Title

Posttraumatic Stress Disorder (PTSD) and Complex PTSD (CPTSD): Clinical and Behavioural Correlates

Running Head

Correlates of PTSD and CPTSD

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Abstract

The American Psychiatric Association and the World Health Organisation provide distinct trauma-based psychiatric diagnoses in the *Diagnostic and Statistical Manual*, fifth edition (DSM-5), and the 11th version of the *International Classification of Diseases* (ICD-11), respectively. DSM-5 conceptualises posttraumatic stress disorder (PTSD) as a single, broad diagnosis, whereas two 'sibling-disorders' of PTSD and Complex PTSD (CPTSD) are proposed for ICD-11. The objectives of the current study were to (1) compare prevalence rates based on each diagnostic system, (2) identify clinical and behavioural factors that distinguish ICD-11 CPTSD and PTSD diagnoses, and (3) examine the comorbidity rates associated with ICD-11 CPTSD and DSM-5 PTSD. A predominately female, clinical sample (N = 106) completed self-report scales to measure ICD-11 PTSD and CPTSD, DSM-5 PTSD, depression, anxiety, borderline personality disorder (BPD), dissociation, reckless behaviour, and suicidal ideation and self-injurious behaviour (SI/SIB). Significantly more people met diagnostic status as per the DSM-5 guidelines compared to the ICD-11 (90.4% vs 79.8%). An ICD-11 CPTSD diagnosis was distinguishable from an ICD-11 PTSD diagnosis by higher levels of dissociation, depression, and BPD. Comorbidity rates were higher for ICD-11 CPTSD compared to DSM-5 PTSD. The clinical and theoretical implications of these findings are discussed.

Key words: Posttraumatic stress disorder (PTSD); Complex PTSD (CPTSD); ICD-11; DSM-5; dissociation; comorbidity.

Introduction

The American Psychiatric Association (APA) and the World Health Organization (WHO) provide distinct descriptions of trauma-related psychopathology. In the fifth edition of the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-5: APA, 2013), posttraumatic stress disorder (PTSD) is described by 20 symptoms across four symptom clusters: intrusions (5 symptoms), avoidance (2 symptoms), negative alterations in cognition and mood (NACM: 7 symptoms), and arousal (6 symptoms). A diagnosis of PTSD requires the presence of at least one intrusion, one avoidance, two NACM, and two arousal symptoms, plus evidence of functional impairment. In contrast, in the upcoming 11th version of the *International Classification of Diseases* (ICD-11), the WHO propose two 'sibling' disorders: PTSD and Complex PTSD (CPTSD: Maercker et al., 2013). PTSD is substantially refined compared to DSM-5 and includes six symptoms across three clusters, each directly related to one's traumatic exposure: re-experiencing in the here and now (2 symptoms), avoidance (2 symptoms), and sense of threat (2 symptoms). Diagnosis of PTSD requires the presence of one symptom per cluster, plus evidence of functional impairment. CPTSD is a broader diagnosis that includes the core PTSD symptoms plus an additional set of 'disturbances in self-organisation' (DSO) symptoms that are intended to capture pervasive psychological disturbances associated with traumatic exposure. These symptoms are distributed across three clusters: affective dysregulation, negative self-concept, and disturbances in relationships. A CPTSD diagnosis requires that the PTSD criteria be met in addition to endorsement of symptoms from each of the DSO clusters.

To date, numerous confirmatory factor analysis and latent class analysis studies have provided empirical support for the construct validity of ICD-11 PTSD and CPTSD (see Brewin et al., in press). Several studies have also found that CPTSD, compared to PTSD, is associated with an increased incidence of childhood trauma (Cloitre et al., 2013; Hyland et al.

2017a), and higher levels of functional impairment (Karatzias et al., 2017; Murphy et al., 2016). Relatively less research however has focused on the identification of clinical and behavioural correlates that are associated with an elevated risk of CPTSD. Emerging evidence suggests that depression, negative trauma-cognitions, reduced distress tolerance (Hyland et al., 2017b), dissociation, anxiety, and aggression (Elklit, Hyland, & Shevlin, 2014) may be associated with an increased risk of CPTSD. At present there are few psychological treatments specifically designed to treat CPTSD (Cloitre et al., 2010) therefore the identification of psychological factors that meaningfully differentiate CPTSD from PTSD may have important implications for the development of targeted treatments for CPTSD.

Studies that have compared prevalence rates based on the DSM-5 and ICD-11 guidelines have reported a general trend for significantly more people to meet the diagnostic criteria of the DSM-5 (e.g., Hansen et al., 2015; Hyland et al., 2017b; O'Donnell et al., 2014). The introduction of the new NACM symptoms in DSM-5 has also prompted suggestions that DSM-5 PTSD may have more in common with ICD-11 CPTSD than ICD-11 PTSD (Friedman, 2013). Only one study however has directly compared the clinical correlates of DSM-5 PTSD and ICD-11 CPTSD in the same study. In a sample of 190 African-American women, ICD-11 CPTSD was associated with significantly higher levels of comorbidity with depression, alcohol dependence, and substance dependence as compared to DSM-5 PTSD (Powers et al., 2017). These differences in comorbidity suggest that despite the similarity in symptom content, ICD-11 CPTSD and DSM-5 PTSD may have distinct clinical presentations, with ICD-11 CPTSD being associated with higher levels of psychiatric distress.

The current study had three objectives. First, prevalence rates based on the DSM-5 (PTSD) and ICD-11 (PTSD and CPTSD) criteria were statistically compared. On the basis of

existing data, it was hypothesised that significantly more people would meet diagnostic criteria according to the DSM-5. Second, we assessed whether those with an ICD-11 CPTSD diagnosis were significantly different from those with an ICD-11 PTSD diagnosis on a range of clinical and behavioural variables including depression, anxiety, borderline personality disorder (BPD), dissociation, reckless behaviour, and suicidal ideation and self-injurious behaviour (SI/SIB). Third, we investigated the degree of association and comorbidity between DSM-5 PTSD and ICD-11 CPTSD, respectively, and depression, anxiety, BPD, and SI/SIB.

Methods

Participants and procedures

Participants were referred by general practitioners, psychiatrists, or psychologists for psychological therapy at a National Health Service trauma centre in Scotland (N = 106). The sample were primarily female (93.4%) and of British origin (91.3%) with a mean age of 39.25 years (SD = 10.94, range = 19-62). Most participants had finished post-secondary education (56.6%), were currently unemployed (58.1%), and single (59.2%). All participants reported experiencing a traumatic life event. The mean number of traumatic life events was 6.99 (SD = 2.80), and the most commonly reported traumatic experience was physical assault (95.1%).

Measures

ICD-11 PTSD and CPTSD: The *International Trauma Questionnaire* (ITQ Version 1.2, Cloitre et al., 2015 – formally the 'ICD-11 Trauma Questionnaire') is a self-report measure of the ICD-11 diagnoses of PTSD and CPTSD. Six items measure the PTSD symptoms, 16 items measure the DSO symptoms (9 'affective dysregulation' items, 4 'negative self-concept' items, and 3 'disturbances in relationship' items), and six items

measure functional impairment associated with both the PTSD and DSO symptoms. Individuals respond to each PTSD item in terms of how much they have been bothered by the symptom over the past month, and respond to each DSO item in terms of how they typically feel, think about themselves, and relate to others. All items are measured using a five-point Likert scale ranging from 0 ('Not at all') to 4 ('Extremely'). The endorsement of a symptom/ measure of functional impairment is assumed if a person responds with a score of 2 ('Moderately') or greater. The psychometric properties of the ITQ have been validated in number of studies, including within a larger sample drawn from the same trauma centre as was used in the current study (see Karatzias et al., 2016; Karatzias et al., 2017). The internal reliability (Cronbach's alpha) of the PTSD (α = .74) and DSO (α = .89) items in the current sample were satisfactory.

DSM-5 PTSD: The Posttraumatic Checklist for DSM-5 (PCL-5: Weathers et al., 2013) is a self-report measure of the 20 DSM-5 PTSD symptoms. The PCL-5 uses the same response format, instructions, and threshold for symptom endorsement as the ITQ. The PCL-5 has good psychometric properties (Blevins et al., 2015) and the reliability of the scale in the current sample was satisfactory (α = .86).

Depression and Anxiety: The Hospital Anxiety and Depression Scale (HADS: Zigmond & Snaith, 1983) is a 14-item, self-report measure. Seven items measure depression (α = .65) and anxiety (α = .78), respectively, and each item is scored on a four-point Likert scale (0-3). Total scale scores can be calculated where higher scores reflect greater distress, and scores of 11 and above are used to indicate clinical cases of anxiety and depression, respectively (Zigmond & Snaith, 1983).

Borderline Personality Disorder:

Dissociation: The Dissociative Symptoms Scale (DSS-B) (Carlson et al., 2013a) is an 8-item scale used to assess moderately severe trauma-related intrusions, gaps in awareness or memory, and distortions in perceptions of oneself or surroundings that persist after traumatic stress. Participants respond to each item using a five-point Likert scale ranging from 0 ('not at all') to 4 ('more than once a day'). The internal reliability the DSS-B in the current sample was satisfactory ($\alpha = .80$).

Reckless Behaviours and SI/SIB: The Structured Interview of Self-Destructive Behaviours (SI-SDB: Carlson et al., 2013b) was used to measure reckless behaviours and SI/SIB. This is a brief interview that consists of five sections in the domains of substance abuse, disordered eating, disordered sexual behaviour, self-injury, and suicidality. Items were designed to inquire about behaviours and injuries in a neutral way and do not assume intentionality, with the exception self-harm and suicidal behaviours. A total score of 'reckless behaviours' was calculated from four 'yes' (1) or 'no' (0) based questions which enquired if respondents had ever engaged in (i) illicit drug use, (ii) overspending, (iii) risky sexual behaviour, and (iv) reckless driving. Scores ranged from 0-4 and higher scores reflect higher levels of reckless behaviour. Additionally, respondents were asked if they have ever had thoughts of ending their own life, and if they have ever injured themselves in some way on purpose. Both questions were answered on a 'yes' (1) and 'no' (0) basis. Individuals were classified as scoring positive for SI/SIB if they responded 'yes' to both questions.

Analysis

The proportion of individuals meeting diagnostic status for DSM-5 PTSD was compared to the number of individuals meeting diagnostic status for ICD-11 PTSD and CPTSD using a z-test. Independent samples t-tests were used to compare those with an ICD-11 PTSD diagnosis to those with an ICD-11 CPTSD diagnosis on each dependent variable.

Cohen's *d* effect sizes were used to determine the magnitude of group differences (< .5 small effect size, .5-.8 moderate effect size, > .8 large effect size). The associations between DSM-5 PTSD and ICD-11 CPTSD, and depression, anxiety, BPD, and SI/SIB were assessed using a chi-square test (χ^2). Odds ratios with 95% confidence intervals (OR 95% CI) were used to quantify the level of association. Comorbidity rates associated with DSM-5 PTSD and ICD-11 CPTSD were compared using a z-test.

Results

Prevalence rates and descriptive statistics

The prevalence rate of DSM-5 PTSD (90.4%) was significantly higher than the combined prevalence rate of ICD-11 PTSD and CPTSD (79.8%) (z = 2.14, SE = .05, p = .016). The taxonomic structure of the ICD-11 only permits a diagnosis of PTSD or CPTSD; not both. Accordingly, most individuals who qualified for a diagnosis under the ICD-11 guidelines satisfied the criteria for CPTSD (62.5%) rather than PTSD (17.3%). Descriptive statistics for each continuously measured variable in the study are reported in Table 1. Additionally, 23.2% of the sample reported experiencing SI/SIB.

Table 1 here

Factors that differentiate ICD-11 PTSD and CPTSD

Results of the independent samples t-tests comparing those with an ICD-11 PTSD diagnosis to those with an ICD-11 CPTSD diagnosis on each clinical and behavioural variable are reported in Table 2. Those with an ICD-11 CPTSD diagnosis experienced significantly (p < .05) higher levels of dissociation (d = 1.01), depression (d = .63), and BPD (d = .55). Those with a CPTSD diagnosis were almost three times more likely than those with a PTSD diagnosis to report SI/SIB (OR = 2.87, 95% CI = 0.59 – 13.99), however this effect was not statistically significant (χ^2 = 1.83, df = 1, p = .177).

Table 2 here

Association and comorbidity rates for DSM-5 PTSD and ICD-11 CPTSD

Table 3 reports the level of association, and comorbidity rates, between ICD-11 CPTSD and DSM-5 PTSD and depression, anxiety, BPD, and SI/SIB. A diagnosis of ICD-11 CPTSD was significantly, and strongly, associated with depression (OR = 3.98, 95% CI = 1.68 – 9.41), anxiety (OR = 5.28, 95% CI = 1.66 – 16.77), and SI/SIB (OR = 3.42, 95% CI = 1.06 – 11.07). Contrastingly, a DSM-5 PTSD diagnosis was only significantly associated with anxiety (OR = 11.32, 95% CI = 2.76 – 46.49). Comorbidity rates were higher for ICD-11 CPTSD than DSM-5 PTSD with depression (by 10.7%), anxiety (by 4.0%), and SI/SIB (by 7.0%), however these differences did not reach the level of statistical significance. Notably, ICD-11 CPTSD and DSM-5 PTSD had similarly high levels of comorbidity with BPD (98.5% and 97.9%, respectively).

Table 3 here

Discussion

The primary aim of the current study was to identify clinical and behavioural correlates of PTSD/CPTSD as described by the two major diagnostic classification systems within a clinical sample characterised by a history of frequent traumatic exposure. In doing so, we sought to identify clinical and behavioural factors that serve to distinguish an ICD-11 CPTSD diagnosis from an ICD-11 PTSD diagnosis; and to provide evidence regarding the relative severity of ICD-11 CPTSD and DSM-5 PTSD.

Consistent with prior findings (Hansen et al., 2015; Hyland et al., 2017b; O'Donnell et al., 2014), a significantly greater proportion of individuals met diagnostic criteria based on the DSM-5 guidelines compared to the ICD-11 guidelines. There is now consistent evidence derived from a range of clinical samples characterised by distinct traumatic histories, cultural

identities, and methods of data collection indicating that the ICD-11 provides a stricter criteria than the DSM-5 for diagnosis of trauma-related psychopathology.

How such findings should be interpreted has become an issue of contention. It has been argued that the DSM-5 system should be favoured as it maximizes the likelihood that traumatized individuals will qualify for a diagnosis (Wisco et al., 2016). These authors expressed concern that adoption of the seemingly stricter ICD-11 criteria would have substantial public health implications as it would limit access to health care services for trauma-exposed persons. Such an argument is problematic for several reason. First, the concern for the need for a diagnosis so as to receive access to health care is a highly Americentrist concern where access to health care is highly dependent upon receiving a diagnosis so that a person is entitled to insurance coverage. In all other developed nations which guarantee access to health care for all people, such motivations are far less relevant. Although it is important that psychologists are cognizant of the social and political implications of their research, it should not - and cannot - be the case the scientific research be influenced in any way by the specific vagaries of one nation's insurance and health care policies. Second, the argument advanced by Wisco et al. makes the implicit assumption that the 'orphans' of the ICD-11 system will not qualify for another psychiatric diagnosis. Given the extensive literature attesting to the high levels of comorbidity associated with PTSD (Flory & Yehuda, 2015), it may well be the case that such individuals will satisfy the diagnostic criteria for another psychiatric disorder. To date, there is simply no evidence that has examined the clinical characteristics of those individuals who meet the diagnostic criteria for DSM-5 PTSD but not ICD-11 PTSD or CPTSD. A systematic body of work is now required to determine if the ICD-11 orphans qualify for another diagnosis or not. If these individuals display significant daily-life distress and impairment, and fail to qualify for another diagnosis, the ICD-11 could be reasonably viewed as being overly restrictive and

prone to yielding a higher number of false negative diagnoses relative to the DSM-5. Alternatively, if it is the case that these individuals display low levels of daily-life distress and impairment, or qualify for another psychiatric diagnosis, the ICD-11 could be viewed as providing a more specific diagnostic profile that is more accurately aligned to the symptomatology of a given patient relative to the DSM-5. Until the pertinent empirical data is available, it may be said that the DSM-5, with its broad symptom profile and inclusive diagnostic threshold, favours diagnostic sensitivity so as to minimize false negative diagnoses; whereas the ICD-11, with is narrow symptom profile and stricter diagnostic threshold, favours diagnostic specificity so as to minimize false positive diagnoses.

With a growing body of empirical support for the construct validity of ICD-11 CPTSD as a unique disorder, the need for clinical interventions tailored to address the specific symptom profile of the disorder becomes increasingly necessary (Ford, 2015). Identification of unique clinical and behavioural features associated with a diagnosis of ICD-11 CPTSD may help to guide clinical interventions. Our findings indicated that those individuals who qualified for an ICD-11 CPTSD diagnosis, as compared to an ICD-11 PTSD diagnosis, were distinguished most clearly on the basis of experiencing higher levels of dissociation; a finding that is consistent with those reported by Elklit et al. (2014). How to most accurately conceptualise dissociative experiences within theoretical models of PTSD has been a matter of debate (see Dalenberg & Carlson, 2012); nonetheless, extant results suggest that dissociation is a strong distinguishing factor between CPTSD and PTSD, as per the ICD-11 proposals. Additionally, those with a CPTSD diagnosis also displayed significantly higher levels of depression, BPD, and non-significantly higher levels of anxiety, reckless behaviour, and SI/SIB. Taken together, these findings provide evidence that CPTSD is a diagnosis that is associated with substantially greater psychological distress than a diagnosis of PTSD. Current findings add to the existing literature which has consistently

shown that CPTSD is associated with significant functional impairment in daily living by highlighting the high levels of psychiatric burden that is also associated with a CPTSD diagnosis.

Our findings also suggest that ICD-11 CPTSD may be a more severe and distressing diagnosis than DSM-5 PTSD. The associations between ICD-11 CPTSD and depression, anxiety, and SI/SIB were all positive, statistically significant, and of a robust magnitude. Furthermore, in the case of depression and SI/SIB, the associations were stronger for ICD-11 CPTSD than DSM-5 PTSD, while the association with anxiety was stronger for DSM-5 PTSD. Furthermore, and congruent with the only other assessment of comorbidity rates between ICD-11 CPTSD and DSM-5 PTSD (Powers et al., 2017), the former yielded higher comorbidity estimates with depression and SI/SIB, most notably, and to a lesser degree with anxiety and BPD, however it is important to stress that the difference in these comorbidity rates did not reach statistical significance.

These findings are important for several reasons. First, the higher rates of comorbidity associated with CPTSD are inconsistent with the ICD-11 proposals which aimed to reduce comorbidity with other disorders. Second, whether one adopts the use of the DSM-5 system or the ICD-11 system, the level of comorbidity with these clinical and behavioural measures was exceptionally high. Third, the conceptualisation of ICD-11 CPTSD as a unique diagnostic entity has been criticised as being indistinguishable from other disorders, most notably BPD (Resick et al., 2012). Although previous work has empirically supported the discriminant validity of ICD-11 CPTSD from BPD, and identified the features that distinguish the two conditions (Cloitre et al., 2014), findings from the current study indicate that BPD and CPTSD may indeed share much in common. Almost all individuals who met diagnostic status for CPTSD also met diagnostic status for BPD (98.5%). However, if one were to argue on the basis of such a result that ICD-11 CPTSD is not a valid diagnostic

construct, then DSM-5 PTSD must also be regarded as invalid as the comorbidity rate with BPD was equally high (97.9%). Each of these findings can however be easily understood through the perspective of a dimensional model of psychopathology (see Kotov et al., 2016) rather than the categorical model of psychopathology favoured by the DSM and the ICD. According to the dimensional model of psychopathology, "disorders" such as PTSD, CPTSD, depression, anxiety, and BPD are all observable manifestations of an underlying 'Internalizing' psychopathology latent variable. As such, these disorders are expected to strongly covary given their shared underlying latent variable; and the more precisely each disorder is measured, the higher the level of covariation should be. Based on the dimensional model of psychopathology, higher comorbidity rates for the ICD-11 are to be expected if the narrowed symptom profile does indeed more precisely capture the psychopathology associated with traumatic exposure.

There are several limitations with the current study that should be recognised. The analyses were based on a small clinical sample meaning that there was an increased likelihood of Type 2 errors occurring. The limited statistical power may explain the null effects for the differences in comorbidity rates across the diagnostic systems despite the observed differences. Furthermore, the predominately female composition of the sample limits the generalizability of findings to the wider trauma population. The clinical/ diagnostic status of disorders in the current study were based on self-report assessments rather than clinician-administered interviews. It is possible that the self-report nature of the data may have biased results, however this limitation was constant across all aspects of the current study meaning that any such biases that may have resulted from the use of self-report assessments are unlikely to have influenced the main findings of the study. Finally, the high prevalence of BPD is likely to have yielded the null effects for the association between it and

ICD-11 CPTSD and DSM-5 PTSD. Future work with larger and more varied samples is required to replicate the current findings.

In conclusion, several important findings and directions for future research emerge from the current study. Once again it was found that the ICD-11 produces fewer clinical cases relative to the DSM-5, and given the consistency of this finding it is now necessary to focus on the characteristics of those persons who meet diagnostic status according to one system but not the other. Such work should provide vital information to better understand the clinical benefits or limitations associated with the use of one system over the other. Additionally, current findings indicate that a diagnosis of ICD-11 CPTSD can be distinguished from ICD-11 PTSD on the basis of higher levels of dissociation, depression, and BPD. CPTSD also appears to be associated with high levels of psychiatric distress as compared to both an ICD-11 and a DSM-5 PTSD diagnosis. This highlights the need for specialised clinical interventions targeted specifically at the unique symptoms, and correlates, of CPTSD.

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Table 1. Descriptive statistics of all continuous variables

	Mean (SD)	95% CI of the Mean	Median	Range
Depression	10.93 (5.13)	9.95 – 11.92	11	0-20
Anxiety	14.63 (5.18)	13.64 – 15.63	15.50	0-21
Borderline Personality Disorder	10.47 (2.34)	9.99 – 10.95	11	4-14
Dissociation	12.06 (6.51)	10.74 – 13.38	11	4-35
Reckless behaviour	0.97 (0.94)	0.78 – 1.16	1	0-4

Note: 95% CI = 95% confidence interval; SD = Standard Deviation.

Table 2. Independent samples t-tests comparing those with ICD-11 PTSD and CPTSD diagnoses on each continuously measured clinical and behavioural measure.

Variable	ICD-11 PTSD	ICD-11 CPTSD			
	Mean (SD)	Mean (SD)	t (df)	p	d
Depression	9.73 (3.71)	12.43 (4.76)	2.05 (78)	.044	.63
Anxiety	14.20 (3.23)	16.14 (4.55)	1.56 (78)	.123	.49
Borderline Personality Disorder	9.69 (3.01)	11.09 (1.94)	2.10 (68)	.040	.55
Reckless behaviour	0.80 (.78)	1.13 (1.01)	1.19 (74)	.239	.37
Dissociation	9.00 (3.36)	14.37 (6.76)	2.98 (73)	.004	1.01

Note: PTSD = Posttraumatic stress disorder; CPTSD = Complex PTSD; t (df) = t value and degrees of freedom; p = statistical significance; d = Cohen's d effect size; SD = standard deviation.

Table 3. Associations between ICD-11 CPTSD and DSM-5 PTSD and clinical and behavioural outcomes. Degree of comorbidity and differences in comorbidity also reported.

Diagnosis	% with Depression	% with Anxiety	% with BPD	% with SI/SIB
	OR (95% CI)	OR (95% CI)	OR (95% CI)	OR (95% CI)
ICD-11 CPTSD	69.2%	92.3%	98.5%	30.6%
	3.98 (1.68 – 9.41)**	5.28 (1.66 – 16.77)**	1.83 (0.11 – 30.14)	3.42 (1.06 – 11.07)*
DSM-5 PTSD	58.5%	88.3%	97.9%	23.6%
	2.12 (0.56 – 8.00)	11.32 (2.76 – 46.49)***	5.11 (0.42 – 62.03)	1.08 (0.21 – 5.61)
Differences in Comorbidity	10.7%	4.0%	0.6%	7.0%
	z = 1.38, p = .08	z = 0.83, p = .20	z = -0.38, p = .65	z = 0.27, p = .39

Note: OR (95% CI) = Odds ratio with 95% confidence interval; BPD = borderline personality disorder; SI/SIB = suicidal ideation and self-injurious behaviour; z = z-test comparing differences in comorbidity proportions; statistical significance = * p < .05, ** p < .01, *** p < .001