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Psychological trauma at different developmental stages and ICD-11 CPTSD: The role of dissociation

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ABSTRACT

Background: Dissociation is commonly reported by individuals who meet criteria for posttraumatic stress disorder (PTSD) and complex posttraumatic stress disorder (CPTSD). However, the association between the age of trauma exposure, dissociation, and CPTSD is not well understood. This study aimed to test whether dissociation mediated the relationship between the developmental stage of trauma exposure and CPTSD symptoms.

Method: A nationally representative sample from Ireland (*N* = 1020) completed self-report measures on trauma exposure in childhood, adolescence, adulthood, current trauma symptomatology, and dissociation symptoms. A mediation analysis was conducted.

Results: Childhood, adolescent, and adulthood trauma exposure were all related to dissociation and ICD-11 CPTSD symptom clusters. Dissociation mediated the effect of developmental stage of trauma exposure on PTSD and disturbances in self-organization(DSO). The direct and indirect effect models provided the best fit of the data. Childhood trauma exposure was the only developmental stage that was directly associated with both PTSD and DSO symptoms in our sample.

Conclusion: Dissociation mediates the relationship between reported trauma exposure and the presence of ICD-11 CPTSD symptom clusters, and this relationship appears at its strongest when trauma occurs in childhood. CPTSD interventions should also promote dissociation management to aid recovery from this debilitating condition.

Introduction

Dissociation and its relationship to trauma is far from being well understood. In recent years, there has been considerable debate regarding the classification of dissociative disorders, particularly in relation to trauma. Dissociation

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broadly describes a disruption in the ability to integrate facets of psychological functioning such as identity, consciousness, and motor control (American Psychiatric Association, 2013). This disruption may take several forms of varying severity, including daydreaming, traumatic flashbacks, amnesia, depersonalization (feeling detached from oneself), and derealization (feelings of unreality). Dissociation can be highly impairing with some studies demonstrating that higher levels of dissociation are associated with increased suicidal ideation, self-injury, and suicide attempts (Foote et al., 2008), as well as potentially limiting response to psychological treatment and requiring a higher number of therapy sessions (Lanius et al., 2012).

Dissociation is commonly reported in people who meet criteria for posttraumatic stress disorder (PTSD), and evidence of this association has developed to the extent that a dissociative subtype of PTSD was included in the DSM-5 (American Psychiatric Association, 2013). Approximately 14% of the people with PTSD have been found to meet criteria for the dissociative subtype (Stein et al., 2013). However, dissociation is also a key feature of several other disorders including borderline personality disorder (BPD) and dissociative identity disorder (DID), and yet these disorders do not necessitate trauma exposure as a prerequisite to their diagnosis, although trauma exposure may be considerably higher in people with these conditions compared to the general population. This raises the question of whether trauma exposure is necessary for the development of dissociative symptoms, and how they relate to posttraumatic disorders. In 2018, complex PTSD (CPTSD) was introduced in the ICD-11 to describe a more debilitating trauma-related disorder. This diagnosis includes the core PTSD symptom clusters of reexperiencing in the here and now, avoidance, and sense of current threat, as well as disturbances in self-organization (DSO) symptom clusters across the domains of affect dysregulation, negative self-concept, and disturbed relationships (World Health Organization, 2018). Dissociation was notably not included as a core symptom cluster of the disorder, although symptoms such as reliving the trauma in the here and now (part of the reexperiencing cluster) and emotional numbing (part of the affective dysregulation cluster) are dissociative in nature.

There are a number of theories on the development of dissociation. These include attachment-based theories, such as the one presented by Schore (2009) who posited that early adverse experiences disrupt attachment styles and lead to the development of coping with stress through dissociative defenses on a prolonged basis. Detaching from reality may enable a trauma-exposed child to simultaneously experience attachment with their main caregiver while protecting themselves from overwhelming emotions such as fear. A body of evidence supports this theory, including an 18-year longitudinal study linking early childhood abuse to adulthood dissociation and disorganized attachment style (Byun et al., 2016). This theory therefore grounds the development of dissociative symptoms in early life experiences. One of the prevailing theories

is the structural theory of dissociation (Nijenhaus, van der Hart, & Steele, 2010), which outlines that during periods of prolonged threat the personality may become fragmented in order to maintain a safe distance from trauma memories and enable day-to-day management and survival. The theory describes how developing infants gradually integrate their experiences across time and settings into a coherent sense of self, and that trauma can disrupt this process. This theory indicates that dissociation will be more strongly, but not exclusively, associated with trauma that occurs during early development.

Both attachment and structural theories of dissociation emphasize the role of early life trauma in the etiology of dissociation; however, the evidence for this is inconclusive. A recent review of studies addressing the association between PTSD and dissociation using advanced statistical modeling techniques to differentiate classes of posttraumatic stress symptoms established that dissociative subgroups were identified in the majority of studies. There was some evidence to suggest that childhood abuse was an etiological factor for those in these groups (Hansen et al., 2017). However, the evidence was mixed and study samples tended to be clinical groups with the majority reporting childhood abuse and therefore this is difficult to delineate from later traumatic experiences. Furthermore, there is evidence that dissociative subgroups are typically linked with elevated PTSD severity and so may reflect the degree of impairment rather than a unique subgroup. One study (Burton et al., 2018) attempted to address the limitations of the literature and assessed a treatment-seeking sample for dissociation and PTSD and found that childhood abuse did not predict membership of the dissociative subgroup. However, the sample reported low levels of childhood abuse (24.0%) and was predominantly female (76.0%) and therefore studies on more representative samples are needed.

The evidence base relating to the role of dissociative symptoms on trauma-related responses is highly variable, in part due to the wide-ranging conceptualizations and assessments of dissociative phenomenology. Dissociation can be defined as a state or trait, can span in intensity from forms of daydreaming to flashbacks, and can vary in form from derealization to depersonalization. Burton et al. (2018), in their study on dissociation and PTSD, found that flashbacks were accounting for most of the effects of dissociation in the model. Depending on how dissociation is assessed, evidence may be conflating the presence of dissociative experiences with those of PTSD reexperiencing symptoms. It is therefore important for research to clearly define PTSD and dissociation at the symptom level to integrate the evidence base cohesively and therefore better inform the development of effective treatments.

Dissociation has previously been linked to poorer psychological treatment outcomes; however, recent developments in the literature have cast doubt on this prognosis. A meta-analysis of 21 trials recently concluded that there was no evidence that dissociation moderated the effectiveness of psychotherapy (Hoeboer et al., 2020). Of note, only nine were randomized trials, there were

over nine different forms of psychotherapy across the studies or the form of therapy was not reported, the analysis included treatment completers only, and several studies were of lower quality. As with many trials, substance use and suicidality were exclusion criteria. Although the conclusion is promising, there are several limitations of the studies to date, which warrant further investigation.

Emerging research has demonstrated an association between the ICD-11 CPTSD symptoms clusters and dissociation, with the strongest relationship being with the DSO symptom cluster of affect dysregulation (Hyland, Shevlin et al., 2020). Those who met criteria for CPTSD experienced significantly higher levels of dissociation than those in the PTSD group, thus supporting the structural theory of dissociation. These findings indicate that dissociation is a particularly relevant symptom for those with CPTSD.

Dissociation is a debilitating experience that has only recently begun to be studied in relation to CPTSD. Using a population sample, this study addresses the limitations of previous research by utilizing a nationally representative sample of the adult population of Ireland to investigate whether dissociation statistically mediates the association between trauma at different developmental periods (childhood, adolescence, and adulthood) and each of the CPTSD symptom clusters. In line with the structural theory of dissociation, and evidence from previous studies, childhood trauma was hypothesized to have the strongest relationship with dissociation and CPTSD symptoms.

Methods

Participants and procedures

This study was based on a nationally representative sample of noninstitutionalized Irish adults aged 18 years and older (N = 1020). Participants were recruited by the survey company Qualtrics who selected participants from a panel of research participants that is representative of the adult population of the Republic of Ireland. Participants in this study were recruited using quota sampling methods to ensure that the sample was representative of the general population in terms of three demographic variables: sex (male and female), age (18–24, 25–34, 35–44, 45–54, 55–64, and 65+), and geographical distribution (Dublin city and county, Leinster [not including Dublin], Munster, Connaught, and Ulster [not including counties in Northern Ireland]). Comparisons with 2016 census data confirmed that these three characteristics of the sample matched the population parameters. Ethical approval for this project was provided by the Social Research Ethics Committee at Maynooth University in Ireland.

Panel members were contacted via e-mail by Qualtrics, provided with information about the nature of this study, and asked to participate. Panel

members were not obliged to take part in this study and no inducements were used to recruit participants. Panel members are, however, reimbursed for their time on a general basis by Qualtrics. Those who chose to participate followed a link to a secure website and completed all surveys online. Informed consent was provided prior to participants completing any measures. The median time of completion of the survey was 22 minutes and Qualtrics employed checks to identify and remove any responses where participants completed the survey in a time that was deemed to be too fast to be confident that responses were trustworthy (i.e., less than 7 minutes). All data were collected in February 2019.

The mean age was 43.10 years (*Mdn* = 42.00, *SD* = 15.12, range 18–87), and 51.0% were female. The majority of participants (53.9%) resided in Leinster (east of the country including the capital city of Dublin), 26.9% resided in Munster (south of the country), 13.5% resided in Connaught (west of the country), and 5.7% resided in Ulster (north of the country). Most participants were in a committed relationship (69.5%), and had children (59.4%). Secondary-school completion was the highest educational attainment for 39.2% of participant, 36.9% completed an undergraduate degree, 16.9% completed a postgraduate degree, and 7.1% did not complete secondary school (equivalent to high school in the U.S.). Nearly half of participants were in full-time employment (45.8%), 17.8% were in part-time employment, 27.7% were retired, homemaking, or a student, and 8.6% were unemployed.

Measures

Traumatic exposure

Traumatic exposure was assessed using the International Trauma Exposure Measure (ITEM: Hyland, Karatzias et al., 2020;Hyland, Shevlin, Karatzias & Cloitre, 2019), which is a freely available checklist https://www.traumameasuresglobal.com/itemmeasuring 21 threatening life events (see Table 1). Sixteen events reflect the DSM-5 definition of trauma exposure (i.e. direct or indirect threat to life, or to physical or sexual safety). The other five events are psychologically threatening events that can be considered traumatic in line with ICD-11 guidelines. Respondents indicate if they experienced each event during three developmental periods (0–12 years [childhood], 13–18 years [adolescence], and older than 18 years [adulthood]). Lifetime exposure to each event is indicated by a positive response in any of the developmental periods. Respondents identify their most distressing event (their 'index trauma'), how many times this event occurred, and how long ago it first occurred.

ICD-11 PTSD and CPTSD

The International Trauma Questionnaire (ITQ: Cloitre et al., 2018) was used to measure the ICD-11 symptoms of PTSD and CPTSD. The ITQ is a self-report

Table 1. Descriptive statistics for model variables.

Variable	Mean	Standard deviation
Age	43.10	15.12
Sex (female)	51.0% (n = 520)	
ITEM trauma exposure		
Total lifetime	3.27	3.17
Childhood trauma	0.87	1.68
Adolescent trauma	0.88	1.50
Adulthood trauma	1.52	1.67
Dissociation total	7.22	7.19
ITQ		
PTSD symptoms	6.16	5.75
PTSD criteria	5.1% (n = 52)	
DSO symptoms	7.31	6.21
CPTSD criteria	8.1% (n = 83)	

*Categorical variable presenting n (%).

scale measuring all diagnostic requirements for PTSD and CPTSD. Respondents identify their index trauma event and how long ago it occurred. They are then instructed to answer all questions in relation to this event. There are six items measuring PTSD symptoms across the clusters of 'Reexperiencing in the here and now', 'Avoidance', and 'Sense of Threat'. These items are answered in terms of how much the respondent has been bothered by that symptom in the past month. Three questions measure functional impairment in the domains of social, occupation, and other important areas of life associated with these symptoms. There are additional six items measuring DSO symptoms across the clusters of 'Affective Dysregulation', 'Negative Self-Concept', and 'Disturbed Relationships'. The DSO symptoms are answered in terms of how the respondent typically feels, thinks about oneself, and relates to others. Three items measure functional impairment associated with these symptoms. All items are answered on a 5-point Likert scale that ranges from 0 (*Not at all*) to 4 (*Extremely*), and a symptom is considered to be present based on a score of ≥2 (*Moderately*). Multiple studies with general population (Ben-Ezra et al., 2018; Cloitre et al., 2018), clinical (Hyland et al., 2017), and refugee (Vallières et al., 2018) samples have shown that the ITQ scores possess satisfactory reliability and validity. The internal reliability (Cronbach's α) estimates of the PTSD ($\alpha = .90$) and DSO ($\alpha = .93$) subscales in this sample were excellent.

Diagnosis of PTSD requires that at least one symptom is present from each PTSD cluster, and endorsement of functional impairment associated with these symptoms. Diagnosis of CPTSD requires that one symptom is present from each PTSD and DSO symptom cluster, and endorsement of functional impairment associated with both sets of symptoms. ICD-11 diagnostic rules permit a diagnosis of PTSD or CPTSD but not both.

Dissociation

Dissociation was assessed using the Dissociation subscale of the Trauma Symptom Inventory (TSI; Briere, 1996). The TSI is a 100-item self-report

questionnaire of posttraumatic stress and sequelae. For each item, respondents are asked how frequently they have experienced the symptoms over the previous 6 months on a 4-point scale from 0 ("Never") to 3 ("Often"). The Dissociation subscale contains 10 items. Internal reliability (Cronbach's α) estimates in the present sample were excellent ($\alpha = .93$).

Statistical Analysis

Statistical descriptions were undertaken using Statistical Package for the Social Sciences (SPSS) software program, version 23.0 and the mediation model was specified and estimated using Mplus 8.0 (Muthén & Muthén, 2017) based on maximum-likelihood estimation. The mediation model is illustrated in Figure 1. PTSD and DSO were observed variables and measured as summed scores of the items from the ITQ. As shown, the model specified direct effects from the three periods of trauma exposure (Childhood, Adolescence, and Adulthood) to the mediator, Dissociation total. The model specified the effects of the mediating variable, Dissociation total, on ICD-11 PTSD and DSO. The three periods of trauma exposure also predicted PTSD and DSO while controlling for sex and gender.

The mediation strategy was based on the approach of Preacher and Hayes (2008). The statistical significance of the mediated effects was estimated using 95% bootstrapped bias-corrected and accelerated confidence intervals (Efron, 1987; Efron & Tibshirani, 1993). Confidence intervals that do not span over the value of zero are considered statistically significant ($p < .05$). In order to find the optimal fit, three models were tested: one 'Direct Only' model where 'a' and 'b' paths were set as zero, an 'Indirect Only' model where 'c' paths were all set as zero, and finally the 'Direct and Indirect' model where all of the paths were estimated. Model fit was assessed with the following criteria: a nonsignificant chi-square (χ^2) (Hu & Bentler, 1998), comparative fit index (CFI; Bentler, 1990), and Tucker–Lewis index (TLI; Tucker & Lewis, 1973). The values above .90 indicate adequate fit; root-mean-square error of approximation (RMSEA; Steiger, 1990) with 90% confidence intervals with values less than .08 indicats adequate model fit. Additionally, the standardized root-mean-square residual (SRMR: Joreskog & Sorbom, 1981) was used with values less than .08 indicating adequate fit. To compare models, the Bayesian information criterion (BIC; Schwarz, 1978) was applied, with the smallest value indicating the superior fitting model. A difference above 10 between two models indicates strong evidence that the model with the lower value is statistically superior (Raftery, 1995). Importantly, both the RMSEA and the BIC include penalties for increasing model complexity.
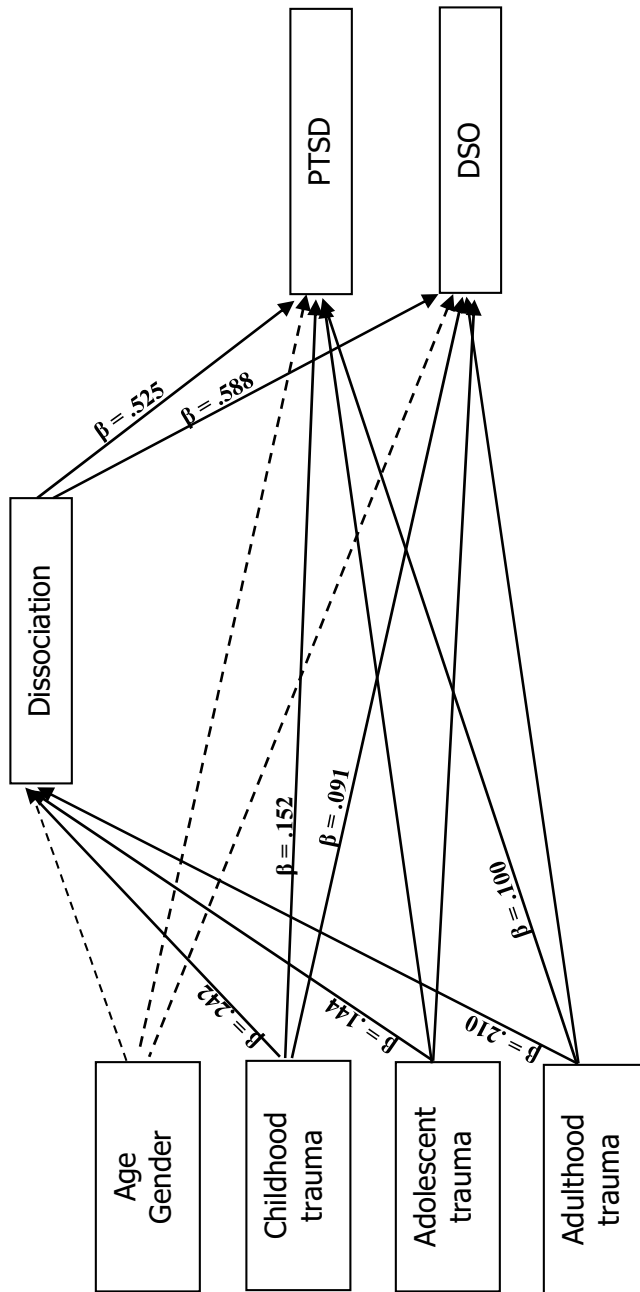
Figure 1. Mediation model.

Results

The descriptive statistics for the mediation model variables are seen in Table 1. Frequencies of exposure for each event in the ITEM during childhood, adolescence, adulthood, and total lifetime trauma exposure are reported below. The average score of dissociation was 7.22, in a possible range from 0 to 30. A greater proportion of the sample met criteria for CPTSD (8.1%) than PTSD (5.1%).

The model fit statistics for the three mediation models are displayed in Table 2. On assessment of these statistics, the 'Direct and Indirect' model was identified as the optimum fit for the data on the principle of parsimony with the lowest BIC value by over 10 points.

The estimates of the direct effects are reported in Table 3. All stages of trauma exposure (Childhood β = .242, Adolescence β = .144, and Adulthood β = .210) were significantly associated with Dissociation Total. Dissociation Total was significantly associated with both PTSD (β = .525) and DSO (β = .588) symptom clusters. Only Childhood trauma was significantly associated with the presence of both PTSD (β = .152) and DSO (β = .091) symptom clusters. Adulthood trauma was significantly associated with PTSD (β = .100) but not DSO (β = .022) symptoms, and Adolescent trauma was not significantly associated with either PTSD (β = .013) or DSO (β = .022).

Table 2. Model fit statistics for the alternative models of trauma stage, dissociation and complex PTSD.

Models	χ^2	df	p	95% BS CI	CFI	TLI	SRMR	BIC
1. Direct only	681.71	5	<.001	.364 (.341, .388)	.571	−.546	.184	19218.726
2. Indirect only	55.50	6	<.001	.090 (.096, .112)	.969	.906	.039	18585.587
3. Direct and Indirect	–	–	–	–	–	-	-	18571.652

Table 3. Standardized estimates of direct effects.

Path	β (S.E.)	p
To dissociation from:		
Childhood trauma	.242 (.035)	<.001
Adolescent trauma	.144 (.029)	<.001
Adulthood trauma	.210 (.028)	<.001
From dissociation to:		
PTSD	.525 (.028)	<.001
DSO	.588 (.029)	<.001
To PTSD from:		
Childhood trauma	.152 (.025)	<.001
Adolescent trauma	.013 (.027)	.627
Adulthood trauma	.100 (.026)	<.001
To DSO from:		
Childhood trauma	.091 (.027)	.001
Adolescent trauma	.022 (.028)	.436
Adulthood trauma	.022 (.026)	.390

Table 4. Standardized estimates of indirect (mediated) effects.

Path	β (S.E.)	95% BS CI
Indirect effect to PTSD from:		
Childhood trauma	.127	.087, .163
Adolescent trauma	.076	.047, .108
Adulthood trauma	.110	.077, .142
Indirect effect to DSO from:		
Childhood trauma	.142	.100, .184
Adolescent trauma	.085	.053, .122
Adulthood trauma	.123	.087, .161

BS CI = bootstrapped confidence intervals.

The estimates of the indirect effects are reported in Table 4. All of the indirect effects of stage of trauma on PTSD and DSO through Dissociation were significant based on assessment of the 95% bootstrapped confidence intervals with none of the ranges including zero. These findings show that the higher exposure to trauma at each stage, the higher levels of PTSD and DSO symptoms through heightened levels of Dissociation. The standardized estimates convey that the strongest of these relationships is that of Childhood Trauma exposure for PTSD (β = .127) and DSO (β = .142). All independent variables were more strongly associated with DSO than with PTSD.

Discussion

Overall results indicate that dissociation mediated the relationship between self-reported trauma exposure across the developmental periods of childhood, adolescence, and adulthood and ICD-11 CPTSD symptom clusters in a representative, population-based sample. This relationship was slightly stronger when the trauma exposure was in childhood and all independent variables were more strongly associated with DSO than PTSD symptoms. Childhood trauma exposure was the only developmental stage, which was directly associated with both PTSD and DSO symptoms in our sample. These findings highlight an important role for dissociation in the development of CPTSD as well as a potentially heightened vulnerability when trauma is experienced in childhood.

The relationship between dissociation, trauma, and PTSD has been investigated increasingly over recent years. With the inclusion of the CPTSD diagnosis in the ICD-11, there is now a need to explore how dissociation might relate to the additional DSO symptom clusters. A preliminary study (Hyland et al., 2020) identified significantly higher levels of dissociation in those that met criteria for CPTSD than for PTSD or had no diagnosis. Dissociation was specifically associated with the clusters of affect dysregulation, reexperiencing, and disturbed relationships. Interestingly, two of the three clusters belong to the DSO domain, further emphasizing the significance

of dissociation in CPTSD. This study builds upon these findings by using a population sample to show that trauma across developmental periods is associated with DSO and that these relationships are mediated by dissociation. Earlier work by Burton (2018) had rightly questioned whether findings that were suggestive of a dissociative subtype of PTSD may be conflated by the reexperiencing symptoms, a form of dissociation. The additional exploration of the DSO symptom clusters in the present study and Hyland (2019) suggest instead that dissociation may be more strongly associated with DSO rather than with PTSD. Overall, the findings suggest that dissociation does not simply represent the severity of trauma symptoms but relates to several symptom clusters.

Our findings tentatively support the attachment-based models of dissociation in that earlier traumatic experiences were slightly more strongly associated with levels of dissociation and more severe trauma symptomatology. Longitudinal studies lend support to childhood trauma predicting later dissociative symptomatology (Diseth, 2006; Dutra et al., 2009; Ogawa et al., 1997). However, adolescent and adulthood trauma were also significantly associated with dissociation and CPTSD and so the relationship is not fully accounted for by childhood trauma. One possible factor that may confound our results is that those with early trauma may more likely experience polyvictimization in later life, which itself has been associated with dissociation (Ford et al., 2018). However, a study that used a factor analytic approach controlling for lifetime trauma exposure also identified that childhood experiences uniquely predicted PTSD, CPTSD, and dissociation (Frewen et al., 2019). This suggests that polyvictimization and lifetime trauma exposure do not explain the strength of the relationship between childhood trauma, dissociation, and CPTSD symptomatology. Furthermore, it should be noted that our study assessed trauma exposure retrospectively using self-report measures, and so our measure of dissociation can only be associated with recalled trauma, recalled age of trauma, and present CPTSD symptoms. In order to deepen our understanding of this relationship, future work could build on these findings by using a longitudinal design to explore the role of dissociation on individual CPTSD symptoms over time and into adulthood.

The finding that dissociation mediates the relationship between trauma and CPTSD suggests that interventions to tackle dissociation might be beneficial for those with CPTSD. Modular approaches that have been advocated for the treatment of CPTSD (Karatzias & Cloitre, 2019) might benefit from the inclusion of strategies that specifically target the symptoms of dissociation. Targeting dissociation as early as possible can be essential as this can enhance people's ability to engage with the treatment. This might be particularly relevant for exposure-based therapies that are commonly used for treating PTSD symptoms, which require a connection with the present moment whilst reliving traumatic material. The development of interventions for CPTSD is in

its infancy, and although not everybody with CPTSD also presents with dissociative symptoms, the predominant suggestion of the modular approach to treatment is that symptom clusters are addressed in an idiosyncratic, formulation driven manner (Karatzias & Cloitre, 2019). Where dissociation is a presenting concern, the development of a dissociation module could be a beneficial adjunct to the emotion regulation skills module, the symptom cluster to which it appears to be most strongly associated (Hyland et al., 2019). Equally it would be useful to explore in future research whether tackling emotional regulation has a positive impact on dissociative symptoms.

Although it remains uncertain whether dissociation limits responsiveness to trauma-focused treatment, dissociation has been linked to non-suicidal self-injury (Rossi et al., 2019) and has also been evidenced as a mediator between childhood trauma and self-injury (Franzke et al., 2015). Therefore, it will be important for clinicians working with PTSD and CPTSD to routinely screen for dissociative experiences and potential risk of self-injury.

Our study has a number of limitations. First, a key limitation is the use of cross-sectional data with which one cannot ascertain causation between trauma stage, dissociation and CPTSD symptoms. Our mediation analysis can only illustrate associations using retrospective accounts of trauma history, and so further research into these relationships would greatly benefit from a longitudinal design. Second, dissociation was measured using a subscale of the TSI. There remains debate as to the best way to measure dissociation, with some support of measuring dissociation on a continuum of symptoms rather than separate dimensions (Ruiz et al., 2008). The TSI subscale used in this study measures the total symptoms experienced spanning across different forms of dissociation, including spacing out, flashbacks and derealization. Using alternative measures of dissociation may therefore elicit different results. Existing associations could also be explained by a conceptual overlap between PTSD symptoms and dissociative states (e.g., flashbacks). Furthermore, trauma exposure was categorized into three stages of development: childhood (0–12), adolescence (13–17), and adulthood (18+). The capacity to integrate experiences varies hugely throughout childhood development from nonverbal to verbal stages (Bowlby, 1982), and so our variables are a crude proxy for developmental period. Further research could benefit from more sensitively assessing the impact of trauma at different developmental stages through longitudinal research. In addition, it was beyond the scope of the study to address the impact of the type of trauma experienced. There is evidence to suggest that different types of trauma are differentially related to dissociation and CPTSD. For instance, one study found that children who had been sexually abused were three times more likely to experience dissociation than those with other trauma histories (Hagan et al., 2018). Therefore, future research could expand on the current findings by assessing the relationship between different trauma types across developmental periods,

and subsequent dissociative and CPTSD symptoms. Finally, another limitation of our work is the use of self-report data. The validity of the data therefore depends on participants reliably recalling the age of trauma exposure and the accuracy of recording their symptoms and this is an important limitation. The use of self-report may be problematic particularly when assessing dissociative experiences in which people may struggle to describe their symptoms. Using clinician-administered interviews in future studies could help to confirm the accuracy of the relationships found.

In conclusion, our study demonstrated that dissociation mediated the relationship between stages of trauma exposure and CPTSD symptom clusters in a representative population-based sample, with the strongest relationship being with childhood trauma. Dissociation is an impairing symptom and our study highlights the relevance of dissociative symptoms for the assessment and treatment of CPTSD.

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