The Role of Emotion Regulation as a Mediator between Childhood Emotional Abuse and Neglect and State Dissociation Severity

Amélie Frieh

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Department of Psychology
University of Groningen
Examiner/Daily supervisor:
Dr. Judith Daniels

Abstract

This study examined whether emotion regulation difficulties mediate the relationship between childhood emotional abuse and neglect and state dissociation severity elicited by interpersonal eye gazing, in a non-clinical sample. Participants completed the Childhood Trauma Questionnaire (CTQ-28), Difficulties in Emotion Regulation Scale (DERS), and Response to Script-Driven Imagery (RSDI) before and after an interpersonal eye gazing task designed to induce state dissociation in participants. Results showed that emotional abuse, but not neglect, significantly predicted greater emotion regulation difficulties. In turn, emotion dysregulation predicted increased state dissociation severity, supporting an indirect pathway. However, no direct relationship was found between CTQ scores and RSDI change scores. Although the average increase in dissociation was modest (M = 9.22), the range (-6 to 22) indicated substantial individual variability. Findings highlight the role of emotion regulation in dissociative reactivity in that emotion regulation may be a key mechanism linking early emotional abuse to acute dissociative experiences. They also suggest that state dissociation is influenced by both trauma history and individual situational sensitivity.

Keywords: emotional abuse, neglect, emotion regulation, state dissociation severity, CTQ, RSDI, DERS

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Childhood emotional abuse and neglect

Childhood maltreatment is often defined as physical, sexual, or emotional abuse as well as neglect perpetrated by a caregiver, parent, or other adult (Kumari, 2020). Among the various forms of maltreatment, emotional abuse and neglect receive the least societal and research attention, even though they may be the most prevalent (Wright, Crawford & Castillo, 2009). This discrepancy may arise from the less visible impact of emotional abuse, as victims do not exhibit physical injuries or outward signs of harm.

While more noticeable aspects of emotional abuse include swearing, yelling, and humiliation, neglect, which is typically defined as the failure to meet a child's needs, is also challenging to identify. In fact, a scoping review by Simon, Raats and Erens (2024) (k = 25) affirmed that research on child neglect is rare and the challenge of defining this construct is potentially the reason for the gap in research. Estimating the prevalence of neglect remains challenging as defining the construct because of its broad interpretation and since it is underreported by professionals (Stoltenborgh et al., 2013), although the scoping review by Simon, Raats and Erens (2024) found that childhood neglect was often shown as the most prevalent form of abuse, representing about 74% of cases, highlighting its prevalence in child abuse types. Stoltenborgh et al. (2013) performed a review on 29 studies that showed that the combined prevalence of physical neglect in 13 of those studies was 16.3% (k = 13, N = 59,406; 95 % CI 12.1–21.5; $p < 0.01$), and the combined self reported prevalence for emotional neglect was 18.4% (k = 16, N = 59,655; 95 % CI 13.0–25.4; $p < 0.01$). When it came to the prevalence of emotional abuse, Stoltenborgh et al. (2012) combined data from 46 studies, with over 7,000,000 participants, and found that the combined estimated prevalence of emotional abuse in the set of studies was 26.7% ($k = 46$, N = 7,082,279; 95% CI [14.4%, 44.2%], $p < .05$).

In the self reported studies, the estimated prevalence of emotional abuse was 36.3% ($k = 42$, $N = 76{,}586$; 95% CI [28.1%, 45.4%], $p < .01$). In the informant-report studies, the estimated prevalence of childhood emotional abuse was only 0.3% ($k = 4$; $N = 7{,}005{,}693$; 95% CI [0.2%, 0.7%], $p < .01$). This discrepancy suggests that emotional abuse seems to be more likely to be underreported in official records. Child maltreatment has been associated with a wide range of psychological and behavioural problems. Outcomes of childhood maltreatment, and specifically emotional abuse and neglect have been found to affect individuals at a high rate, according to a meta analysis by Norman et al. (2012) (k = 124). Compared to non-abused individuals, emotionally abused and neglected individuals were found to have a higher risk of developing depression (emotional abuse [OR=3.06; 95% CI 2.43–3.85], and neglect [OR=2.11; 95% CI 1.61–2.77]), problematic drinking and drug use (emotional abuse [OR=1.41; 95% CI 1.11–1.79], and neglect [OR=1.36; 95% CI 1.21–1.54]), suicidal behaviour (emotional abuse [OR=3.37; 95% CI 2.44–4.67], and neglect [OR=1.95; 95% CI 1.13–3.37]), risky sexual behaviour (emotional abuse [OR=1.75; 95% CI 1.49–2.04], and neglect [OR=1.57; 95% CI 1.39–1.78]), chronic diseases, obesity and much more (Norman et al., 2012). Since childhood emotional abuse and neglect are very often linked to psychopathology, one mechanism by which these forms of abuse contribute to psychopathology could be through difficulties in emotion regulation (Wooten et al., 2022). Indeed, an important consequence of childhood emotional abuse and neglect that impacts abused children in adulthood is emotion dysregulation.

Emotion Regulation

Gruhn & Compass (2020) conducted a meta-analysis on 35 studies (n = 11,344) and found a significant link between childhood emotional abuse and neglect and decreased emotion regulation ($r = -.24$, $p < .001$). This suggests that childhood maltreatment is linked to a significant reduction in the ability to regulate emotions, and it refers to a general difficulty in

modulating and managing emotional responses (Gruhn & Compass, 2020). More broadly, childhood maltreatment has been associated with greater emotional suppression ($r = .24$, $p < .001$), avoidance ($r = .25$, $p < .001$), and heightened expressions of negative emotions in response to stress ($r = .25$, $p < .001$) (Gruhn & Compass, 2020).

The American Psychological Association defines emotion regulation as the capacity to modulate one or more emotions. Explicit emotion regulation involves consciously monitoring and employing strategies to reinterpret situations for better emotional management, while implicit regulation occurs automatically, adjusting emotional responses without requiring conscious awareness. Emotion regulation is often measured using tests, such as the Difficulties in Emotion Regulation Scale (DERS), which combines items testing whether an individual struggles on a set of subscales related to various aspects of emotion regulation. These subscales will measure negative secondary reactions to one's distress, reflecting tendencies to judge emotions harshly or react to them in a non-accepting manner, or assess perceived helplessness and the belief that no effective strategies exist to regulate emotions during distress.

Emotion regulation is a topic that lacks sufficient research concerning its direct role. Indeed, there are some unresolved questions regarding how different forms of emotion regulation interact with each other and how they relate to behavioural, experiential and physiological response tendencies (Gross, 1998). There also seems to be an overlap between emotion regulation and related topics such as mood regulation, coping, and affect regulation which complicates efforts to define emotion regulation precisely and to distinguish it from these related constructs (Gross, 1998). More recently, a meta analysis by Monachesi et al. (2023) (k = 19) suggested that emotion regulation research has largely been biased towards cognitive, reappraisal-based models, while emotion focused strategies like acceptance are only recently being systematically studied. This reinforces the point that Gross (1998) made

that conceptual clarity between emotion regulation and related topics remains a challenge. Monachesi et al. (2023) also showed preliminary neural evidence of common and distinct mechanisms across strategies, but there is still little understanding of how these strategies interact and modulate each other's effects.

Childhood emotional abuse and neglect are closely associated with emotion regulation difficulties due to multiple factors. Weissman et al. (2019) found that youth exposed to maltreatment reported significantly greater emotional reactivity ($\beta = .383$, $p < .001$) and greater use of maladaptive strategies such as rumination ($\beta = .301$, $p < .001$) and expressive suppression ($\beta = .194$, $p = .009$). These patterns likely arise because maltreated children may not develop adaptive regulation strategies. Indeed, caregivers may model maladaptive responses or punish emotional expression. Furthermore, younger maltreated children showed attention biases toward threat cues, a protective adaptation in adverse settings that later shifted to threat avoidance in older adolescents. These shifts may impede the development of automatic emotion regulation in safer environments. Critically, both emotional reactivity and rumination significantly mediated the link between maltreatment and increases in general psychopathology over time, with the indirect effect for severity confirmed via bootstrap CI [0.002, 0.037].

Dissociation and Emotion Regulation

The concept of dissociation itself is complex, with interpretations varying across studies. Dissociation was introduced at the end of the 19th century by Pierre Janet, who described it as a "discontinuous phenomenon" that was only observed in mentally ill patients (Spitzer et al., 2006). More recently, it was described in the DSM-IV as "disruption in the usually integrated function of consciousness, memory, identity, or perception of the environment", and in the ICD-10 as "partial or complete loss of the normal integration

between memories of the past, awareness of identity and immediate sensations, and control of bodily movements". Both classification systems seem to agree that it relates to consciousness and personal identity (Spitzer et al., 2006). Pierre Janet described dissociation as affecting only mentally ill patients, when, research has shown that dissociation is also possible innon-clinicall populations (Caputo et al., 2020; Hart et al., 2004; Leonard et al., 1999). In a meta analysis of 31,905 college students by Kate et al., (2020) (k= 98), researchers found that 17% of these students reported significant dissociative experiences. Actually, dissociative experiences vary on a continuum of severity, complexity and chronicity (Ross, 1996), where some dissociative experiences are often conceptualised as normal or non-pathological (Irwin, 1999). In fact, dissociation can be elicited in experimental conditions, for example, in a study by Danböck et al. (2023) dissociation was induced in healthy subjects using aversive audiovisual and painful electrical stimulation. In a study by Caputo et al. (2020) researchers found that mirror-gazing and eye-to-eye gazing also elicited dissociation in a healthy sample.

While some researchers view dissociation as an emotion regulation strategy, some also identify it as a consequence of impaired emotion regulation. Hébert, Langevin and Oussaïd (2018) came up with a model, called the "Sequential Mediation Model", which suggests that difficulties in regulating emotions typically precede dissociative symptoms. The model also discussed the impact of trauma on behaviour problems being sequentially mediated by emotion regulation and dissociation. Indeed, the source found that trauma first affects emotion regulation, emotion dysregulation leads to dissociation and dissociation, in turn, influences behaviour problems (internalised and externalised) in a sample of 309 sexually abused children aged 6 to 12 years old. The longitudinal study found strong empirical support for the sequential mediation model, the effect size was reflected in the variance explained for behaviour problems. In fact, 26% of the variance in internalised behaviour problems was explained by childhood trauma, emotion regulation and dissociation,

and 25% of the variance in externalised behaviour problems was explained by the same factors. Supporting this model, studies by Hébert, Langevin, and Oussaïd (2018), Nester et al. (2022), and Cavicchioli et al. (2021) found that emotional dysregulation was strongly associated with dissociation, ($\beta = 0.38$, $SE = 0.05$, $p < .001$ in Nester et al. (2022) and $r = .32$; $p < .05$ in Cavicchioli et al. (2021)), particularly among trauma-exposed individuals, including children and adolescents. The inability to manage emotions effectively creates conditions that foster dissociative experiences. As Hébert, Langevin, and Oussaïd (2018) noted, dissociation seems to be often the result of overwhelmed regulatory mechanisms. Although this study was labeled as longitudinal, emotion regulation and dissociation were assessed at the same time point (T1). Therefore, the observed association between both constructs is correlational and not predictive. Some studies have tested predictive models over time but the evidence that emotion regulation predicts dissociation is scarce (Cavicchioli et al. 2021). In fact, studies like Kim and Cicchetti (2012) and Wirtz et al. (2014), which are both longitudinal studies, found that emotion regulation predicted increased anxiety symptom severity and internalising symptoms, not directly assessing dissociation symptoms, but were able to make potential connections or indirect links to dissociation through their results.

When it comes to specific aspects of emotion regulation that impact dissociation, it is hypothesised that non-acceptance of emotions fosters self-critical attitudes that exacerbate emotional overwhelm, making it harder for individuals to manage distress (Hébert, Langevin, and Oussaïd, 2018). This emotional flooding could often lead to dissociation as an escape from intense feelings. Their study revealed a significant negative correlation between emotion regulation and dissociation ($r = -0.57$, $p < .001$). This suggests that poorer emotion regulation abilities are associated with more severe dissociative symptoms. The authors also used a path analysis and found that emotion regulation deficits were significantly predictive of dissociation ($\beta = -0.31$, $p < .001$), even after controlling for cumulative childhood trauma.

The authors also found that cumulative trauma indirectly affected internalising and externalising behaviour problems through both emotion regulation and dissociation. Specifically, the indirect path from cumulative trauma to poor emotion regulation to increased dissociation to internalising problems was statistically significant ($\beta = 0.29$, 95% CI [0.12, 0.54]). These results support the conceptualisation of dissociation as an outcome of failed emotion regulation, particularly in trauma-exposed children.

Dissociation in childhood emotional abuse and neglect

Childhood maltreatment was also found to be closely related to dissociation and dissociative. A large scale meta-analysis (n = 7352 individuals, k = 65) found that childhood maltreatment is significantly associated with dissociation (Vonderlin et al., 2018). The results of the study revealed higher dissociation in the victims of childhood abuse and neglect compared to the control group of non abused or neglected individuals when looking at the mean difference of their DES scores (MAbused = 23.5, MNeglect = 18.8, MControl = 13.8).

A study by Watson et al. (2006) examined the relationship between childhood trauma and dissociation in a sample of 139 individuals diagnosed with BPD. The study found that emotional abuse, physical abuse and emotional neglect were significantly correlated with dissociation scores (measured with the DES) ($r = 0.33$, $r = 0.19$, and $r = 0.17$ respectively, all $p < .05$), whereas sexual abuse and physical neglect were not. High dissociators (DES score > median of 21.0) reported significantly higher levels of emotional abuse (median score = 19) compared to low dissociators (median score = 15), with a significant difference ($p < .0005$). Similarly, emotional neglect scores were higher in high dissociators (median = 19) than low dissociators (median = 16), with a significant difference ($p = .02$). The findings highlight that emotional abuse has the strongest association with dissociation, suggesting that chronic emotional trauma may have a cumulative impact of dissociative tendencies, which supports the hypothesis that dissociation could be an outcome of early and sustained

emotional maltreatment. This study was interesting in that it challenged the traditional views that dissociation primarily results from extreme physical or sexual trauma, when chronic emotional abuse can be just as damaging in leading to dissociation. Furthermore, Boyer et al. (2022) presented a strong and detailed argument that dissociation levels increased in both frequency and severity with trauma exposure, particularly childhood trauma, in their narrative public health review. They also mentioned that the more trauma exposure in childhood, the greater the rates of chronic disease, suicide attempts, mental illness, substance misuse, disability and shortened life expectancy, citing other research but not producing new statistics.

In most of the studies about dissociation and dissociative experiences that were previously cited, the sources primarily measured trait dissociation. Trait dissociation, often measured using the Dissociative Experiences Scale (DES) or Multidimensional Inventory of dissociation (MID) is a stable psychological characteristic that persists over time and contexts. Individuals with high trait dissociation often experience amnesia, chronic depersonalisation, derealisation, and altered identity states (Simeon et al., 2008; Dalenberg et al., 2012; Kate et al., 2021). State dissociation, which are short-lived dissociative episodes that can, but do not necessarily, occur in response to specific triggers, stress or trauma and are temporary and context-dependent, are the type of dissociative experiences that will be the focus of this text (Krause - Utz et al. 2017). State dissociation is linked to trait dissociation in a complex interplay. There is an indication that individuals with higher levels of trait dissociation are more likely to experience state dissociation in response to stressors, especially in patients with trauma related disorders (Graumann et al., 2023). However, this link between trait and state dissociation was not found in the non-clinical control group which meant that patients with trauma related disorder reacted to stressful situations with state dissociation, while the non clinical sample did not ((Graumann et al., 2023). However, these

two types of dissociation do not always co-occur. Notably, state dissociation was more strongly associated with symptom severity, including PTSD, depression and stress, whereas trait dissociation showed no significant association (Salmon et al., 2023).

The focus on researching state dissociation as elicited by eye gazing is due to the finding that state dissociation can be elicited through emotionally intense interpersonal experiences, such as interpersonal eye gazing. In Caputo's 2020 study, the author found that 90% of participants reported some form of altered consciousness, including dissociative symptoms, after 10 minutes of uninterrupted interpersonal eye gazing. These symptoms included hallucinations (in 90% of participants), depersonalisation (75%), and time distortion (60%). The researchers highlighted that participants often project experiences onto their gazing partner, leading to feelings of seeing strange or unknown individuals, which is interesting when it comes to exploring the boundaries of self-other perception. Some of the research suggested that dissociative states elicited by eyegazing may dampen emotional responses, serving as a short-term coping mechanisms for negative affect. This suggested that eye gazing could provoke dissociative like experiences in a non-clinical sample. As discussed previously, dissociation seems to be closely associated with emotion regulation, or a response focused strategy to manage overwhelming arousal. According to Lanius et al. (2010), dissociation in individuals suffering from PTSD is linked to disrupted integration between the medial prefrontal cortex and the amygdala, resulting in emotion overmodulation. Furthermore, neuroimaging data showed that individuals with PTSD and dissociative symptoms exhibit reduced limbic activity and increased prefrontal inhibition, which is consistent with "emotional numbing" (Lanius et al., 2010). In interpersonal eye gazing, proximity with the other person and emotional salience are high, which can overwhelm regulatory strategies which could lead to state dissociation as a regulatory mechanism.

It is hypothesised that the increase in dissociation during eye gazing is related to childhood trauma because of how dissociation functions as a coping mechanism in response to overwhelming interpersonal experiences, and particularly those that involve trauma. Both emotional abuse and emotional neglect impair emotion regulation development, however, they do this through distinct pathways. Firstly, emotional abuse involves hostile intrusions and is associated with heightened emotional reactivity, shame and the use of suppression and rumination (Kim & Cicchetti, 2010). In their longitudinal study, emotional abuse was associated with greater emotion dysregulation ($\beta = .35$, $p < .001$) and externalizing/internalizing symptoms over time. However, emotional neglect, involves passive absence of emotional support, linked to blunted affect, poor emotional awareness and underdeveloped self-regulation. In a meta-analysis by Norman et al. (2012) (k = 124, n > 112,000), emotional neglect was significantly associated with depressive symptoms (OR = 2.32) and emotion dysregulation (OR = 2.11, 95% CI 1.61–2.77]). Thus, eye gazing may provoke more immediate dissociative responses in victims of emotional abuse because of heightened threat sensitivity, while it may produce more flattened responses in emotional neglect victims due to under-engagement of regulatory processes.

Based on the perspective of Gross (1998), dissociation seems to be a response focused strategy, where, in trauma-exposed individuals, especially those with emotion regulation deficits, emotional arousal during interpersonal tasks such as eye gazing may exceed their regulation capacity, leading to dissociation as a protective mechanism. For example, in Weissman et al. (2019), emotional reactivity and rumination predicted longitudinal increases in general psychopathology (rumination $\beta = .175$, $p = .004$; emotional reactivity $\beta = .128$, $p = .072$), a pattern consistent with dissociation functioning as a compound failure of emotion regulation. In addition, a meta-analysis by Aldao et al. (2010) (k = 114), found that maladaptive emotion regulation strategies (e.g., suppression, rumination) had stronger

associations with psychopathology (mean effect size $r = .34$) than underuse of adaptive strategies ($r = -.18$) and dissociation is frequently co-activated with suppression and rumination and shows similar associations with trauma exposure and affective dysregulation (Frewen & Lanius, 2006).

Study Aims

In this text, two hypotheses will be tested. The first hypothesises that the severity of childhood emotional abuse and neglect, respectively, predicts the increase in state dissociation severity as elicited by interpersonal eye gazing. The second hypothesises that the relationship between the severity of childhood emotional abuse and neglect, respectively, and the increase in state dissociation severity are mediated by emotion regulation capacity, with higher emotion regulation capacity leading to a more severe increase in state dissociation.

Methods

Participants

The current study's sample included 154 first year psychology students from the University of Groningen. 115 of participants were women (74.7%), 31 were men (20.1%) and 2 were non-binary (1.3%). The sample's ages ranged from 17 to 31 years old. All participants voluntarily participated in the study and made the appointment through the SONA system (SONA, https://rug.sona-systems.com). Ethics approval was obtained from the ethics review board before the study took place. The participants received a 1.5 SONA credit compensation for their participation. The sampling method was a convenience sample using the voluntary participation of the first-year psychology students in exchange for credits. Our exclusion criterion was if the students were not first year psychology students.

Design

The independent variable in the study would be childhood emotional abuse and

neglect as measured by the *Childhood Trauma Questionnaire* (CTQ-28). For the dependent variable, induced state dissociation severity, both participants experienced a 10-minute interpersonal eye gazing condition, previously to, and after which their state dissociation severity was measured using the *Responses to Script Driven Imagery* (RSDI). Finally, the mediating variable would be emotion regulation severity as measured using the *Difficulties in Emotion Regulation Scale* (DERS). This study uses interval scaled, quantitative data through responses to Qualtrics questionnaires and is a pre-post design. Participants responses were recorded either though Likert scales, where they could respond on scales from "very unlikely" to "very likely" or "hardly ever" to "very often", or by sliding a cursor answering what percentage of the time an event has happened to them anywhere from 0% of the time to 100% of the time.

Procedure

Participants were recruited through the SONA system and received instructions through the platform to access the study. Each participant was invited into the laboratory room and was told to take a seat at one of two computers. Once both participants were seated, we read a script that was previously written for us, where we introduced ourselves, made sure that the participants were in fact here for the "Eye2Eye gazing study", and warned them that we would be reading off a script to keep everything standardised for all participants. We then gave some information about the study, namely, the fact that it contained two questionnaire batteries and an eye-to-eye gazing session, and, importantly, that they have the right to stop participation at any point, their data will be handled confidentially and will not be able to be traced back to them. There was an informed consent form to fill out before the study started. In addition, we also mentioned that we would be assessing childhood trauma experiences and that they would be undergoing an eye-to-eye gazing session, both of which may be experienced as uncomfortable or distressing.

The participants were invited to start the first questionnaire battery and let us know when they were done, so that we could proceed to the eye gazing task. Once the questionnaire battery was completed, participants were instructed to go to the other side of the room and take a seat on the chairs while we turned off all the lights, leaving only the light under the wooden plank on. Participants were told to keep a neutral facial expression and stare into each other's eyes without looking away or making any noise, otherwise we would have to restart the timer. Once the eye gazing was completed, we turned the lights back on, warning participants to shade their eyes, and instructed them to go back to the computers to complete the second, and last, questionnaire battery. When the participants had finished, we made sure they had no questions and let them leave.

Material and Instruments

The materials used for the study included a laboratory room which is located in the basement of the Heymans Building, faculty of Behavioural and Social Sciences, room -183. In the laboratory room, we made use of two desks opposing each other, both equipped with a computer, where the participants could complete two questionnaire batteries using Qualtrics. There is a room separator which is used to split the room in half, one side where the participants complete the questionnaires, and one side dedicated to the eye gazing task. Between the backs of the participants and the walls there is 165 cm space. To their left and right are 50 cm of space from the walls. The researcher sits 110 cm away from the participants.

Indeed, for the eye gazing task, we used two chairs linked together with a wooden plank, give or take 100 cm long, to keep the same distance from the chairs for all the participants. There was a dim light under the wooden plank for participants to see each other as all the other lights, including the computer lights, were switched off during the task. We made use of a timer, to count the 10 minutes of eye gazing, and a light measuring device to

measure whether there was consistency in the lighting for all participants, at 0.8 LUX. We measured the light at the participants' eye level at random. We also used a logbook to keep track of the session numbers as well as any disturbances that might happen during the eye gazing. Disturbances could include noise outside the laboratory room, one of the participants breaking eye contact, or the door shutting too loudly, startling the participants. The questionnaires that we are using are made through Qualtrics XM (https://www.qualtrics.com) which is a cloud-based platform used to create and distribute web-based surveys released in 2005. The version that we are using is the December 2024 version. While additional instruments were assessed, this thesis will analyse items from the RSDI, DERS and CTQ-28 questionnaires.

Responses to Script Driven Imagery Scale (RSDI)

The *Responses to Script Driven Imagery* (RSDI) scale is a tool used to measure specific dissociative reactions in individuals exposed to trauma related or emotionally charged imagery. It is important to note that we will not measure all aspects of the dissociative spectrum, we will measure experiences pertaining to participants "blanking out", surreal experiences, feelings of observing the situation the individual is in, feelings of being disconnected from one's own body, and feelings of being in a fog. In this case, we are assessing dissociation pre-and post-eye gazing task with this questionnaire. We did not measure all aspects of the dissociative spectrum, which is why we are using some but not all the items on the scale. We are using 6 items from the RSDI dissociation subscale pre-eye gazing, where participants should answer the items describing how they have felt during the last 10 minutes. Items included, "Did you have moments of losing track of what is going on — "blanking out" or "spacing out" or "in some way feel that you were not part of the experience?", or "Did what you were experiencing seem unreal to you, like you were in a dream or watching a movie or play". Post eye gazing, we used the same 6 items as the pre-

eye gazing items, however participants were instructed to answer them describing how they felt during the 10 minutes of eye gazing. All items are scored on a Likert scale, ranging from 1 (= not at all) to 6 (= a great deal). For this study, a change score between the RSDI scores pre eye-gazing and RSDI scores post eye-gazing was computed. For each participant, the change score was computed by subtracting their RSDI scores post eye gazing from their RSDI scores pre eye gazing for using JASP.

This questionnaire has been found to be quite reliable. In fact, it is reported that the RSDI has good internal reliability, indicating that items within the questionnaire measure the right construct. The RSDI has a Cronbach's alpha ranging from .76 to .95 across subscales (Hopper et al., 2007). The RSDI also appears to show good construct validity. Indeed, convergent validity has been shown through correlations with other measures like the DES, Dissociative Experiences Scale (Hopper et al., 2007). In the current sample, the coefficient alpha of the items of the RSDI pre eye gazing showed good internal consistency ($\alpha = .884$) (see Appendix B, Table B2) and so did the items of the RSDI post eye gazing ($\alpha = .858$) (see Appendix B, Table B3).

Difficulties in Emotion Regulation Scale (DERS)

The Difficulties in Emotion Regulation Scale or DERS is a questionnaire that assesses difficulties in emotion regulation. It was developed by Gratz and Roemer in 2004 and it consists of 36 items. In our questionnaire battery, we used 14 items from two subscales pertaining to "Nonacceptance of emotional responses" and "Limited access to emotion regulation strategies". Participants were asked how often the statements applied to them and had to indicate this by moving a slider on a scale. The scale ranges from 0% to 100% of the time, and the slider could be placed anywhere on the scale. According to the instrument's instructions, the participants' placement of the slider was categorised. Participants could indicate whether items applied to them either: almost never, which was interpreted as the

slider being placed anywere between 0 and 10%, sometimes (11-35%), about half the time (36-65%), most of the time (66-90%) and almost always (91-100%). Items included “When I’m upset, I become angry with myself for feeling that way” or “When I’m upset, I believe that I will remain that way for a long time”. The DERS is a reliable measure of difficulty in emotion regulation as it demonstrated excellent internal reliability with a Cronbach’s alpha of 0.93 and a test-retest reliability of $r = 0.88$ (Charak et al., 2019). The DERS has strong construct and predictive validity, showing that it measures emotion regulation difficulties and predicts relevant outcomes like Borderline Personality Disorder and emotion dysregulation in clinical populations (Gouveia et al., 2022). Studies also support the DERS’s convergent validity as it correlates with related constructs like depression and impulsivity (Gouveia et al., 2022; Charak et al., 2019). The current sample’s internal consistency assessed with Cronbach’s alpha on all the items of the DERS used was shown to be good ($\alpha = .885$) (see Appendix B, Table B1).

Childhood Trauma Questionnaire (CTQ-28)

As for the *Childhood Trauma Questionnaire* (CTQ-28), it is a self-report tool containing 28 items designed to assess previous experiences of childhood abuse and neglect. It is divided into six subscales, namely, emotional, physical, sexual abuse and emotional and physical neglect, and minimisation/denial scale (MacDonald et al., 2016). The CTQ-28 has high reliability, as its Cronbach’s alpha often exceeds .70 for all subscales and test retest reliability is stable over time with coefficients between .75 and .85. The construct validity of this tool is very consistent, its criterion validity is good as it correlates with other clinical assessments of trauma. Finally, its cross-cultural validity is widely tested and validated (MacDonald et al., 2016). We used 25 items from the CTQ-28 excluding the three items from the minimisation scale. Participants were asked to recall childhood trauma experiences from their childhood and teenage years and were reminded that, if the questions were too upsetting

to answer, they could terminate participation at any point. Participants were asked to respond to items like, “When growing up, I didn’t have enough to eat”, or “People in my family called me things like “stupid”, “lazy”, or “ugly””, on a scale ranging from “never true” (1) to “very often true” (5). In the current study, the emotional abuse variable (“CTQ_EA”) was computed by adding up each participant’s scores on the CTQ items pertaining to emotional abuse. For the neglect variable, “CTQ_EN”, all the reverse coded scores on the CTQ items pertaining to neglect were added up for each participant. The CTQ items pertaining to neglect were reverse coded to ensure higher scores consistently reflected higher levels of the measured construct. The items of the CTQ pertaining to emotional abuse (CTQ_EA) used in the current sample showed good internal consistency (α = 839) (see Appendix B, Table B4), and so did the items of the CTQ pertaining to emotional neglect (CTQ_EN) (α = .894) (see Appendix B, Table B5).

Data analysis

The data collected in this study were analysed using IBM SPSS Statistics (Version 28) and JASP version 0.19.3 (https://jasp-stats.org/). Prior to analysis, the data were screened for accuracy, missing values, and outliers. Participants who did not complete all questionnaire items were excluded from the dataset because either they stopped the questionnaire before the eye gazing took place, or during the RSDI post eye gazing, in which case their data was not usable as they were not able to complete the entire process. Descriptive and inferential statistics were used to address the research questions and test the proposed hypotheses.

Firstly, from the 154 participants, 148 participants were kept in the analysis as 2 participants were excluded due to being outliers and 4 were excluded for not having completed all of the questionnaires, due to technical issues. Descriptive statistics were

calculated to summarise the sample's demographic characteristics and provide an overview of the key variables. These included means, standard deviations, and percentages for age, and gender distribution

To examine the relationships among the independent variables (childhood emotional abuse and neglect, respectively), mediating variable (emotion regulation severity), and dependent variable (change in state dissociation severity), several statistical methods were employed. Assumptions of normality, homogeneity of variance, and linearity were checked before conducting analyses. The internal reliability of the scales was verified using Cronbach's alpha. All assumptions were met for this sample. Shapiro-Wilk tests indicated that the CTQ_EA ($W = .907$, $p = < .001$), CTQ_EN ($W = .911$, $p < .001$), DERS ($W = .970$, $p = .002$) and Change_RSDI ($W = .971$, $p = .003$) were normally distributed (see Appendix A, Table A1). Visual inspection of the Residual vs. Predicted plot indicated homogeneity of variance and linearity as the residuals were randomly scattered in a cloud-like pattern with no trend or funnel shape (see Appendix A, Figure A1). Potential biases, such as self-report bias in questionnaire responses, were acknowledged as limitations of the data collection process.

A paired-samples t-test was used to compare state dissociation severity (measured by RSDI) before and after the 10-minute interpersonal eye-gazing task. This analysis tested whether participants experienced a significant change in dissociation severity as a result of the task. A mediation analysis was performed using the mediation analysis in JASP to examine whether emotion regulation severity (measured by DERS) mediated the relationship between childhood emotional abuse and neglect (measured by CTQ-28) and change in state dissociation severity. Indirect effects were evaluated. Childhood emotional abuse and neglect were computed in separate models to determine the unique effect of each predictor in isolation, without considering the influence of the other. For all analyses, statistical

significance was set at $p < .05$. Effect sizes (e.g., Cohen's d for t-tests, R^2 for mediation analysis) were reported to quantify the magnitude of observed effects.

Results

Descriptive Statistics

Table 1 presents descriptive statistics for all key study variables, including age, gender, RSDI scores (pre, post, and change), DERS, and the CTQ subscales for emotional abuse and neglect.

Table 1

Descriptive Statistics on the variables and sample

	Mean	Std. Deviation	Minimum	Maximum
Age	19.689	2.122	17.000	31.000
CTQ_EN	9.878	4.268	5.000	21.000
CTQ_EA	10.176	4.334	5.000	22.000
Change_RSDI	9.223	6.918	-6.000	22.000
DERS	642.791	246.757	149.000	1155.000
RSDIpost	20.405	7.194	6.000	34.000
RSDIpre	11.182	5.965	6.000	30.000

Note. CTQ_EA = CTQ-28 scores for emotional abuse; CTQ_EN = CTQ-28 scores for emotional neglect; DERS = scores on the DERS; Change _RSDI = scores from the RSDI post induction of dissociation minus RSDI scores pre induction of dissociation; RSDIpost = RSDI scores post induction; RSDIpre = RSDI scores pre induction

Paired Samples T-Test

A paired samples t-test was conducted to assess whether interpersonal eye gazing effectively induced dissociative experiences, as measured by changes in RSDI scores. Results showed a statistically significant increase in RSDI scores from pre- to post-intervention, $t(147) = 16.218$, $p < .001$, indicating that the dissociation induction was successful and participants experienced elevated state dissociation following the task. The range of the change score for this sample was 28, with a minimum of -6 and a maximum of 22. This wide range suggests considerable individual variability in how participants

responded to the state dissociation induction, with the majority showing increased dissociation, but a subset showing no change or even a decrease.

Regression Analysis

A linear regression analysis was conducted to examine whether childhood emotional abuse and neglect, as measured by the CTQ subscales, predicted changes in state dissociation (RSDI change scores). The overall model was not significant, $F(2, 145) = 0.341$, $p = .712$, $R^2 = .005$, indicating that neither emotional abuse nor neglect significantly predicted a change in state dissociation before and after the eye gazing task.

Table 2

Regression Model Summary and Coefficients for Predicting Change in RSDI

Regression Coefficients

Model	Predictor	B	SE	β	t	p	Tolerance	VIF
M0	Intercept	9.223	0.569		16.218	< .001	—	—
M1	Intercept	8.532	1.590	—	5.366	< .001	—	—
	CTQ_EN	-0.072	0.172	-0.045	-0.422	.674	0.613	1.632
	CTQ_EA	0.138	0.169	0.087	0.818	.415	0.613	1.632

Model Summary

Source	SS	df	MS	F	p
Regression	32.934	2	16.467	0.341	.712
Residual	7002.707	145	48.295		
Total	7035.642	147			

Mediation Analysis

To examine whether emotion dysregulation mediates the relationship between childhood emotional maltreatment and the change in state dissociation severity, a mediation analysis was conducted using DERS scores as the mediator. Emotional abuse showed a significant indirect effect on RSDI change scores through DERS, (estimate = 0.209, p= .007), indicating that emotion dysregulation partially mediates the relationship between emotional abuse and increased state dissociation. Neglect, in contrast, did not yield a significant indirect effect via DERS (estimate = 0.020, p = .648), suggesting that emotion dysregulation does not mediate the effect of emotional neglect on the change in state dissociation severity in this sample.

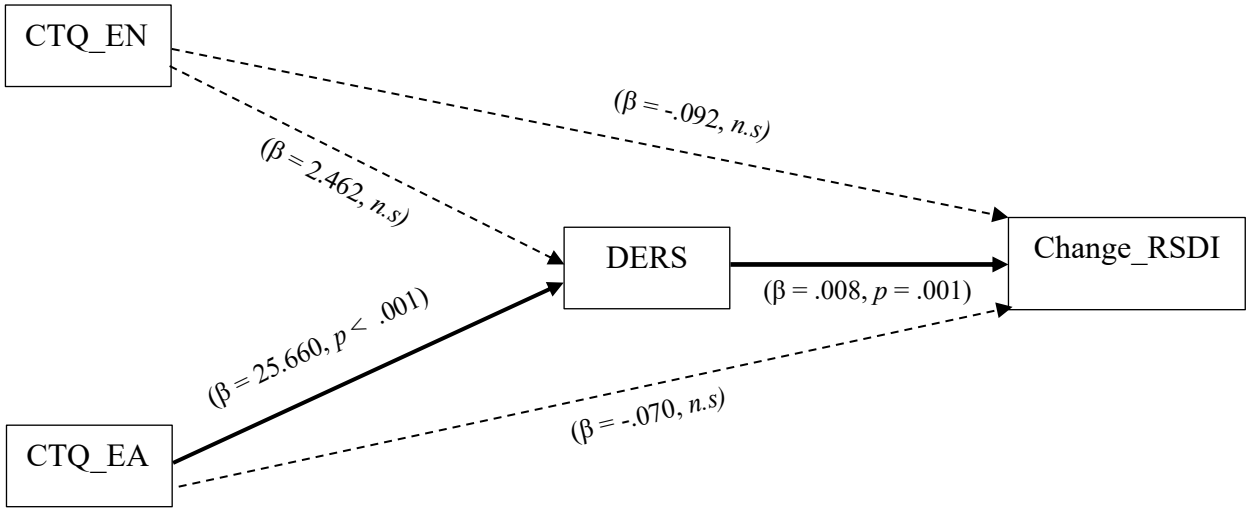
Table 3

Path coefficients

							95% Confidence Interval	
			Estimate	Std. error	z-value	p	Lower	Upper
DERS	→	Change_RSDI	0.008	0.003	3.211	0.001	0.003	0.013
CTQ_EA	→	Change_RSDI	-0.070	0.174	-0.404	0.687	-0.412	0.271
CTQ_EN	→	Change_RSDI	-0.092	0.164	-0.563	0.574	-0.414	0.230
CTQ_EA	→	DERS	25.660	5.250	4.888	< .001	15.371	35.950
CTQ_EN	→	DERS	2.462	5.331	0.462	0.644	-7.987	12.911

Figure 1

Mediation pathways



Discussion

The present study's aim was to investigate the relationship between the severity of childhood emotional abuse or neglect and its effects on increases in state dissociation severity elicited by interpersonal eye gazing, mediated by emotion regulation. It was hypothesised that there would be positive correlations between childhood emotional abuse and neglect severity and increases in state dissociation severity elicited by interpersonal eye gazing, where the more an individual had suffered from emotional abuse or neglect, the more they would experience an increase in state dissociation. It was also hypothesized that these positive associations would be mediated by emotion regulation, such that individuals who experienced greater difficulties with emotion regulation would be more likely to report histories of childhood emotional abuse and neglect, and, in turn, exhibit higher increases of state dissociation.

Contrary to the first hypothesis concerning the severity of childhood emotional abuse and neglect and their associations with state dissociation severity elicited by interpersonal eye gazing, neither emotional abuse nor neglect severity significantly predicted changes in state dissociation severity, suggesting that the severity of these childhood experiences may not directly influence the severity of dissociative responses in non-clinical samples under the current experimental conditions. However, consistent with the second hypothesis and prior models such as the Sequential Mediation Model (Hébert et al., 2018), emotion dysregulation significantly mediated the relationship between emotional abuse and state dissociation. This finding aligns with research highlighting emotion regulation difficulties as a key mechanism linking early trauma to dissociative experiences. Interestingly, while emotional abuse severity was indirectly associated with state dissociation severity through emotion dysregulation, neglect severity was not, suggesting differential psychological pathways for these forms of

maltreatment. Furthermore, the significant change in RSDI scores before and after the eye gazing task confirms the effectiveness of this method in inducing state dissociation.

The link between childhood emotional abuse and neglect and changes in state dissociation

Based on the results of the current study, the absence of a significant direct relationship between childhood emotional abuse and neglect severity and changes in state dissociation severity elicited by interpersonal eye gazing may be attributable to several factors. First, it is possible that state dissociation severity, as measured in this study, is not solely determined by the severity of past trauma**,** particularly in non-clinical populations. Many individuals in such samples may possess adaptive coping mechanisms, higher baseline emotion regulation skills, or greater psychological resilience that buffer the immediate impact of past trauma on current dissociative responses (Cloitre et al., 2009). Additionally, dissociation in response to experimental paradigms such as interpersonal eye gazing may be more dependent on situational sensitivity, interpersonal discomfort, or trait vulnerabilities (e.g., suggestibility, absorption, or attachment insecurity) than on trauma history alone (Giesbrecht et al., 2008). Importantly, the RSDI was selected because it measures state dissociation, that is, transient, situational symptoms. These experiences are central to the momentary dissociative shifts hypothesized to occur during the eye-gazing induction. However, while the RSDI is well-suited for capturing state dissociation, it does not assess the full range of dissociative experiences seen in more chronic or structural presentations. As such, the RSDI offers a focused but necessarily narrow lens on dissociation, ideal for detecting real-time responses to an interpersonal trigger, but less sensitive to long-term dissociative adaptations rooted in trauma history. This specificity may help explain the lack

of a direct trauma–state dissociation link in this study. It may be that some trauma-related dissociative symptoms lie outside the scope of what the RSDI is designed to detect.

Assuming that the findings reflect the objective truth and the association between emotional abuse or neglect and state dissociation is indeed absent or weak in non clinical settings, this would challenge models that assume a direct and consistent trauma-dissociation link and call for a more nuanced understanding. Theoretically, it would suggest that dissociation in response to interpersonal stimuli may require the presence of additional variables like trauma type, trait dissociation, or others. Future research would then need to pivot toward investigating complex interaction models that account for these contextual and individual variables.

The link between emotion regulation and changes in state dissociation

Longitudinal studies suggest that emotion dysregulation mediates the relationship between childhood trauma and later psychological symptoms such as dissociation (McLaughlin, Sheridan, & Lambert, 2014). Theoretical frameworks, such as Gratz and Roemer's (2004) multidimensional model and Hébert et al.'s (2018) Sequential Mediation Model, support the idea that deficits in emotion regulation precede and contribute to dissociation, especially in trauma exposed populations. While much of the research focuses on trait dissociation, the current study sought to look at changes in state dissociation severity and its association to emotion regulation. Indeed, results showed that emotion dysregulation significantly predicted changes in state dissociation severity. Assuming this finding reflects an objective effect, it suggests that individuals with poorer emotion regulation are more vulnerable to transient dissociative responses in emotionally challenging situations. This implies that emotion regulation interventions, particularly those targeting rapid, in the moment strategies, may be effective in reducing acute dissociative responses. Future research

could expand on this my incorporating ecological momentary assessment (EMA) designs to track fluctuations in dissociation and emotion regulation in real time to test this. However, several factors could limit the validity of this link. Indeed, the observed association may reflect shared method variance or the influence of a third variable, such as general distress, coping, or mood and affect dyregulation, which have been shown to be mistaken for emotion regulation before (Gross, 1998). Additionally, the use of a dissociation induction procedure might have affected participants unevenly based on factors unrelated to emotion regulation. Future studies could include objective physiological markers of dissociation and emotion regulation, replicate the effect in larger or clinical samples, and examine whether changes in emotion regulation over time correspond with changes in state dissociation in daily life contexts.

The link between childhood emotional abuse and neglect and emotion regulation

In the current study, emotional abuse emerged as a particularly significant predictor of emotion regulation difficulties. It showed a strong direct association on DERS scores (β = 25.66, $p < .001$), and an indirect effect on dissociation through this pathway. This suggests that individuals who experienced higher levels of emotional abuse as children are more likely to exhibit difficulties in managing and regulating their emotions, which in turn increases their vulnerability to dissociative responses. This finding is supported by Hébert et al.'s (2018) sequential mediation model, which posit that trauma, particularly interpersonal forms such as emotional abuse, compromises the development of regulatory systems that underlie later psychological functioning. In our data, CTQ_EA scores ranged from 5 to 22, and corresponding DERS scores showed wide variation (149 to 1155), underscoring the individual differences in both exposure and impact. In contrast, emotional neglect did not have a significant association to emotion dysregulation (β = 2.46, p = .644) and showed no

significant direct or indirect association with dissociation. This may reflect qualitative differences between abuse and neglect: while abuse involves active emotional invalidation or harm that disrupts the development of emotion regulation, neglect is a form of omission that may not provoke the same immediate dysregulatory effects. Assuming this finding reflects the objective truth, it suggests that emotion regulation is a key developmental mechanism through which emotional abuse, but not neglect, exerts lasting psychological effects. This has important implications for theory and interventions because models of trauma related psychopathology should distinguish between abuse and neglect in how they impact self regulatory capacities, and clinical interventions should prioritise emotion regulation work particularly in clients with emotional abuse histories. However, there are reasons to interpret these findings cautiously. Indeed, the association may have been affected by shared method variance, as both the CTQ and DERS are self report, or omitted variables such as temperament or current psychopathology. Our study design also limits our ability to establish causal direction. Future studies could use longitudinal designs, incorporate multi-method assessments of emotion regulation, and test whether changes in DERS over time mediate prospective changes in dissociative symptoms, particularly in trauma exposed samples.

The mediation hypothesis

In the current study**,** emotional abuse (CTQ_EA) significantly predicted emotion regulation difficulties as measured by the DERS, whereas emotional neglect (CTQ_EN) did not. This striking difference suggests that these two forms of childhood maltreatment may impact emotional functioning through distinct mechanisms. Emotional abuse involves active and often overt verbal assaults, invalidation, or humiliation. These experiences likely exert a more immediate and disruptive influence on a child's developing emotional world, undermining their sense of safety and self-worth. As a result, children exposed to emotional

abuse may become more emotionally reactive, have difficulty accepting their emotions, and rely on maladaptive strategies such as suppression or outbursts, patterns that contribute to chronic dysregulation in adulthood (Teicher & Samson, 2016). In contrast, emotional neglect is characterized by the absence of emotional responsiveness, warmth, or support. Its effects may unfold more subtly over time and may be harder for individuals, especially in non-clinical populations, to consciously recognise and report. This could partly explain the lack of a significant relationship between CTQ_EN and DERS in the current non-clinical sample. Another explanation is that while emotionally abusive environments may model maladaptive emotion regulation strategies, neglectful environments may simply fail to model any regulation at all, resulting in emotional underdevelopment rather than overt dysregulation (Kim et al., 2022).

Supporting this interpretation, Haferkamp et al. (2015) found that emotional abuse, but not neglect, was significantly associated with both dissociation and emotion regulation difficulties in a clinical sample of women with PTSD related to childhood maltreatment. Their results suggest that it is the presence of emotionally hostile or threatening experiences**,** rather than the absence of emotional care alone, that more reliably produces the kind of emotional flooding linked to dissociative reactions. This distinction is particularly relevant for understanding state dissociation, which tends to be triggered by acute emotional overwhelm, an experience more readily linked to histories of emotional abuse than to neglect.

Exploration of results pertaining to State dissociation elicited by interpersonal eyegazing severity

Furthermore, while most prior research focuses on trait dissociation – a stable psychological disposition – this study's use of interpersonal eye gazing to elicit state dissociation provided an innovative lens to examine dissociative vulnerability in real time,

expanding the field's understanding of how childhood emotional abuse and neglect may influence here-and-now dissociative responses.

Notably, this interpersonal method also reflects the relational origins of emotional trauma, suggesting that dissociation may be triggered in social contexts that unconsciously activate attachment-related vulnerabilities. By doing this, this study contributes to a nuanced and multidimensional understanding of the childhood emotional abuse and neglect → emotion regulation → dissociation pathways, offering insights into both the mechanisms and situational expressions of trauma related symptomatology.

This being said, in this study, the direct association between CTQ-28 and RSDI was non-significant. This could have been because the interpersonal eye gazing technique did not fully work on the participants for various reasons. These reasons could be that the participants were sometimes distracted due to the uncomfortable nature of the experiment, there were some loud noises outside the laboratory that could've taken the participants by surprise, which could've led them to interrupt the eye gazing. It could also be hypothesised that maybe the CTQ-28, which reflects long term, trait like experiences better predicts trait dissociation and not immediate state fluctuations. Finally, the CTQ-28 relies on retrospective recall, which can be biased or suppressed, so difficultly recalled.

Importantly, while the mean RSDI change score was 9.22**,** the range was substantial**,** spanning from –6 to 22. A mean increase of over 9 points suggests a moderate-to-strong elevation in dissociative symptoms following the task, even if not all participants responded equally. Moreover, individual differences in reactivity indicate that for some participants, the induction task evoked substantial dissociative shifts, highlighting the interpersonal sensitivity of dissociation in those with relevant trauma histories. If assumed valid, this variability underscores the relevance of state dissociation as a dynamic, situational process that may emerge in vulnerable individuals when triggered by emotionally charged or

relationally evocative conditions. Future research should further investigate individual predictors of dissociative reactivity**,** and refine state induction methods for better consistency.

Limitations

This study is subject to several limitations that may have influenced the outcomes. First, the sample was both restricted and relatively small, comprising only first-year psychology students from the University of Groningen. Due to scheduling constraints, recruitment was limited, reducing statistical power and restricting the generalizability of the findings to more diverse populations. Additionally, the experimental environment was not consistently quiet; construction noise during approximately two weeks of the laboratory period, as well as frequent disturbances from a nearby door, may have affected participants' ability to focus during the interpersonal eye gazing task. Although procedures were standardized and a script was used, the study was conducted by three different researchers, and subtle differences in delivery or interaction style may have introduced variability. Furthermore, some participants appeared to guess the purpose of the study, as the last question in our questionnaire asked the participants to hypothesise what the study was about, and multiple students had guessed it correctly. This could have potentially led to demand characteristics or altered behaviour. Lastly, the number of questionnaire items may have contributed to participant fatigue, which was occasionally observable during the eye gazing task, some participants appeared tired or intermittently closed their eyes, potentially compromising the consistency and depth of their engagement.

Future research suggestions

Suggestions for future research would be to replicate the current study with a much larger and more diverse sample. Future research should include more diverse demographic groups to examine whether these findings generalise across cultures. Indeed, seeing as cultures view child education differently, where, from a Western cultural viewpoint, the

standard of education for children in some other cultures could be seen as abusive. For example, in Asian communities' girls receive less care and fewer resources than boys do, and this is the norm (Kumari, 2020). Considering this, maybe replicating this study in different cultures will significantly change the results.

Since the current study focused on state dissociation but acknowledged that trait level factors could influence results, examining how trait dissociation moderates susceptibility to experimentally induced state dissociation and whether it mediates the abuse-emotion regulation-dissociation pathway.

Finally, since only "non-acceptance of emotional responses" and "limited access to emotion regulation strategies" subscales were measured by the DERS in this study, investigating more emotion regulation strategies and which are more affected by abuse and neglect and most predictive of dissociation could be interesting and could alter results. For instance, impulse control difficulties and lack of emotional clarity may be highly relevant, particularly in moments of acute stress or trauma recall. Impulse control difficulties would be interesting to study in the context of state dissociation severity and childhood emotional abuse and neglect severity because state dissociation often emerges as a defensive response to overwhelming emotional states, especially when the individual lacks the capacity to manage intense affect. Emotional abuse frequently involves invalidation, criticism or shaming for emotional expression which makes an individual fear their emotions. Neglect often results in a lack of support for managing emotional distress. In both cases, children may not learn to inhibit their emotional impulses. As a result, in adulthood, when overwhelming emotions are triggered, and impulse control is compromised dissociation may become a default regulatory mechanism. Lack of emotional clarity could also be interesting to study. It refers to the ability to identify, understand and differentiate between one's emotional states. In the context of abuse or neglect, children are often not given accurate feedback about their feelings. Over

time, this can lead to confusion about what they are feeling or even a complete disconnection from emotional experience. This confusion can increase vulnerability to dissociation, especially in a situation that triggers emotions arousal without clarity or understanding.

Appendix A

Assumptions checks

Figure A1

Assumption of linearity and homoscedasticity

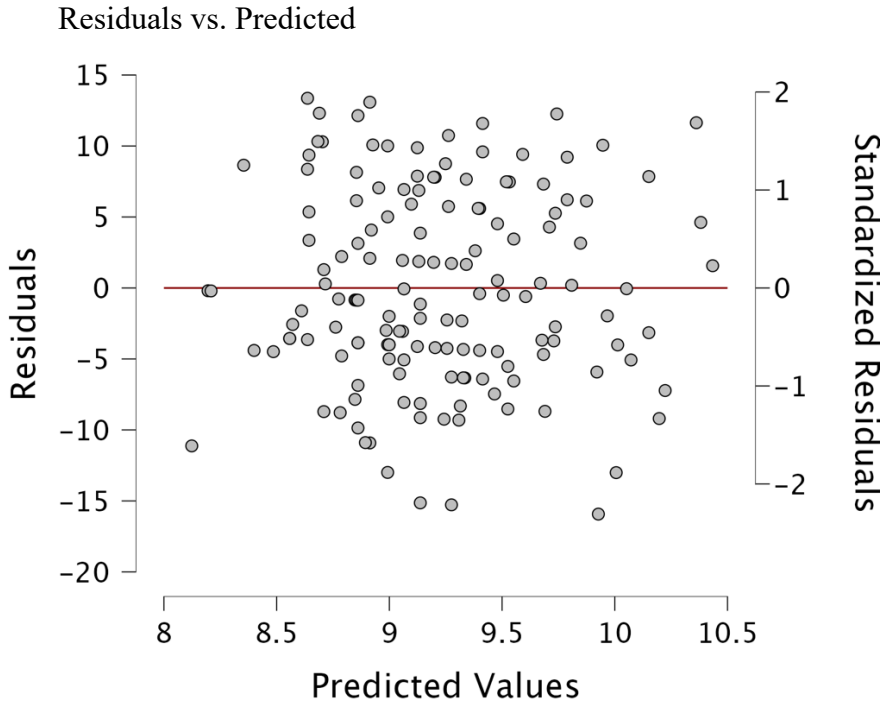


Table A1

Assumption of normality

Descriptive Statistics

	CTQ_EA	CTQ_EN	DERS	Change_RSDI	RSDIpost	RSDIpre
Shapiro-Wilk	0.907	0.911	0.970	0.971	0.962	0.829
P-value of Shapiro-Wilk	< .001	< .001	0.002	0.003	< .001	< .001

Appendix B

Reliability tables

Table B1

Reliability of DERS items in current sample

Frequentist Scale Reliability Statistics

			95% CI	
Coefficient	Estimate	Std. Error	Lower	Upper
Coefficient α	0.885	0.007	0.871	0.900

Table B2

Reliability of RSDIpre items in current sample

Frequentist Scale Reliability Statistics

			95% CI	
Coefficient	Estimate	Std. Error	Lower	Upper
Coefficient α	0.884	0.016	0.853	0.915

Table B3

Reliability of RSDIpost items in current sample

Frequentist Scale Reliability Statistics

			95% CI	
Coefficient	Estimate	Std. Error	Lower	Upper
Coefficient α	0.858	0.016	0.827	0.890

Table B4

Reliability of CTQ_EA items in current sample

Frequentist Scale Reliability Statistics

			95% CI	
Coefficient	Estimate	Std. Error	Lower	Upper
Coefficient α	0.839	0.021	0.798	0.881

Table B5

Reliability of CTQ_EN items in current sample

Frequentist Scale Reliability Statistics

			95% CI	
Coefficient	Estimate	Std. Error	Lower	Upper
Coefficient α	0.894	0.016	0.863	0.925

Appendix C

Unfolding of the experiment in the laboratory

General Outline of the study

Participants will be welcomed in pairs and receive a quick briefing. They will receive a session number and be asked to please have a seat at the computers and start filling out the survey. Once both are done with the first battery, participants will be asked to take a seat on the chairs in the second section of the lab. The lights will be turned off, and the small light turned on. Participants will be instructed to look into each other's eyes for ten minutes. After the ten minutes, lights will be turned on and participants will immediately resume the questionnaire.

Briefing of the participants

Welcoming the participants:

"Hi and welcome, I am XX (and this is XX). You are here for the eye2eye gazing study?

I will be reading off a script to keep everything standardized for all participants.

A little information on the study:

The study contains two questionnaire batteries and an eye2eye gazing session. In between the batteries, you will be asked to stop the questionnaire and let us know that you are done with the first part.

We will wait for you and the other participant to be finished, then start the eye-gazing, which will take ten minutes. After that, you will continue with the survey.

We are using forced responses. We do not think it would be fair to keep asking you to fill in questionnaires if we already know we are not able to use your data for the study. So please feel free to stop participation at any point.
We will assess childhood trauma experiences and you will undergo an eye2eye gazing session, both may be experienced as uncomfortable and distressing. You can stop participation at any point. Your data will be handled confidentially, and we will not be able to track the information back to you. Please do not talk to any other students who might participate in this study about the study and put your phones in silent mode. Please sit down and start with the first questionnaire battery. There is a little note with your session number in from of your computer. The outcome of this research will be published, so please take your time answering the questionnaire."

Induction:
"You are now done with the first battery, please get up and come to this side of the room. We now ask you to step on the chairs. Please be careful the construction may break if we bump into it. I am going to turn on the light below the construction and turn off the headlight."

"Your task is to look into the eyes of the other participant without talking. Please maintain a neutral facial expression. Keep gazing into the eyes of the other participant. The session will last ten minutes."

[Wait for the giggles to calm down then set the timer with low brightness on your phone]

“The ten minutes are over. Please don’t speak to each other and go immediately to your computers and complete the survey. You can talk about this after the study. I am going to turn on the light, it’s going to be rather bright, so feel free to close your eyes until I dimmed it down a little bit. Once you are done with the second battery you are allowed to leave the room quietly if you do not have any further questions.”

Debriefing of the participants

[On the last screen, participants are informed that they can give us a sign in case they want to talk to us in private after the study.]
“Thank you for your participation, bye.”

Questions & special situations

What were you studying/interested in?
“We are interested which variables play a role in inducing dissociation in interpersonal settings. Please do not share those details about the study with your peers until the study is completed.”

Participant is disclosing about childhood trauma or abuse
“Thank you for your trust to share your experiences. I am sorry that you had to experience this, in our experience there are many students especially in the psychology track that have similar experiences. Though, I am not the right person to talk about this. If you feel like you need help to explore this more, I have a couple of options I can give to you.”

Participant is dissociating after the induction

Do not speak too empathetically. Speak clearly and loudly, give instructions. Do not touch them. Have eye contact.

"Hey, can you hear me well? It is time to get up of the chair. Can you move your hands? Good, can you wiggle your feet? Great, can you stand up and get off the chair?"

Participants are visibly upset

Only talk to them if they are initiating the conversation. Do not ask about any details but validate their emotions and reinforce using their own resources.

"I can see that this has upset you, what do you usually do at home if you are upset like this?"

"Maybe you want to call a friend afterwards or walk a bit in the nature?"

"Is there anything that could help you right now? Like walking around and stomping your feet on the ground? We can do this."

Participants share experiences of dissociation outside of study, might ask if this is normal

Do not ask about any specifics and pathologize them. Validate them and give them the option that they can talk to someone if they feel like it is necessary.

"To some degree this is normal, everyone has dissociated at some point in their lives but it depends on the severity."

"If this is something you might need help with or want to explore further, I can give you a couple of options to reach out to."

Appendix D

Questionnaire subscales used in the study

Due to test security guidelines in APA Standard 9.11, the items of the instruments used in the study are not disclosed here to maintain test security as this thesis will be publicly available.

Appendix E

Informed consent forms

Informed consent

I am aware that in this study I will be asked to keep eye contact with another participant for 10 minutes, which may feel unsettling. In addition, personal questions will be posed which may be experienced as uncomfortable.

YES/ NO *(Note: participant only continues to the informed consent if YES was chosen here)*

I agree that my data will be handled in the way described in the information sheet.
YES/ NO *(Note: participant only continues to the informed consent if YES was chosen here)*

INFORMED CONSENT

By pressing the "Yes" button, you indicate that you agree with the following:

1) I have read the information about the research. I have had enough opportunity to ask questions about it.
2) I understand what the research is about, what is being asked of me, which consequences participation can have, how my data will be handled, and what my rights as a participant are.
3) I understand that participation in the research is voluntary. I myself choose to participate. I can stop participating at any moment. If I stop, I do not need to explain why. Stopping will have no negative consequences for me.

YES, I consent to participate.

NO, I do not consent and do not wish to participate in this study.

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