Unpacking the effects of child maltreatment subtypes on emotional competence in emerging adults

Abstract

Objective: Child maltreatment is often studied as a general category or individually as a subtype, but maltreatment subtypes are rarely studied simultaneously. Despite a breadth of research in the effects of child maltreatment on emotional competence, discrepant findings emerge when child maltreatment subtypes are explored. The present study aims to better understand the differential effects of childhood maltreatment subtypes on facets of emotion regulation and the recognition of specific emotions. ***Method:*** A sample of 573 emerging adults (87% female) aged 18-25 were recruited to complete an online survey that asked about child maltreatment history, difficulty with emotion regulation, and involved an emotion recognition task. ***Results:*** Path analyses indicated that emotional maltreatment had a global effect on the facets of emotion regulation and the recognition of negatively valanced emotions (anger, fear, and sadness). Neglect predicted difficulties with managing impulsive behaviour; sexual abuse predicted difficulties engaging in goal-directed behaviour. Physical abuse was associated with poorer recognition of fear. Multigroup analysis suggested that patterns did not differ between clinically distressed and non-distressed participants. ***Conclusions***: These results highlight the importance of including a standard set of child maltreatment subtypes in prediction models of emotional competence to avoid the misattribution or overestimation of the effects of child maltreatment subtype on emotional competence.

Keywords: child maltreatment, emotion regulation, emotion recognition, emotional competence, emerging adults

Clinical impact statement: This study contributes to an emerging body of research highlighting the importance of controlling for maltreatment subtypes and emphasizing the global impact of emotional maltreatment on emotional competence. Clinical interventions may want to focus on specific emotion regulation and recognition difficulties depending on child maltreatment history.

Introduction

Child maltreatment (CM) is a broad category that encompasses the spectrum of abuse and neglect that was experienced before the age of 18 (WHO, 2020) and negatively impacts emotional competence (EC) with effects persisting into adulthood (Cloitre et al., 2019; Hein & Monk, 2017). Child maltreatment is frequently studied as a general category or as individual CM subtypes (neglect, physical, emotional, and sexual abuse, exposure to domestic violence). Nonetheless, CM subtypes frequently co-occur (Herrenkohl & Herrenkohl, 2009) and can also simultaneously occur in a single CM event. Further, CM subtypes are individually associated with mental health outcomes, however, when accounting for CM subtypes simultaneously, emotional maltreatment (EM) tends to emerge as the primary predictor of mental health outcomes (Cecil et al., 2017; de Oliveira et al., 2018). These findings emphasize the significance of shared variance among CM subtypes and highlight the importance of accounting for their overlap so that effects are not overestimated or misattributed to single CM subtypes. Given that EC is established as a transdiagnostic mechanism between CM and psychopathology (McLaughlin et al., 2020) and evidence supporting heterogeneity in responses to CM, this study aims to disentangle differential from common associations between CM subtypes and EC among emerging adults.

Emerging adulthood is a unique developmental period characterized by a time of identity explorations, instability, and self-focus (Arnett, 2007). It is a time of gradual transition towards adulthood where CM has been associated with the emergence of psychopathology, risky behaviour, and revictimization (Faulkner et al., 2014; Hagan et al., 2014). Even though the increase of negative emotion regulation (ER) strategies is associated with greater prevalence of psychopathology (O'Rourke et al., 2020), the relationship between CM and EC within emerging adults has garnered far less attention relative to children and adolescents (e.g., Gruhn & Compas,

2020). Thus, this developmental period offers a window during which the impact of CM on EC may be particularly pronounced and a focus on this developmental window serves to provide insight towards effective intervention during this critical period.

Emotional competence includes the ability to perceive and interpret emotional information and subsequently regulate the resulting emotional response (Saarni, 2000). Specifically, CM negatively impacts ER (e.g., Boyd et al., 2020) and impairs the recognition of facial emotional expressions (for a review, see Bérubé et al., 2021). Emotion regulation is a multifaceted construct comprising of multiple abilities including an awareness of emotions, understanding and accepting emotions, managing impulsivity, navigating goal-directed behaviour, and applying ER strategies when distressed (Gratz & Roemer, 2004). While some studies find that CM subtypes were generally related to all the facets of ER (Burns et al., 2010; Şenkal Ertürk et al., 2020), others identified differential effects, albeit with inconsistent results. For example, sexual abuse predicted difficulty with impulsivity in some studies (e.g., Oshri et al., 2015) but not in others (Barahmand et al., 2016; Burns et al., 2010). Physical abuse correlated with a lack of emotional awareness and difficulty with impulsivity in one study (Kuo et al., 2015) while another did not find any associations for physical abuse or emotional neglect in adolescents (Barahmand et al., 2016). In contrast, EM has consistently demonstrated a greater impact on ER and all of its facets (Kuo et al., 2015; Şenkal Ertürk et al., 2020), even after controlling for other CM subtypes (Burns et al., 2010; Christ et al., 2019).

Emotion recognition (ERC) impairments are understood to be a by-product of growing up in an environment oversaturated with negative emotions (Pollak et al., 2000, 2009). Social experiences shape children's socio-emotional development through exposure to a diversity of facial expressions. Consequently, children growing up exposed to spates of anger and physical abuse were quicker to detect angry facial expressions with less perceptual information (Pollak et

al., 2000, 2009). Similarly, neglected children had more difficulty discriminating between emotional expressions (Pollak et al., 2000). These studies support the notion that children's ERC abilities are highly influenced by their environments. Generally, CM impairs ERC and has been associated with less accuracy in identifying fearful, angry, sad, or negative facial expressions (Bérubé et al., 2020; Catalana et al., 2020). Despite these well-established associations, discrepancies arise when examining the specific effects of CM subtype on ERC (Pfaltz et al., 2019; Turgeon et al., 2020). As such, CM subtypes may differentially impair the recognition of specific emotions. For instance, Turgeon and colleagues found that physical abuse was associated with decreased accuracy for fearful and sad facial expressions, sexual abuse and EM were associated with decreased accuracy for angry expressions, physical neglect was associated with decreased accuracy for happy expressions, and emotional neglect was associated with increased accuracy for angry expressions. CM was also uniquely related to impairments in facial ERC independent of severe mental disorder (Catalana et al., 2020; Pfaltz et al., 2019). However, a recent systematic review noted that participants readily recognized fear and anger (Bérubé et al., 2021) except when CM co-occurred with a mental disorder (Kirkham & Levita, 2020).

Although robust relationships between CM and EC have been established, the effects of CM subtypes are more tenuous leading to mixed findings. Additionally, the number of included CM subtypes vary, contributing to further inconsistencies. For instance, neglect and exposure to domestic violence were often excluded (McSherry, 2007). Failure to account for the co-occurrence of CM subtypes may lead to inaccurate findings and predictions of EC. The current study extends previous research to provide clarity regarding the differential effects of CM on EC by controlling for all subtypes in the path analyses. In so doing, the unique association between each CM subtype and EC dimensions are parsed apart. This study also addresses gaps wherein previous literature has tended to focus on broad constructs. Conversely, specific emotions, ER

facets and their unique associations with CM subtypes are examined here. Thus, this study aimed to examine whether CM subtypes predict different patterns of impairment in (1) ER facets and (2) recognition of specific emotions in a sample of emerging adults. Consistent with previous literature (e.g., Christ et al., 2019; Kuo et al., 2015), we hypothesized that EM would have stronger relationships with ER facets, relative to other CM subtypes. Child maltreatment is expected to primarily impair the recognition of fear and anger, but no hypotheses about specific subtypes were made due to the largely inconsistent findings in the literature. Lastly, considering the robust relationship between psychopathology and ER, psychological distress was considered in secondary multigroup analyses in an effort to ascertain whether psychological distress influences the relationships between CM subtypes and EC.

Method

Participants

This study was part of a larger survey which involved the recruitment of emerging adults and their mothers. The current sample consisted of 573 emerging adults 18 to 25 years old (M = 20.99; SD = 2.11). Participants were recruited primarily through social media posts and advertisements, online research platforms (e.g., Honeybee, Research Stream), and departmental and faculty list-servs across Canada. Refer to Table 1 for a summary of sample characteristics.

Procedure

This study was approved by the primary researcher's university's institutional review board. Participants were first directed to the consent form. Upon confirmation of consent, participants were invited to complete the survey. The full survey took approximately 45 minutes to complete and was available in French and English. Each participant was entered into a drawing to win one of two iPads, and those participating with their mothers received an additional $5 gift card. Several measures were taken to ensure the quality of responses.

Participants were removed from the dataset if they: (a) completed less than 75% of the survey (n = 36); (b) completed the survey in 15 minutes or less (half of modal time) (n = 17); (c) failed at least four of seven attention check questions (n = 67); and (d) indicated that their responses should not be used in our analyses in a self-report item (n = 38).

Measures

Childhood maltreatment history. Three measures were used to assess CM history. The Early Trauma Inventory Self Report – Short Form (ETISR-SF; Bremner et al., 2007) was used to assess childhood experiences of physical abuse (five items), sexual abuse (six items), and emotional maltreatment (five items). The internal consistency in the current study (α = .73 - .85) was consistent with values reported by Bremner and colleagues (2007; α = .70 - .87). The neglect subscale (five items) of the ISPCAN Child Abuse Screening Tool – Retrospective Version (ICAST-R; Zolotor et al., 2009) was used to assess childhood experiences of physical/supervisory neglect. The internal consistency was lower (α = 0.66), but acceptable (Vaske et al., 2017), compared with the initial validation study (α = .83; Zolotor et al., 2009). To assess exposure to domestic violence, three items describing physical violence were adapted from the Conflict Tactics Scale 2 (CTS2; Straus et al., 1996). The internal consistency was good (α = .77), but lower than the physical assault subscale reported by Straus and colleagues' (1996; α = .86). Sample CM items: "Were you ever punched or kicked?" and "Were you often told you were no good?". For each measure, participants were asked whether they have experienced specific abusive or neglectful acts by answering "yes" or "no". The total number of "yes" responses were summed to create a score for each maltreatment subtype.

Emotion regulation. The Difficulties in Emotion Regulation Scale – Brief Version (DERS-18; Victor & Klonsky, 2016) was used to assess the facets of ER using a Likert scale (1 = almost never to 5 = almost always). Higher scores reflect greater difficulty with ER. This 18-

item self-report measure is comprised of six subscales (three items each) representing six facets of difficulties with ER: nonacceptance of emotional responses (α = .44), difficulties engaging in goal-directed behaviour (Goals; α = .91), difficulties with impulsivity (Impulse; α = .89), lack of emotional awareness (α = .37), limited access to ER strategies (Strategies; α = .82), and lack of emotional clarity (Clarity; α = .84). Sample items include, "I have no idea how I am feeling" and "When I'm upset, I have difficulty getting work done". Mean scores from each subscale were used; the awareness and nonacceptance scales were excluded due to low internal consistency.

Emotion recognition. The Emotion Recognition Index (ERI; Scherer & Scherer, 2011) was used to assess ERC for specific emotions (joy, sadness, anger, fear, disgust). The ERI is a computer-based rapid test of ERC abilities and consists of two subtests (vocal and facial); this study only used the test of facial ERC due to the online nature of the survey. Participants were instructed to identify the emotion label that best described the facial expression displayed (30 items; 3 seconds each). The overall mean accuracy score and individual scores in the current study (M = .49 - .96; SD = .14 - .22) were similar to the mean accuracy scores reported in the initial validation study (M =.54 - .98; SD = .08 - .19; Scherer & Scherer, 2011) with the exception of disgust which was lower in our study. Participants who indicated the presence of technical difficulties during the task were excluded from analysis (n = 140). Data points less than 3 standard deviations from the mean were removed (n = 5) resulting in a total sample of n = 428 for analyses involving ERC.

Psychological distress. The Psychiatric Symptoms Index-Short version (PSI-14; Boyer et al., 1993) was used to assess symptoms of anxiety, depression, cognitive problems, and irritability in the past week (14 items; e.g., "Did you feel lonely?", "Did you feel nervous or shaky inside"). Participants rated the frequency of each item on a 4-point scale from 0 = never to 3 = almost always. PSI-14 scores were expressed as a percentage of the highest possible ranging

from 0 to 100. The internal consistency was good (α = .89) and consistent with the alpha coefficient reported by Boyer and colleagues (1993). A dichotomous clinical score was calculated. Participants scoring in the 80th percentile were categorized to be in clinically significant psychological distress (Boyer et al., 1993).

Covariates. Self-reported gender (0 = male, 1 = female) and ethnicity (0 = Caucasian, 1 = non-White) were dummy coded and included as covariates as differences in these groups have been reported in ERC studies (e.g., Scherer & Scherer, 2011). Additionally, because poverty has been found to impact ER (Lambert et al., 2017), the index of material deprivation (Statistics Canada, 2013) was included as a covariate. This measure consists of 17 items (α = .82) and asked participants if they could afford certain items (yes or no) that are considered to be desirable for minimal financial comfort (e.g., "Can you afford to have access to the internet at home?", "Can you afford to have friends or family over for a meal at least once a month?"). A summed score of material deprivation was calculated.

Data Analysis

Descriptive and correlational analyses were conducted using SPSS Version 23.0. Path analysis and multigroup analysis were conducted in R (R Core Team, 2021). The relationships between five subtypes of CM and four ER facets were examined, controlling for material deprivation. The association between CM subtypes and ERC was examined controlling for gender and ethnicity. The robust maximum-likelihood (MLR) estimator was employed to account for non-normality within the data (Byrne, 2011) and Full-Information Maximum Likelihood (FIML) was used to treat missing data. Subsequently, a multigroup analysis was used to determine whether differences between distressed and non-distressed individuals were present. Multigroup analysis involved the stepwise comparison of an unconstrained baseline model with constrained regression coefficients, intercepts, and residual covariances. Comparison of the

models were made using chi-square difference tests (Caron, 2018). Invariance between groups indicate that the pattern of relationships between CM subtypes and ER and ERC are similar between distressed and non-distressed participants.

Results

Refer to Table 2 for the means, standard deviations, and correlation coefficients between key study variables.

A path model of the five CM subtypes predicting four facets of ER was estimated. Results indicated that neglect, sexual abuse, and EM, but not physical abuse or exposure to domestic violence, were associated with ER facets. Specifically, EM was associated with Clarity ($\beta = 0.30$, $SE = 0.09$, $p < .001$), Goals ($\beta = 0.29$, $SE = 0.10$, $p = .005$), Impulse ($\beta = 0.24$, $SE = 0.09$, $p = .01$), and Strategies ($\beta = 0.48$, $SE = 0.10$, $p < .001$). Sexual abuse was associated with Goals ($\beta = 0.26$, $SE = 0.10$, $p = .008$). Lastly, neglect was associated with Impulse ($\beta = 0.46$, $SE = 0.16$, $p = .004$). Results showed that material deprivation was associated with Clarity and Impulse only. See Figure 1 for R-square values (range = .05 to .14).

Multigroup analysis was used to test for equivalence of the ER model between distressed and non-distressed participants. In step 1, the chi-square difference test suggested that the regression coefficients were equivalent across the two groups ($\Delta\chi^2$ (24, N =573) = 16.96, $p = .85$). In step 2, constraining the intercepts resulted in a statistically significant difference, $\Delta\chi^2$ (28, $N = 573$) = 61.04, $p < .001$. Relative to the non-distressed group, the psychologically distressed group had greater difficulty with ER at baseline. In step 3 the chi-square difference test indicated invariance ($\Delta\chi^2$ (34, $N = 573$) = 8.95, $p = .18$).

A path model of the five CM subtypes predicting the accuracy in recognizing the five emotions was estimated. Results indicated significant associations with physical abuse and EM, but not sexual abuse, neglect, or exposure to domestic violence. Specifically, EM was associated

with greater accuracy in the recognition of fear (β = 0.01, *SE* = 0.01, *p* = .03) and anger (β = 0.01, *SE* = 0.01, *p* = .04), but poorer recognition of sadness (β = -0.01, *SE* = 0.01, *p* = .04). Physical abuse was associated with poorer recognition of fear (β = -0.01, *SE* = 0.01, *p* = .04). See Figure 2 for R-square values for the outcome variables (range = .04 to .05).

The same procedure for multigroup analysis as above was applied to test for equivalence between distress groups for the ERC model. At step 1, the results suggested that the regression coefficients were equivalent across groups ($\Delta\chi^2$ (35, *N* = 421) = 38.85, *p* = 0.30). Next, no significant difference between the constrained model and the baseline model for the intercepts was found, $\Delta\chi^2$ (40, *N* = 421) = 3.42, *p* = .64. Finally, constraining the residual covariances resulted in a significant chi-square difference test compared with the previous model in step 2, $\Delta\chi^2$ (50, *N* = 421) = 22.92, *p* = .01, indicating that the relationship among the five emotions is different between the two groups. Examination of the covariance between the five emotions indicated that while the emotions did not significantly covary with one another in the non-distressed group, a few significant relationships emerged between the recognition of different emotions within the psychologically distressed group.

Discussion

The aim of this study was to parse apart the effects of CM on EC in emerging adults. The results in the current study supported past findings where CM subtypes were significantly correlated with each ER facet, and controlling for CM subtypes resulted in EM as a primary predictor for ER (Cecil et al., 2017). Emotional maltreatment was a robust predictor of all ER facets and three emotions: improved recognition of fear and anger, and impaired recognition of sadness. Emotional maltreatment rarely occurred alone (6.1%) and co-occurred with at least one other form of CM in 49.2% of the present sample. Accordingly, EM appears to permeate all forms of CM and has significant detrimental effects (Vachon et al., 2015). Akin to EC as a

transdiagnostic mechanism, EM is likely a core feature of CM underlying difficulties with EC due to global disruptions across multiple facets of ER and ERC of multiple emotions. This study suggests that EM has a more global impact while sexual abuse and neglect have a more specific impact on difficulties with ER.

Two past studies identified that exposure to hostile environments lead to an increased sensitivity to negative facial expressions (Pollak & Sinha, 2002) acting as a protective mechanism to alert the child of potential abuse (Pollak et al., 2005), however, these studies were specific to physical abuse. Our study indicated that EM, rather than physical abuse, was associated with improved recognition of fear and anger. Considering the odds ratio of physical abuse co-occurring with EM was 17.7 in Dong et al. (2004), the current findings suggest that past research may have misattributed the effects of EM to physical abuse. In fact, physical abuse, when controlling for the impact of other CM subtypes including EM, was associated with poorer, not enhanced, recognition of fear. We hypothesize that EM likely precedes physical abuse thereby providing the child with time to learn to recognize expressions of anger and fear. This makes physical abuse much more predictable, however, when EM is absent, physical abuse becomes unpredictable. Physical abuse has been associated with attentional avoidance of threatening faces (Pine et al., 2005) and a reduction of amygdala subregions (Nogovitsyn et al., 2020). This damage to the amygdala has been related to impaired fear recognition due to attentional avoidance of the eyes (Adolphs et al., 2005). As fear was mostly identified through the eyes (Smith et al., 2005), physical abuse's effect on the amygdala likely impairs individuals' ability to accurately recognize fear. Concordantly, we surmise that the child learned to avoid eye contact so that they can be invisible to escape being targets of physical abuse.

Extant literature supports the associations between sexual abuse and difficulties engaging in goal-directed behaviour and neglect and difficulties with impulsivity (Liu, 2019; Oshri et al.,

2015). The items associated with difficulties with goal-directed behaviour reveal attention problems when distressed (e.g., "When I am upset, I have difficulty focusing on other things") which are common in childhood sexual abuse (Mii et al., 2020) and are characteristic of neurocognitive deficits, ADHD and PTSD (Biedermann et al., 2018; Langevin et al., 2021). Taken together, the impact of childhood sexual abuse impairs sustained attention, especially in moments of distress, making it difficult to engage in goal-directed behaviour. While difficulties with impulsivity has previously been associated with sexual abuse (Oshri et al., 2015), it was associated with neglect in the current study. A potential explanation of this discrepancy is that neglect was not included in Oshri and colleagues' model and consequently, difficulties with impulsivity may have been misattributed to sexual abuse. In fact, excluding neglect in the analysis for the current sample resulted in a significant relationship between sexual abuse and difficulties with impulsivity. Also, a meta-analysis indicated that impulsivity was more strongly associated with neglect than sexual abuse (Liu, 2019). Neglect disrupted brain development due to deprivation of basic needs and is consequently associated with cognitive impairment and behavioural problems in childhood (Spratt et al., 2012). Based on these findings, we speculate that childhood deprivation leads to structural changes in the brain reducing an individual's ability to regulate impulses (Miller et al., 2011). Despite recognition of the devastating consequences of neglect (Avdibegoviü & Brkiü, 2020), the "neglect of neglect" (McSherry, 2007) persists and our findings further support the inclusion of neglect in CM models.

Lastly, multigroup findings for ERC are worth discussing briefly. While the structural model did not differ between distressed and non-distressed groups, the residual covariances did. Emotion recognition accuracy following CM was more likely to co-vary in the distressed group than the non-distressed group indicating that if distressed participants were accurate in the recognition of one emotion, they were more likely to be accurate in recognizing other emotions

and vice-versa. Our results supports research indicating that CM impacts ERC independent of psychopathology (Catalana et al., 2020; Pfaltz et al., 2019), but also extends these findings by indicating the presence of a potential interaction between CM and psychological distress as the presence of psychological distress resulted in a generalized pattern of ERC impairments that appears absent in non-clinically distressed emerging adults.

Our findings are bound by the limitations in this study. First, the cross-sectional design of the survey means that causality cannot be inferred. The use of self-report measures may be unreliable, however, they are more likely to capture incidents of CM than substantiated cases alone (Finkelhor et al., 2001). Nevertheless, there is one behavioural measure included in this study (ERI). The narrow age range of emerging adults precludes an assessment of the impacts of CM throughout the lifespan, however, the narrower period between childhood and emerging adulthood may limit recall bias of CM. Further, we did not assess the developmental period in which CM was experienced, which has been found to affect the outcomes of maltreated individuals (Dunn et al., 2018). Moreover, we did not assess for the severity of CM or separate emotional abuse and emotional neglect which may have differential effects on EC (Turgeon et al., 2020). As such, future studies should separate emotional abuse and neglect and assess for severity by using a well-established measure such as the Childhood Trauma Questionnaire (CTQ; Scher et al., 2001). Additional methodological limitations include the lower internal consistency of the neglect subscale and the exclusion of the Nonaccept and Aware subscales from the DERS-18. Neglect results should be interpreted in light of this. Despite a large sample size, this was a convenience sample with a majority of participants being Caucasian females. This limitation is important to discuss since women were better at interpersonal EC (e.g., identifying other's emotions), but gender differences were counterbalanced at the intrapersonal level (e.g., regulating own emotions; Brasseur et al., 2013). As such, the generalizability of the

results may be limited. Future research would benefit from a more gender-balanced sample and thoughtful consideration of measures of EC representative of gender differences.

Despite these limitations, the current findings have practical implications. Since impairments in EC persist in psychologically distressed and non-distressed participants, rather than developing broad treatment plans focusing on psychopathology, clinical interventions may focus on the specific difficulties with ER. Moreover, bearing in mind the global impact of EM and the specific impact of sexual abuse, physical abuse, and neglect on EC, clinical interventions that address specific difficulties with ER, depending on the client's CM history, may be beneficial. For example, emotional schema therapy was found to improve acceptance of emotional responses, engagement in goal-directed behavior, impulse control, and strategies of ER but not emotional clarity or awareness (Daneshmandi et al., 2019). Emotion recognition training has also demonstrated a shift from a negativity to a positivity bias after four sessions with feedback in emerging adults with depression (Penton-Voak et al., 2012).

Conclusion

Together, our study contributes to an emerging body of work highlighting the importance of controlling for CM subtypes and emphasizing the global impact of EM on EC and the enduring effects of CM into early adulthood (Young & Widom, 2014). While CM is generally associated with ER and ERC, our study demonstrated a need to parse apart commonalities and differences between CM subtypes and specific components of EC. Our study is also one of the first to take a fine-grained approach to examine the nuanced relationships between CM, the recognition of specific emotions, and ER facets. Our results reiterate the call for researchers to work towards a consensus on the definition of CM (Wolfe & McIsaac, 2011) Without agreement on the definition of CM, consistent accounting for CM subtypes remains elusive.

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Table 1

Sample Characteristics

	n	%
Gender		
Female	499	87.1%
Male	65	11.3%
Nonbinary	8	1.4%
Country of Birth		
Canada	417	72.8%
Outside of Canada	146	25.5%
Ethnicity		
Caucasian	343	59.9%
Black	26	4.5%
Asian	117	20.4%
Hispanic	21	3.7%
Indigenous/Native American	7	1.2%
Arab/Middle Eastern	23	4.0%
Mixed race	26	4.5%
Education		
High school or less	169	29.5%
Post-secondary or higher	398	69.5%
Occupation Status		
Employed	169	29.5%
Unemployed	38	6.6%
Students	357	62.3%
Other	7	1.2%
Co-occurrence of Maltreatment		
None	106	18.5%
1 subtype	121	21.1%
2 subtypes	102	17.8%
3 subtypes	93	16.2%
4 subtypes	89	15.5%
5 subtypes	62	10.8%
Frequency of Maltreatment Subtype*		
Neglect	245	42.8%
Physical abuse	290	50.6%
Sexual abuse	188	32.8%
Emotional maltreatment	317	55.4%
Exposure to DV	230	40.1%

*Endorsement of at least 1 item

Table 2

Means, Standard Deviations, and Correlations among Study Variables

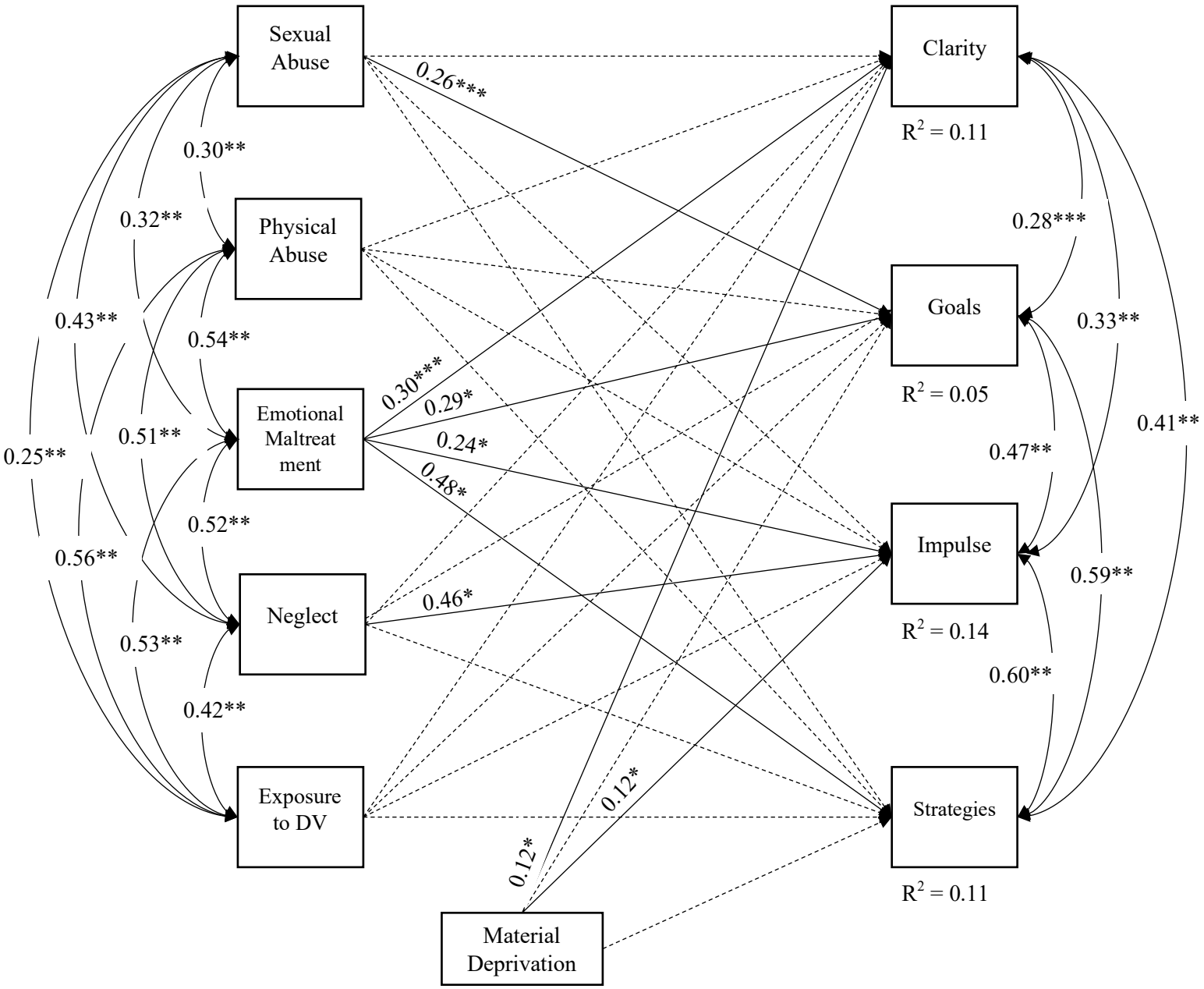
		Mean	*SD*	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1	**Gender**[a]	-	-	-																
2	**Ethnicity**[b]	-	-	.00	-															
3	**Material Deprivation**	1.91	2.61	-.18**	.07	-														
4	**Neglect**	.76	1.12	-.26**	.00	.33**	-													
5	**Physical Abuse**	1.11	1.39	-.19**	.19**	.26**	.52**	-												
6	**Emotional Maltreatment**	1.64	1.83	-.06	.06	.31**	.51**	.54**	-											
7	**Sexual Abuse**	.90	1.59	-.08	-.08	.27**	.38**	.27**	.31**	-										
8	**Exposure to Domestic Violence**	.75	1.05	-.12**	.06	.28**	.46**	.59**	.51**	.21**	-									
9	**Psychological Distress**	38.24	19.07	.00	-.02	.27**	.30**	.28**	.38**	.22**	.26**	-								
10	**Clarity**	7.22	3.02	-.02	.00	.21**	.24**	.17**	.28**	.20**	.17**	.49**	-							
11	**Goals**	9.61	3.45	.05	-.08	.07	.13**	.11*	.18**	.17**	.06	.47**	.31**	-						
12	**Impulse**	6.03	3.15	-.08*	-.05	.22**	.31**	.26**	.29**	.21**	.18**	.55**	.35**	.47**	-					
13	**Strategies**	7.01	3.32	.00	-.06	.14**	.23**	.18**	.32**	.14**	.18**	.60**	.43**	.58**	.61**	-				
14	**Joy**	.96	0.14	.18**	-.02	-.05	-.14**	-.09	-.11*	-.13**	-.06	-.14**	-.15**	-.04	-.14**	-.12*	-			
15	**Anger**	.49	0.17	.07	-.03	-.06	-.10*	-.12*	.00	-.06	-.07	-.07	-.15**	.06	-.05	.02	.18**	-		
16	**Fear**	.68	0.14	-.01	-.07	-.05	-.04	-.07	.05	-.02	.03	-.07	-.04	-.05	-.09	-.02	.24**	.13**	-	
17	**Sadness**	.76	0.18	.00	-.12*	.08	-.07	.00	-.10*	-.02	.01	.03	-.03	.00	-.05	-.03	.28**	.05	.12*	-
18	**Disgust**	.69	0.22	-.06	-.05	-.07	-.13**	-.11*	-.09	-.08	-.04	-.12*	-.16**	-.07	-.13**	-.13**	.20**	.07	.42**	.12*

[a]Gender dummy coded as 0 = male; 1 = female; [b]Ethnicity dummy coded as 0 = Caucasian; 1 = non-white. Clarity = lack of emotional clarity; Goals = difficulties engaging in goal-directed behaviour; Impulse = impulse control difficulties; Strategies = limited access to emotion regulation strategies.

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

Figure 1

Path Coefficients from the Model Predicting Emotion Regulation

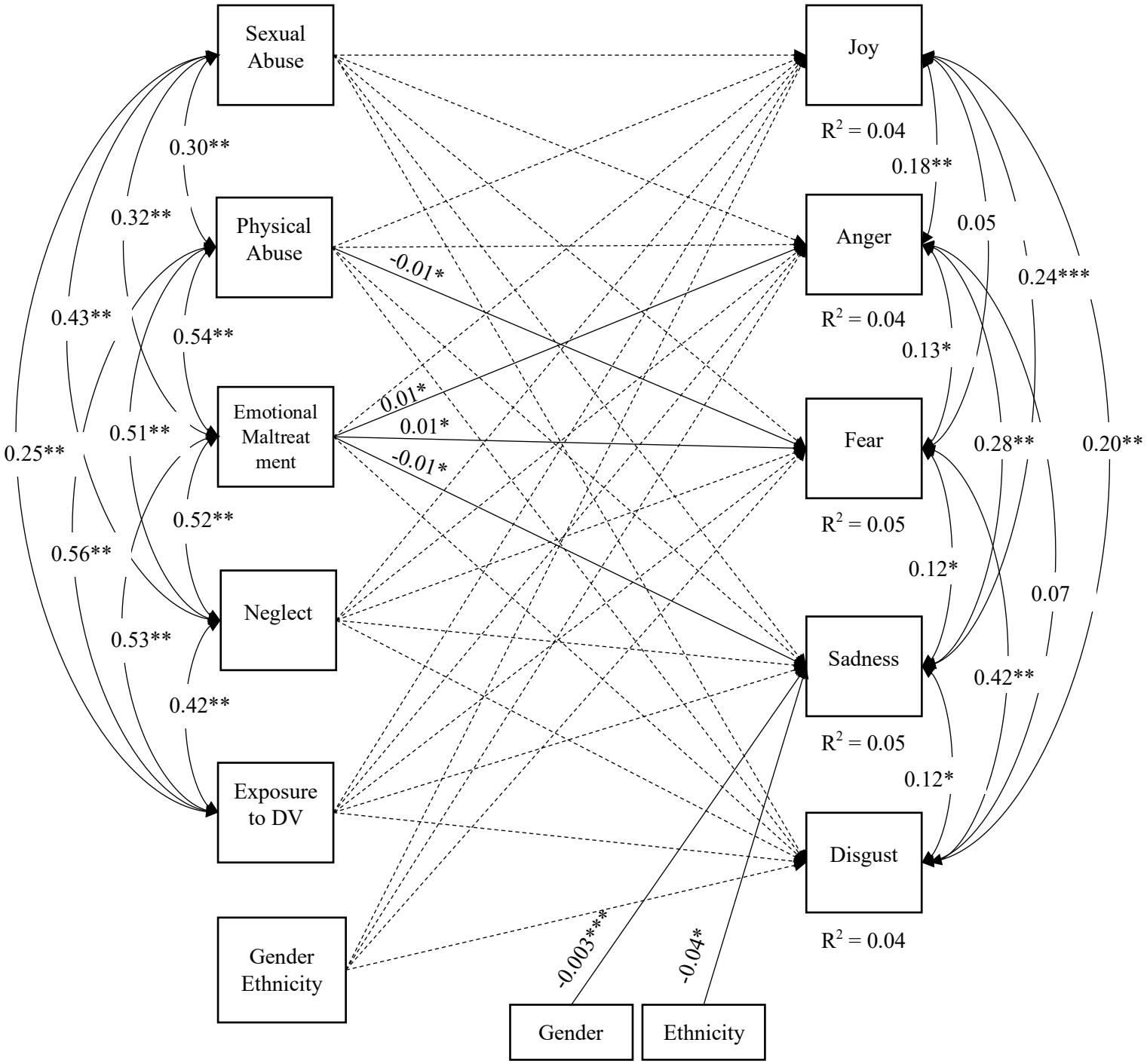


Notes. Only significant standardized path coefficients are reported in this figure.

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

Figure 2

Path Coefficients from Model Predicting Emotion Recognition



Notes. Only significant standardized path coefficients are reported in this figure.

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