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Prevalence, correlates, and the mitigation of ICD-11 CPTSD among homeless adults: The role of self-compassion

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ABSTRACT

Background: In 2018, Complex Post-Traumatic Stress Disorder (CPTSD) was accepted into the International Classification of Diseases, edition 11 (ICD-11) to capture symptoms associated with exposure to chronic, inescapable trauma. Thereafter, the disorder's links with interpersonal trauma have been established.

Objective: Within a sample of homeless adults in Ireland, the (1) prevalence of ICD-11 disorders specifically associated with stress; Post Traumatic Stress Disorder (PTSD) and CPTSD, (2) nature of interpersonal trauma exposure, self-identified index events, and their association with the diagnostic criteria of CPTSD, and (3) relationship between cumulative interpersonal trauma exposure and CPTSD via self-compassion were examined.

Participants and setting: Adults using homeless services ($N = 56$) completed self-report measures of socio-demographics, trauma-history, PTSD, CPTSD, and self-compassion.

Methods: The data were analysed using chi-squared and mediation analyses (via PROCESS).

Results: CPTSD was highly prevalent (33.9%) among the sample, but PTSD was not (3.6%). Emotional neglect was the most prevalent interpersonal trauma and the most common index event. Only lifetime sexual abuse (from someone other than a parent or guardian) was associated with CPTSD diagnostic status ($\chi^2 = 3.94$, (1), $p = .047$). When adjusted for gender, relationship status, and living situation, self-compassion mediated the relationship between cumulative interpersonal trauma exposure and CPTSD severity ($B = 1.30$, $SE = 0.50$, 95% CI = [0.43–2.35]).

Conclusion: Findings support the relevance of CPTSD to understanding psychopathology in homeless adults and the potential role of self-compassion in interventions. Further, they open debate on the nature of events that are considered traumatic – subjectively and in psychiatric canon.

For decades evidence that Post-Traumatic Stress Disorder (PTSD) fails to cover the remit of symptoms associated with exposure to repeated interpersonal trauma has been accumulating (Cloitre et al., 2020; Herman, 1992). Accordingly, Complex Post-Traumatic Disorder (CPTSD) was added to the ICD-11 in 2018 (World Health Organization; World Health Organization, 2018). This diagnosis spans the classic PTSD symptoms (avoidance, re-experiencing, sense of threat) and includes disturbances in self-organisation

Abbreviations: PTSD, Post-Traumatic Stress Disorder; CPTSD, Complex Post-Traumatic Stress Disorder; COR, Conservation of Resources.

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(disturbed relationships, affective dysregulation, and negative self-concepts). Its conceptualisation – comprised of these second-order factors accompanied by impairment – has been supported across various studies (see Cloitre et al., 2020). Further, it accords with an empirically-supported framework, Conservation of Resources theory (COR; Hobfoll, 1989, 1991, 2002).

COR posits that resource loss is key to post-traumatic stress. As a psychosocial model, it conceptualises resources in intra- and interpsychic terms in terms of how they help a person to cope. Trauma results in a loss of resources – as they are expended coping – and this produces a sense of threat. Per attachment and social learning theories, interpersonal traumas exert particular harm due to their effects on self-concepts, emotion regulation, and social connectedness – each of which maps onto the DSO symptoms (Charuvastra & Cloitre, 2008). Further, the interpersonal context can also contribute to named risk factors for CPTSD; recurrent exposure and inescapability (Herman, 1992; World Health Organization, 2018).

COR theory and research have illustrated that repeated and inescapable traumas overburden resources, which amplifies the sense of threat, and predicts a state of resource depletion (Hobfoll, 1989; Hobfoll et al., 2011). In the absence of resource-availability, individuals become vulnerable to accelerated cycles of resource loss and post-traumatic symptoms. Accordingly, COR supports CPTSD's interlinked second-order structure; PTSD (as a threat response to a specific trauma) and DSO (as stable disturbances of self-concepts, emotion and relationship; Cloitre et al., 2020).

Trauma is a diagnostic requirement for PTSD and CPTSD, yet its defining features differ across psychiatry. Within the Diagnostic and Statistical Manual (DSM-5; American Psychiatric Association, 2013), trauma refers only to 'actual or threatened death, serious injury, or sexual violence' (American Psychiatric Association, 2013, p. 271). In contrast, the ICD-11's definition refers more broadly to 'extremely threatening or horrific events.' The ICD-11 also identifies repeated, prolonged, and inescapable traumas as specific risk factors for CPTSD.

In light of these variable definitions, researchers have sought to establish the nature of events most robustly associated with post-traumatic symptoms. In one population study, childhood abuse by a caregiver was found to create a vulnerability to CPTSD, whereas non-caregiver child abuse and interpersonal trauma in adulthood were linked with PTSD (Cloitre et al., 2019). Consistent with the DSM-5 definition of trauma, psychologically threatening events are often absent from enquiries (e.g. Hyland, Murphy et al., 2017; Karatzias, Hyland et al., 2019) or addressed in a single item focused on verbal abuse (Cloitre et al., 2019). This is despite the fact that the ongoing relational context in which these events occur make repeated exposure likely and escape difficult. Hyland et al. (2020) are among the first to have compared the impact of numerous psychologically threatening events and more traditional forms of traumas on ICD-11 post-traumatic symptoms. In a nationally representative Irish sample, they found that when sexual, physical, and psychological traumas were compared, only the latter were associated with post-traumatic symptomatology. Specifically, stalking was associated with PTSD, while bullying, emotional abuse, and neglect with CPTSD. Their findings suggest that identifying the most robust risk factors for CPTSD requires assessing diverse interpersonal traumas, including psychologically threatening events.

Grounded in theories of attachment and seminal work on CPTSD, a link between interpersonal trauma in childhood and CPTSD has also been established (Hyland, Murphy, et al., 2017; Karatzias, Hyland, et al., 2019). However, the view that CPTSD's origins lie exclusively in early-onset trauma has been challenged (Palic et al., 2016; Zerach et al., 2019). Research has demonstrated that exposure in adulthood to inescapable trauma also predicts CPTSD (Palic et al., 2016; Zerach et al., 2019). Further, some researchers have shifted towards examining the positive relationship between lifetime exposure to interpersonal trauma and CPTSD (Frost et al., 2019; Nickerson et al., 2016). This approach is consistent with the idea that repeated interpersonal trauma is key to CPTSD and that that polyvictimisation (co-occurrence of interpersonal traumas) and revictimisation (interpersonal trauma exposure in childhood predicts re-exposure in adulthood) are common (Dong et al., 2004; Widom et al., 2008).

As a collective, homeless persons are known to endure higher levels of childhood interpersonal trauma, particularly physical and sexual abuse – than members of the general population (cf. Stoltenborgh, van Ijzendoorn, Euser, & Bakermans-Kranenburg, 2011; Stoltenborgh et al., 2013; Sundin & Baguley, 2015). Largescale data on emotional abuse is lacking, but smaller-scale studies also suggest elevated exposure rates in homeless adults (cf. Edalati et al., 2016; Stoltenborgh et al., 2012). Furthermore, patterns of revictimisation are found (Edalati et al., 2016), and interpersonal trauma exposure has also been identified as a consequence of homelessness (Keane et al., 2020; Kushel et al., 2003). The ecology of homelessness (Keane et al., 2020; Kushel et al., 2003), and marginalisation more generally (Obasaju et al., 2009); e.g. diminished economic opportunities/stability and poor living conditions) coalesce to increase risks of being exposed to interpersonal trauma.

Given the evidence of extensive trauma histories, it is unsurprising that DSM-5 PTSD is common among homeless samples, with pooled prevalence estimates of 27.38% (Ayano et al., 2020). Moreover, at least one study has also shown that DSM-5 PTSD commonly co-occurs with low self-efficacy and social-connectedness in this group (Kim et al., 2018). These factors accord with disturbances in self-organisation clusters of negative self-concepts and disturbances in relationships. In the sole existing study of ICD-11 post-traumatic symptoms in a homeless context, the prevalence of PTSD was estimated at 12.6% and CPTSD at 35.0% (Armstrong et al., 2020). As the study was undertaken prior to the ICD-11's release, validated measures of ICD-11 PTSD and CPTSD were not used, and a key criterion for diagnostic classification was not included (i.e. functional impairment). Thus, assessing the prevalence and risk factors of ICD-11 post-traumatic symptoms among homeless populations remains necessary.

Within homeless adults, specific sub-groups are likely to be more vulnerable than others to CPTSD. From the COR perspective, socio-demographic information reflects resources for coping with trauma, as it reflects social structures related to privilege, access to resources, and social status. To date, the literature is inconclusive on the differences between males and females in prevalence rates of PTSD and CPTSD; several studies have found that both diagnoses are more common among women (e.g. Cloitre et al., 2019), others' that being female only differentially predicts PTSD (e.g. Ben-Ezra et al., 2018; Karatzias, Hyland, et al., 2019), and some indicated no differences between men and women (e.g. Karatzias, Shevlin, et al., 2017; Wolf et al., 2015). Two studies found that relationship status differentially predicted PTSD/CPTSD symptoms; being in a committed relationship predicted PTSD while not being in a committed

relationship predicted CPSTD (Ben-Ezra et al., 2018; Karatzias, Hyland, et al., 2019). Further, living situation appears correlated with CPSTD; those with CPTSD seem less likely to be married and more likely to be living alone, or without a partner or family member than those with PTSD (Karatzias, Shevlin, et al., 2017). Exploring the relationship between socio-demographics and diagnostic status may identify those at risk of the worst post-traumatic outcomes, thereby informing intervention and prevention.

CPTSD is also a more robust predictor of psychiatric comorbidity and distress intolerance than PTSD (Cloitre et al., 2019; Hyland, Shevlin, et al., 2017), and is considered to be somewhat resistant to conventional PTSD-focused treatments (Karatzias, Murphy, et al., 2019). Standard PTSD treatment (i.e. trauma-focused cognitive behavior therapy) produces modest decrements in DSO-clusters of negative self-concepts and disturbances in relationships, but limited effect on affective dysregulation is found, and all outcomes are negatively moderated by childhood trauma (Karatzias, Murphy, et al., 2019). Thus, the need to identify variables associated with CPTSD to inform intervention and prevention is clear.

Consistent with COR, personal resources represent a malleable factor that may be particularly useful for individuals who are socially marginalised and resource-poor (Keane et al., 2020). Previous research has examined the role of self-compassion, sometimes termed compassion as a personal resource for coping with trauma (MacBeth & Gumley, 2012). Self-compassion refers to the capacity to hold one's pain in consciousness with kindness rather than self-criticism, in a mindful rather than an over-identified manner, and to see as part of shared human experience rather than something that sets one apart (Neff, 2003a). Self-compassion based interventions also target feelings of shame and self-criticism, which are known to interfere with traditional PTSD treatment (Braehler & Neff, 2020; Lee et al., 2001). These feelings are associated with poorer outcomes as they make contact with traumatic reminders extremely painful (Brewin, 2019). Thus, the individual's capacity to hold the trauma in consciousness is reduced. This leads to feelings of detachment and numbing, which predict poorer treatment outcomes (Brewin et al., 2010).

Theories of self-compassion locate its origins in interpersonal relationships (Gilbert, 2005; Neff & McGehee, 2010). In research, psychological threat (e.g. harsh criticism, aggression, and low-warmth) in parent-child relationships (Neff & McGehee, 2010; Pepping et al., 2015) and interpersonal trauma in childhood (Tanaka et al., 2011; Vettese et al., 2011) have also been found to predict diminished self-compassion in adulthood. To date, no studies have addressed the relationship between lifetime cumulative interpersonal trauma exposure and self-compassion.

Self-compassion has been identified as a predictor of positive post-traumatic adaptation and subjective well-being in the context of post-traumatic symptoms (Scoglio et al., 2018; Seligowski et al., 2015). Numerous studies have found associations between self-compassion and DSM-5 PTSD (e.g. Maheux & Price, 2015). Furthermore, findings from the sole study using the ICD-11 criteria indicated that self-compassion was negatively correlated with each of the DSO symptom clusters, but was not with the PTSD-clusters (Karatzias et al., 2018). Together, these findings suggest self-compassion could mediate the relationship between interpersonal traumas, particularly those of a psychologically threatening nature, and CPTSD.

In light of the above, the current study had four objectives. First, this study sought to provide information on the point prevalence of PTSD and CPSTD within a homeless sample. Given existing knowledge on the trauma profile of homeless adults, the prevalence of DSM-5 PTSD and co-occurring symptoms in this group, we predicted that CPTSD would be a more prevalent diagnosis than PTSD. Second, the nature of events individuals self-identified as their worst traumatic experience (i.e. index event) was determined. Thirdly, the type(s) of interpersonal traumas most strongly associated with meeting the diagnostic criteria for CPTSD were identified. Finally, we tested the hypothesis that the relationship between cumulative interpersonal trauma and CPSTD is mediated by self-compassion while controlling for various socio-demographic variables (i.e. gender, relationship status, and living situation).

1. Method

1.1. Participants

An a priori test of statistical power indicated that to identify a medium effect size ($f = 0.15$) with an alpha of 0.05 and power of 0.80 with eight predictor variables, a sample of 109 participants was required (Faul et al., 2009). Thus, the study was advertised to a pool of approximately 300 adults accessing homeless hostels and day-services within the Peter McVerry Trust, Dublin, Ireland. To participate, individuals needed to provide informed consent and persons were excluded if actively psychotic or affected by alcohol or illicit drugs. No remuneration was offered for participation. Participants had the option to complete the study materials independently in written form or verbally with literacy support (provided by the first author and an experienced homeless support-worker). Verbal explanations

Table 1
Socio-demographics of the sample.

Category of socio-demographic	Specific variable	% (n = 56)
Gender	Male	73.21 (41)
	Female	21.43 (12)
	Other	5.36 (3)
Living situation	Short-term hostel	66.07 (37)
	Supported housing	10.71 (6)
	Rough-sleeping	7.14 (4)
	Other	12.5 (7)
Relationship status	In a relationship	35.7 (20)
	Other	64.3 (36)

for items were drafted by the first-author and then reviewed by staff and service-users of the homeless service. Ethical approval for the study was granted by the Psychology Research Ethics Committee of Trinity College, University of Dublin (reference number: SPREC022019–34). In addition, the study design and materials were reviewed by the research officer and board of the host organisation.

Seventy-one individuals returned the questionnaires to the researcher. However, 13 questionnaires were returned blank, and two only included socio-demographic information. As a result, 56 individuals were included in the analysis. Fifty-four individuals (96.43% of the sample) provided data on their current age, which ranged between 19 and 58 ($M = 37.11$, $Mdn = 37$, $SD = 9$). The same number provided data on their age the first time they became homeless; ranging between 2 and 58 years ($M = 26$, $Mdn = 24.50$, $SD = 12$). Fifty-two individuals (92.86% of the sample) reported on the country in which they grew up. Forty-eight individuals answered Ireland (85.71% of the sample), while the Philippines, Somalia, Romania, and Italy were each reported by 1 participant (each accounting for 1.79% of the sample). Additional participant characteristics are summarised in [Table 1](#).

1.2. Materials

Socio-demographic data was gathered on participants' age, age at first episode of homelessness, gender, relationship status, living situation, and the country they grew up in.

Trauma exposure was measured using a simplified version of the International Trauma Exposure Measure (ITEM; [Hyland et al., 2020](#)); a freely available checklist developed in line with the ICD-11's conceptualisations of trauma. Binary data (i.e. yes = 1, no = 0) was gathered on exposure to 21 traumatic events in childhood, adulthood, and across the lifespan. Responses to the 14 interpersonal trauma items across the lifespan were then summed to create a cumulative interpersonal trauma variable. Cumulative interpersonal trauma scores ranged between 0 and 14, whereby 0 indicated no lifetime exposure to any form of interpersonal trauma.

The prevalence of PTSD and CPTSD was measured using the International Trauma Questionnaire (ITQ; [Cloitre et al., 2018](#)). Developed in line with the ICD-11, the ITQ is a widely validated self-report measure ([Karatzias, Cloitre, et al., 2017](#)). Respondents were asked to self-report their most distressing traumatic event (i.e. index event) from those endorsed in the ITEM. Subsequent questions were then answered in relation to that event. Six items related to PTSD focused on avoidance, re-experiencing, and sense of threat, while another six measured DSO via questions on affect dysregulation, negative self-concepts, and disturbed relationships. PTSD symptoms were answered in relation to how bothersome these symptoms have been in the last month, and the DSO symptoms are answered in terms of how a person typically responds, thinks about oneself, or relates to others. The PTSD and DSO clusters were each accompanied by three items measuring the functional impairment the symptoms caused. Symptom and functional impairment endorsements were scored on a scale ranging from 'not at all' (0) to 'extremely' (4). The internal reliability of the PTSD ($\alpha = 0.83$) and DSO ($\alpha = 0.89$) subscale scores in this sample was good.

Self-compassion was measured via the Self-Compassion Short Form; a reliable and economical alternative to the original scale when examining total scores ([Neff, 2003b](#); [Raes et al., 2011](#)). Participants answered 12-item measure in terms of 'how I typically behave towards myself in difficult times' on a five-point Likert scale (1 = 'almost never, five = 'almost always). Consistent with Raes and colleagues' ([Raes et al., 2011](#)) recommendations, total scores were computed by reverse-scoring negative-subscale items, totalling the positive and negative subscales, and reporting the mean-score. Adequate internal reliability of the items was found in the sample ($\alpha = 0.75$).

1.3. Procedure

Instances of missing data were not identified in response to questions on gender, living situation, and relationship status, nor on the ITEM. Two respondents returned ITQs with 1–2 missing items, and one respondent returned the measure of self-compassion with a missing response. For the ITQ, the missing data point was substituted by the mean score the individual reported within that symptom cluster (i.e. PTSD or DSO). On the self-compassion measure, the individual's overall mean score was substituted for the missing item.

The point prevalence of PTSD and CPTSD was first calculated. A PTSD diagnosis required that the participant endorsed a trauma on the ITEM, that at least one symptom was present from each PTSD cluster, and at least one indicator of functional impairment related to these symptoms was reported. A CPTSD diagnosis required that the diagnostic criteria for PTSD were met, that at least one symptom was present from each DSO cluster, and at least one indicator of functional impairment related to these symptoms was endorsed. The ICD-11 diagnostic rules only permit a diagnosis of PTSD or CPTSD. Thus, if a person meets the diagnostic requirements for CPTSD, they do not also receive a PTSD diagnosis. Secondly, the nature of traumas individuals identified as their worst experience was examined. To address the third research objective, the prevalence of a range of interpersonal traumas in childhood, adulthood, and across the lifespan was calculated. The association between lifetime exposure to each of these traumas and meeting the diagnostic criteria for CPTSD was determined using a chi-squared analysis. Finally, a simple mediation model conducted using the PROCESS macro ([Hayes, 2017](#)) assessed the relationship between cumulative interpersonal trauma exposure and CPTSD via self-compassion, controlling for potential socio-demographic correlates of CPTSD. These socio-demographic variables were dummy-coded such that the criterion variable for gender was 'male' – compared against 'female' and 'other'. For living situation, 'supported housing' was compared against 'rough-sleeping,' 'short-term hostel' (i.e. 6-month contract), and the 'other' category. Further, those in a relationship (criterion variable) were compared against those in the 'other' category.

2. Results

2.1. Descriptive statistics; diagnostic rates, nature of index events, cumulative trauma exposure, and self-compassion

According to the diagnostic criteria, 3.6% ($n = 2$) of participants met the criteria for PTSD, while 33.9% ($n = 19$) met the criteria for CPTSD. Fifty-one individuals responded to the question on their worst self-identified trauma, six of whom listed more than one experience, resulting in 66 responses. These events are described in Table 2.

The mean number of fourteen interpersonal trauma items which were endorsed during at least one point in the lifespan was 6.5 ($sd = 3.162$). The mean self-reported self-compassion score was 2.83 ($sd = 0.665$).

2.2. Prevalence of interpersonal trauma and association with CPTSD diagnostic status

The most common traumatic experiences in childhood were of emotional neglect, followed by emotional abuse and physical abuse (by a parent or guardian), as well as physical neglect. In adulthood, emotional abuse and life being threatened by a weapon occurred at an equal rate and were followed by emotional neglect, physical abuse (by someone other than a parent or guardian), and physical neglect. The only trauma associated with CPTSD diagnostic status was lifetime exposure to sexual abuse by someone other than parent or guardian. Table 3 provides the exact prevalence estimates of traumas and results of the chi-squared analysis.

2.3. The relationship between cumulative interpersonal trauma and CPTSD via self-compassion

The simple mediation analysis illustrated a significant total effect of cumulative interpersonal trauma on CPTSD severity via self-compassion adjusted while controlling for the effects of gender, relationship status, and living situation ($B = 3.40$, $SE = 0.79$, $p = .0001$). Further, the model revealed both a significant indirect ($B = 1.30$, $SE = 0.50$, 95% CI = [0.43–2.35]) and direct ($B = 2.09$, $SE = 0.81$, $p = .0134$) effect of cumulative interpersonal trauma on CPTSD severity. Overall the model accounted for 34% of the variance in CPTSD severity ($R^2 = 0.34$) (Fig. 1).

3. Discussion

This study provides novel insight into the trauma profile and prevalence of ICD-11 post-traumatic disorders within adults in homelessness in Ireland. Interpersonal traumas were commonly reported, with emotional neglect, emotional abuse, and physical violence being reported most frequently in childhood and adulthood. When asked to self-identify their worst traumatic experience, both emotional abuse and emotional neglect, as well as witnessing another's extreme suffering or death were most commonly reported. An assessment of the association between lifetime exposure to specific traumas revealed that only sexual abuse (from someone other than a parent or guardian) was associated with CPTSD diagnostic status. Finally, evidence that self-compassion mediates the relationship between cumulative interpersonal trauma and CPTSD severity while controlling for the effects of gender, relationship status, and living situation was found.

The point prevalence of CPTSD converged with prior estimates among adults in homelessness, although rates of PTSD differed considerably. Within both the current sample and those studied by Armstrong et al. (2020), more than a third of homeless respondents fulfilled the diagnostic criteria for CPTSD – 33.9% and 35.0%, respectively. The point prevalence of PTSD however, was substantially lower in this study compared to those reported by Armstrong and colleagues' - 3.6% and 12.6% respectively. This study's inclusion of

Table 2
The nature of events respondents identified as their worst traumatic experience.

Nature of index trauma	% (n)
Emotional neglect	16.67 (11)
Emotional abuse	12.12 (8)
Witnessing another person's extreme suffering or death	10.61 (7)
Physical neglect	7.58 (5)
Someone close died in an awful way	7.58 (5)
Sexual abuse by someone other than a parent or guardian	6.06 (4)
Physical abuse by a parent or guardian	4.45 (3)
Physical abuse by someone other than a parent or guardian	4.45 (3)
Exposure to a life-threatening accident	3.03 (2)
Sexual abuse by a parent or guardian	3.03 (2)
Sexual harassment	3.03 (2)
Experience of captivity or torture	3.03 (2)
Causing another person's extreme suffering or death	1.51 (1)
Exposure to a life-threatening natural disaster	1.51 (1)
Exposure to a life-threatening man-made disaster	1.51 (1)
Being stalked	1.51 (1)
Someone close experiencing a life-threatening accident or illness	1.51 (1)
'Drugs'	1.5 (1)

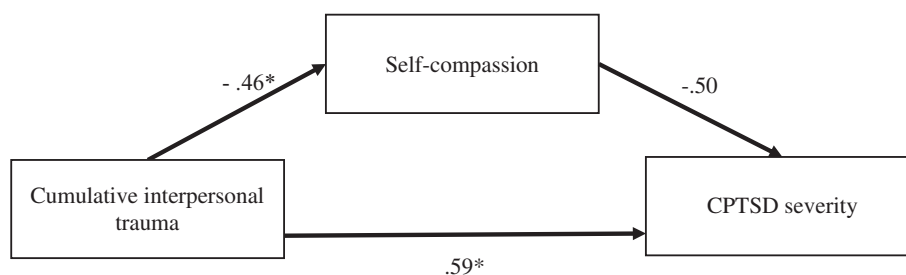
Note: One response 'nothing distressing' was not listed here.

Table 3

Prevalence of Interpersonal Trauma and the association between lifetime exposure and meeting the diagnostic threshold for CPTSD.

Nature of trauma	Exposure in childhood % (n)	Exposure in adulthood % (n)	Lifetime exposure % (n)	Chi-squared analysis of the association between lifetime exposure and meeting the criteria for CPTSD		
				χ^2	p- value	df
Life threatened with a weapon (knife, gun, bomb etc.)	46.4 (26)	53.6 (30)	69.6 (39)	2.89	0.089	1
Physical abuse by a parent or guardian.	42.9 (24)	26.8 (15)	58.9 (33)	0.21	0.645	1
Physical abuse by someone other than a parent or guardian.	58.9 (33)	48.2 (27)	71.4 (40)	0.96	0.326	1
Sexual abuse by a parent or guardian.	12.5 (7)	5.4 (3)	17.9 (10)	0.08	0.772	1
Sexual abuse by someone other than a parent or guardian.	23.2 (13)	8.9 (5)	30.4 (17)	3.94	0.047*	1
Sexual harassment	26.8 (15)	14.3 (8)	32.1 (18)	1.67	0.196	1
Held captive or tortured	12.5 (7)	6 (10.7)	17.9 (10)	1.40	0.236	1
Caused extreme suffering or death to another person	8.9 (5)	12.5 (7)	16.1 (9)	0.002	0.967	1
Witnessed another person experiencing extreme suffering or death	21.4 (12)	37.5 (21)	46.4 (26)	3.24	0.072	1
Experience of being stalked	16.1 (9)	16.1 (9)	25 (14)	0.66	0.415	1
Repeated bullying	37.5 (21)	26.8 (15)	44.6 (25)	0.086	0.769	1
Emotional abuse	58.9 (33)	53.6 (30)	76.8 (43)	0.08	0.784	1
Emotional neglect	60.7 (34)	51.8 (29)	78.6 (44)	2.03	0.154	1
Physical neglect	51.8 (29)	48.2 (27)	69.6 (39)	0.22	0.637	1

* Significant associations.

**Fig. 1.** The standardised effects of Cumulative Interpersonal Trauma on CPTSD via Self-Compassion adjusted for, gender, living situation, and relationship status.Note: Significant associations ($p < 0.05$) include an asterisk.

the ICD-11 criteria of accompanying functional impairment may explain this variation. PTSD manifests only in response to traumas, whereas disturbances in self-organisation are characterised by pervasive impairment (regardless of proximity to the traumatic stressor). Accordingly, it appears probable that degrees of functional impairment may differ between PTSD and CPTSD. By including functional impairment in this study, fewer individuals may have met the criteria for PTSD, while rates of CPTSD remained relatively unchanged. However, the high point prevalence of CPTSD across both studies should inform routine mental health screenings within this group. Further, they underscore the need to identify factors associated with CPTSD in homelessness to inform intervention and prevention.

Consistent with existing Irish research on homeless adults (e.g. Lambert & Gill-Emerson, 2017), child abuse was common and reported at higher rates than estimates from international studies (e.g. Sundin & Baguley, 2015). The finding that emotional neglect and abuse were the most common traumatic experiences in childhood is also compatible with findings from the general population (Moody et al., 2018), although the equally high prevalence of physical abuse by a caregiver was somewhat surprising. While fewer studies of interpersonal traumas in adulthood are available, this study indicates that for homeless persons, emotional abuse and neglect as well as physical violence are prevalent across childhood and adulthood.

When the relationship between lifetime exposure to each of the fourteen interpersonal traumas and meeting the diagnostic criteria for CPTSD was assessed, only one association was significant. Exposure to sexual abuse from someone other than a parent or guardian correlated significantly with meeting the diagnostic criteria for CPTSD. This contrasts with prior evidence linking abuse from caregivers/guardians with CPTSD, and abuse from others with PTSD (Cloitre et al., 2019). When compared against the other forms of interpersonal trauma, the lifetime prevalence of sexual abuse from caregivers or guardians was relatively low, which may have affected this analysis. However, the lifetime prevalence of physical abuse from a caregiver or guardian was high (58.95) and was also uncorrelated with CPTSD diagnostic status. This finding may be interpreted to support controlling for wide-ranging traumas in studies of

risk factors of CPTSD - to avoid identifying (potentially) false-positive relationships.

None of the psychologically traumatic events (i.e. emotional abuse, emotional neglect, bullying, and stalking) was associated with CPTSD diagnostic status. This runs contrary to previous findings and the idea that psychological traumas may exert particular harm due to their ongoing relational context (Hyland et al., 2020). On every measured index of interpersonal the homeless adults in this study reported higher levels of exposure than those reported in Hyland and colleagues' (2020) study. This difference may suggest that in the presence of repeated cycles of traumas, psychological traumas do not retain their pernicious impact on CPTSD.

Some support for definitions of trauma grounded in 'actual or threatened death, serious injury, or sexual violence' (American Psychiatric Association, 2013, p. 178) is provided by the absence of any association between psychological traumas and CPSTD diagnostic status, as well as the relationship between CPTSD and sexual abuse (by someone other than a parent or guardian). However, such a definition fails to account for persons' subjective experiences – in which despite exposure to a broad range of traumas, individuals most commonly identified their worst traumas as events involving emotional abuse, emotional neglect, and witnessing another's extreme suffering or death – none of which are compatible with the DSM-5 conceptualisation of trauma. In isolation, these events were not associated with CPTSD diagnostic status, but a cumulative measure of interpersonal trauma, including these events, predicted CPSTD. Again, this is consistent with the view that CPTSD derives from repeated and multi-type traumas (Hyland et al., 2016), which overburden resources.

The mediation model also provided evidence that self-compassion mediated the relationship between cumulative interpersonal trauma and CPTSD severity, whereby increased exposure to cumulative interpersonal trauma predicted diminished self-compassion, which predicted more severe CPSTD symptoms. This not only affirms prior findings that attachment and abuse in childhood negatively affect self-compassion, but so too do interpersonal traumas across the lifespan. Consistent with COR, self-compassion may represent a resource which when acquired, can enhance recovery from trauma. By accumulating resources, upward spirals of resource gain are also possible (the inverse of loss cycles) as individuals have sufficient resources to deploy to cope as well as time to develop and grow (Hobfoll et al., 2011). The results of this study suggest that self-compassion may be one such support to help individuals in homelessness manage CPTSD emerging from multi-type and chronic interpersonal trauma.

In Ireland, the need for low-cost quality interventions is evident. Service-gaps mean that the mental healthcare of homeless persons often falls on voluntary services and community mental health teams, both of which are ill-equipped to provide specialist or intensive mental healthcare (Crowley, 2003; Prinsloo et al., 2012). While interventions grounded in self-compassion may involve clinicians trained in compassion-focused therapy (Gilbert & Procter, 2006), self-compassion exercises are also freely available online (www.self-compassion.org). The accessibility of these exercises would support their integration into existing support services. Prior research also shows that the retention rate of clients in self-compassion interventions is relatively high. For example, in a sample of veterans, 72% attended at least three-quarters of a 12-week facilitator-led Loving-Kindness meditation (Kearney et al., 2013). The only pre-existing study of self-compassion in homeless persons revealed that 57% of participants re-engaged following a 4-week self-led workbook-based intervention (Held & Owens, 2015). While the lower retention rate here is attributable to a broad range of factors, both the self-led nature of the intervention and the transiency of homelessness are likely contributors. Further research should therefore investigate the effectiveness of self-compassion interventions for CPTSD.

Standard PTSD treatment also produce modest decrements in DSO-clusters of negative self-concepts and disturbances in relationships, with limited effect on affective dysregulation, however all are effects negatively moderated by childhood trauma

Table 4

Mediation model in which Cumulative Interpersonal Trauma was regressed onto CPTSD severity via Self-Compassion adjusted for covariates.

	Regress on Self-Compassion			Regress on CPTSD severity		
	β	P-value	95% CI	β	P-value	95% CI
Predictor						
Cumulative Interpersonal Trauma	-0.45	0.0000*	17.03–25.03	0.59	0.0134*	0.46–3.73
Mediator						
Self-Compassion				-0.50	0.0020*	-3.74 - -0.89
Covariates						
Gender ^a						
Female	0.07	0.5478	-1.57–2.92	0.012	0.9206	-10.56–11.58
Other	0.41	0.0004*	3.38–11.05	0.03	0.8502	-19.41–23.45
Relationship status ^b						
Other	0.08	0.4576	-1.13–2.47	-0.12	0.3109	-13.38–4.35
Living situation ^a						
Short-term hostel	-0.34	0.0838	-6.08–0.39	0.10	0.6498	-12.66–20.09
-sleeping	-0.04	0.7668	-5.17–3.83	0.24	0.1292	-5.13–39.06
Other	0.29	0.1325	-0.86–6.36	0.14	0.4771	-11.68–24.62

Note: β = standardised coefficient; statistically significant associations ($p < .05$) include an asterisk.

^a Please also note the criterion variable for gender against which those who selected 'female' and 'other' were compared was 'male'. For relationship status, 'being in a relationship' was selected as the criterion variable, and for living situation 'supported housing was chosen as the criterion variable.'

(Karatzias, Murphy, et al., 2019). Accordingly, enhanced DSO interventions may be required in this group, given the prevalence of childhood trauma and accompanying feelings of shame and harsh self-criticism (Fall, 2015; Sundin & Baguley, 2015). These feelings (alongside guilt) make contact with traumatic memories in therapy painful to the point that detachment and numbing may occur, which is linked with poor therapeutic outcomes (Braehler & Neff, 2020; Brewin, 2019; Held & Owens, 2015). Self-compassion based interventions have been shown to effectively target these feelings (Gilbert & Procter, 2006; Held & Owens, 2015). In a recent review on self-compassion and PTSD, Braehler and Neff (2020) highlighted that self-compassion based interventions may add specific value in helping patients move from avoidance and/or overidentification with feelings to awareness of emotions and the present-moment, from isolation to shared connection with others, and from harsh self-criticism to caring for oneself. Emerging evidence also indicates that self-compassion predicts well-being in the context of PTSD symptoms (Seligowski et al., 2015), and self-compassion focused interventions can predict reductions in PTSD symptomatology (Kearney et al., 2013).

At present, no one individual trauma-focused intervention appears to predict better CPTSD outcomes than another (Ford, 2021). A number of PTSD treatments have been applied to patients with CPTSD (Karatzias, Murphy, et al., 2019), while a distinct phase-based approach has also been suggested (Herman, 1992; Karatzias & Cloitre, 2019). Within the modular-approach, patient stabilisation occurs prior to trauma processing. In the initial phase, the emphasis is on managing symptoms, improving emotion regulation, building a sense of safety, and tackling current stressors. Given this study's results, self-compassion may be a useful adjunct to conventional PTSD treatments applied to CPTSD (e.g. to target factors that negative moderate treatment outcomes such as fear and self-criticism) or could be integrated into phased-treatment approaches.

Historically, the presence of both a direct and indirect effect, such as that found within this study, was termed 'partial mediation' and considered weaker, than 'full mediation' (Baron & Kenny, 1986). However, it also appears that when rigorous and appropriate testing of mediation occurs, 'full mediation' is rare (Iacobucci et al., 2007). Zhao et al. (2010) have suggested our results reflect a complementary mediation. This indicates that although a mediator was identified, the model is incomplete, and further mediators of the direct relationship require enquiry. Future research within a larger sample is needed to identify the nature of a mediator or mediators which may improve the model.

As evident in Table 4, the mediation model also included a range of socio-demographic factors informed by the existing literature. This adds to the literature on the role of gender on CPSTD diagnostic status, suggesting no gender-based variation among adults in homelessness. The absence of an effect of relationship status on meeting the criteria for CPTSD is in contrast to prior findings by Ben-Ezra et al. (2018) among an Israeli population sample. Further, living situation was not found to predict meeting the diagnostic criteria for CPSTD, contradictory to findings among help-seeking Scottish adults (Karatzias, Shevlin, et al., 2017). According to COR, these resources are generally transcultural, yet distinct socio-cultural contexts may qualify the role of resources (Hobfoll, 2001). This may explain the differences found among the current sample, the Israeli population sample, and help-seeking adults in Scotland. However, studies among other samples exposed to long-term trauma (e.g. in contexts of political unrest, terrorism, and ongoing violence) suggest that the protective web offered by resources becomes depleted in cases of chronic trauma, meaning the majority of individuals experience post-traumatic symptoms (Hobfoll et al., 2011). This does not mean that post-traumatic symptom recovery and related resource gain is not possible, but that the recovery process is likely to be protracted. This appears particularly relevant to people living in homelessness who may lack access to material, status, and interpersonal resources.

3.1. Limitations & directions for future research

The current study is not without limitations. The use of convenience sampling, for example, has been reported to inflate statistics on the prevalence of exposure to child abuse (Stoltenborgh et al., 2012). However, retrospective studies may also face problems related to underestimation as recall is often impaired for events that occurred in early-life or are emotionally-salient to the individual (Depue et al., 2007; Moody et al., 2018). Ideally, self-report is compared with official records to assess accuracy, but such an approach relies on comprehensive contemporary identification and recording of abuses.

The study was advertised to more than 300 individuals, yet the final sample was small ($n = 56$). This meant that the mediation analysis was underpowered, and the risk of type II errors increased (i.e. failure to identify a significant relationship when it exists). Therefore, the findings that CPTSD was not associated with gender, relationship status, and living situation should all be interpreted with some caution. Given that 'avoidance of trauma-related cues' is a key criterion of CPTSD and the study focuses on trauma, this low level of engagement is not surprising. Advertising and recruiting participants were also complicated by the transiency of homelessness. Furthermore, working with this group meant careful consideration, time, and resources were devoted to the study's design, safeguarding, and implementation. Such challenges can lead to the purposeful exclusion of such vulnerable from research endeavours meaning the health, social, and therapeutic care needs of these individuals are not addressed in scientific literature. (Moore & Miller, 1999). Producing research of this kind adds to an emerging literature that may shape improvements in treatment and service provision to this marginalised group.

The study also proposes a mediation model which assumes causal ordering of variables. The finding that cumulative interpersonal trauma predicts self-compassion extends prior research which demonstrated that childhood attachment relationships and childhood shape self-compassion (Gilbert, 2005; Tanaka et al., 2011). Self-compassion has also been identified by others as a predictor of post-traumatic symptoms and a resource for coping with adversity (e.g. Neff & McGehee, 2010; Tanaka et al., 2011; Vettese et al., 2011). However, it is possible that CPTSD symptoms preceded diminished levels of self-compassion, and longitudinal investigation would be required to assess this.

Although not a direct research objective in the study, analyses also revealed significant relationships between socio-demographic factors and self-compassion. Those within the 'other' gender category experienced lower self-compassion than those who selected

'male.' Notably, the sample size of gender nonbinary individuals was small, but this study is among one of the first to assess self-compassion within this group (cf. Keng & Liew, 2017). Related research among gay, lesbian, and bisexual individuals previously reported a negative association between concealment of identity and self-compassion (Crews & Crawford, 2015). Gender non-binary individuals are known to commonly conceal their identity due to risk or marginalisation and violence (Wirtz et al., 2020). Collectively, these findings could be interpreted to support the idea that self-compassion is shaped not just by attachment experiences and abuse, but possibly by broader experiences of marginalisation. Further longitudinal work on self-compassion, interpersonal trauma, and marginalisation would be required to (dis-)confirm this.

4. Conclusion

Notwithstanding its limitations, the study highlighted the relevance of the new ICD-11 conceptualisation of post-traumatic symptoms among homeless persons. Although the prevalence of DSM-5 PTSD is well documented within this group (Ayano et al., 2020), this study builds on Armstrong et al.' (2020) findings showing that the majority of individuals do not experience PTSD alone, and CPTSD appears a more common experience among homeless samples. The study runs contra to the existing literature on the centrality of psychological traumas when compared against physical and sexual traumas to CPTSD diagnostic status (Hyland et al., 2020). However, this variation may also reflect the distinct traumatic profiles of individuals in homelessness. It is known that individuals in homelessness commonly experience more frequent exposure and different forms of interpersonal traumas across the lifespan, than the general population. The study provides novel data on the exceptionally high prevalence of emotional neglect and emotional abuse in both childhood and adulthood within this group. Further, it highlights that despite pervasive multi-type trauma exposure, it is these experiences, alongside witnessing another's extreme suffering or death, that homeless persons identified as their worst traumatic experiences. The study is consistent with COR theory overall (Hobfoll, 1989; Hobfoll et al., 2011). The role of socio-demographics as resources may be diminished in the context of repeated trauma for adults in homelessness, but also requires further enquiry. Self-compassion appears a resource amenable to intervention through therapeutic and meditative practices and is pertinent to future investigations on supporting adults in homeless with CPTSD symptoms.

Declaration of competing interest

The authors declare the following financial interests/personal relationships which may be considered as potential competing interests:

Katie McQuillan was a member of the relief staff panel of the organisation for homeless persons which hosted this study, Peter McVerry Trust. However, during the data-collection period she did not work in any of the services in which the study was advertised. Dr. Frédérique Vallieres and Dr. Philip Hyland declare no competing interests. This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

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