age range to explore whether the effects of childhood emotional abuse and depressive symptoms have lasting effects into later adulthood.

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