



Differences between ICD-11 PTSD and complex PTSD on DSM-5 section III personality traits

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ABSTRACT

Background: The formulations of post-traumatic stress disorder (PTSD) and the newly included disorder complex PTSD (CPTSD) in the 11th edition of the *International Classification of Diseases* (ICD-11) have not been evaluated on a broad range of maladaptive personality traits.

Objective: The aim of this study was to evaluate ICD-11 PTSD and CPTSD on maladaptive personality traits.

Method: In a cross-sectional study of 106 Danish outpatients with ICD-10 PTSD, we used the International Trauma Questionnaire (ITQ) to identify patients with either ICD-11 PTSD or CPTSD ($N = 84$). We utilized the Personality Inventory for DSM-5 (PID-5) from the alternative model of personality disorders in DSM-5, section III, to evaluate personality trait differences between ICD-11 PTSD and CPTSD. Furthermore, PID-5 was also used to investigate relationships between personality traits and ICD-11 PTSD/CPTSD symptom clusters. The Life Event Checklist was used to assess traumatic experiences, and the MINI International Neuropsychiatric Interview was applied to assess comorbidity.

Results: Patients with ICD-11 PTSD or CPTSD had elevated scores on personality traits indicative of internalizing psychopathology. However, higher impairment levels of the trait domains Negative Affectivity ($d = 0.75$) and Psychoticism ($d = 0.80$) discriminated patients with ICD-11 CPTSD from patients with PTSD. The PID-5 trait domain Detachment was moderately positively correlated to most of the ITQ symptom clusters and, the ITQ Negative Self-concept symptom cluster showed a relatively high number of significant correlations across all the PID-5 trait domains and facets. The PID-5 domain Negative Affectivity and almost all the encompassing facets were significantly correlated with DSO symptom clusters.

Conclusions: The findings demonstrate the relevance of applying dimensional assessment of personality features to study the psychopathology of ICD-11 PTSD and CPTSD and potential differences. The results suggest that CPTSD is a more debilitating disorder than PTSD considering the severity of the personality features.

Diferencias entre el TEPT y el TEPT complejo de la CIE-11 en los rasgos de personalidad de la sección III del DSM-5

Antecedentes: Las formulaciones del trastorno de estrés postraumático (TEPT) y el trastorno de estrés postraumático complejo recientemente incluido (TEPTC) en la 11a edición de la Clasificación Internacional de Enfermedades (CIE-11) no han sido evaluados en una amplia gama de rasgos de personalidad desadaptativos.

Objetivo: El propósito de este estudio fue evaluar el TEPT y el TEPTC de la CIE-11 sobre los rasgos de personalidad desadaptativos.

Método: En un estudio transversal de 106 pacientes daneses ambulatorios con TEPT CIE-10, utilizamos el Cuestionario Internacional de Trauma (ITQ por sus siglas en inglés) para identificar a los pacientes con TEPT o TEPTC CIE-11 ($N = 84$). Utilizamos el Inventario de Personalidad para el DSM-5 (IPD-5) del modelo alternativo de trastornos de la personalidad en el DSM-5, sección III, para evaluar las diferencias de los rasgos de personalidad entre el TEPT de la CIE-11 y el TEPTC. Además, el IPD-5 también se utilizó para investigar relaciones entre los rasgos de personalidad y los grupos de síntomas de TEPT/TEPTC de la CIE-11. La Lista de verificación de eventos de vida se utilizó para evaluar experiencias traumáticas, y la Entrevista neuropsiquiátrica internacional MINI se aplicó para evaluar comorbilidad.

Resultados: Los pacientes con TEPT o TEPTC según la CIE-11 tenían puntuaciones elevadas en los rasgos de personalidad indicativos de psicopatología internalizante. Sin embargo, los niveles más altos de deterioro en los dominios de rasgo Afectividad negativa ($d = 0,75$) y Psicoticismo ($d = 0,80$) discriminaron a los pacientes con TEPTC CIE-11 de los pacientes con TEPT. El dominio de rasgo Desapego del IPD-5 correlacionó moderadamente positivo con la mayoría de los grupos de síntomas de ITQ y el grupo de síntomas de autoconcepto negativo de ITQ mostró un número relativamente alto de correlaciones significativas a través de

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关键词

适应不良人格特质; ICD-11; PTSD; 复杂性 PTSD; DSM-5; PID-5

HIGHLIGHTS

- There are differences in the personalities of people with PTSD and those with CPTSD.
- Individuals identified with CPTSD have scored higher on the trait domains Negative Affectivity and Psychoticism.
- Understanding these differences may lead to better diagnosis and treatment of both these groups.

todos los dominios y facetas de rasgo IPD-5. El dominio IPD-5 afectividad negativa y casi todas las facetas que la abarcan se correlacionaron significativamente con los grupos de síntomas de DSO.

Conclusiones: Los hallazgos demuestran la relevancia de aplicar la evaluación dimensional de las características de personalidad para estudiar la psicopatología del TEPT y TEPTC de la CIE-11 y las potenciales diferencias. Los resultados sugieren que el TEPTC es un trastorno más debilitante que el TEPT considerando la gravedad de las características de personalidad.

ICD-11 PTSD和复杂性PTSD在DSM-5第三部分人格特质方面的差异

背景: 创伤后应激障碍 (PTSD) 和第11版《国际疾病分类》(ICD-11) 中新增的复杂性PTSD (CPTSD) 的组成尚未针对广泛的适应不良人格特质进行评估。

目的: 本研究旨在评估ICD-11 PTSD和CPTSD在适应不良人格特质上的作用。

方法: 在一项针对106名丹麦ICD-10 PTSD门诊患者的横断面研究中, 我们使用了国际创伤问卷 (ITQ) 来确定患有ICD-11 PTSD或CPTSD的患者 ($N = 84$)。我们使用了DSM-5第三部分中人格障碍的替代模式中的DSM-5人格量表 (PID-5) 来评估ICD-11 PTSD和CPTSD之间的人格特质差异。此外, PID-5还用于研究人格特质与ICD-11 PTSD/CPTSD症状簇之间的关系。生活事件清单用于评估创伤经历, MINI国际神经精神病访谈用于评估共病。

结果: 患有ICD-11 PTSD或CPTSD的患者在表征内化心理疾病的人格特质得分较高。但是, 负性情感 ($d = 0.75$) 和精神质 ($d = 0.80$) 特质域的较高损伤水平将ICD-11 CPTSD患者与PTSD患者区分开。PID-5分离特质域与大多数ITQ症状簇呈中等正相关, 而ITQ负面自我概念症状簇在所有PID-5特质域和层面中显示出相对较高的显著相关性。PID-5域的负性情感域和几乎所有相关方面都与DSO症状簇显著相关。

结论: 研究结果表明, 应用人格特征维度评估适于研究ICD-11 PTSD和CPTSD的心理病理学及其潜在差异。结果表明, 考虑到人格特征的严重程度, CPTSD是一种比PTSD更不利的疾病。

1. Introduction

Post-traumatic stress disorder (PTSD) in the 11th edition of the *International Classification of Diseases* (ICD-11) is divided into two sibling disorders: PTSD and complex PTSD (CPTSD). PTSD in ICD-11 is defined by symptoms that relate to *core* post-traumatic responses that describe fear-based reactions. These are 1) re-experiencing the traumatic event in the present in the form of nightmares, flashbacks, or vivid intrusive memories typically accompanied by strong emotions like fear or horror, 2) avoidance of reminders of the traumatic events, and 3) persistent perceptions of heightened current threat as indicated by, e.g. hypervigilance (World Health Organization, 2018). CPTSD is organized into two overarching groups of symptoms: Symptoms related to PTSD and symptoms related to *disturbances in self-organization* (DSO). The DSO domain describes three clusters of symptoms: problems in affect regulation (i.e. heightened emotional reactivity, dissociative experiences, or emotional numbing), negative self-concept (i.e. feelings of guilt, shame, or worthlessness), and disturbances in relationships (i.e. difficulties sustaining relationships and feeling close to others). The division of PTSD into two qualitatively different disorders has so far been supported in several studies using different methodological analysis, such as factor analysis, network analysis, and latent class analysis (Cloitre, Garvert, Brewin, Bryant, & Maercker, 2013; Elklit, Hyland, & Shevlin, 2014; Knefel et al., 2019).

Several empirical studies have consistently demonstrated that ICD-11 CPTSD is associated with more comorbidity, significantly worse functioning, and worse quality of life than ICD-11 PTSD, which suggests that CPTSD is a more severe disorder than PTSD in clinically meaningful ways (Brewin et al., 2017; Karatzias et al., 2019). ICD-11 CPTSD is particularly associated with emotional disorders (i.e. depression, anxiety, dissociation, sleep disturbances, somatization, aggression, dysthymia) (Elklit et al., 2014; Hyland et al., 2017; Hyland, Shevlin, Fyvie, Cloitre, & Karatzias, 2020; Hyland, Shevlin, Fyvie, & Karatzias, 2018; Karatzias et al., 2019; Knefel, Tran, & Lueger-Schuster, 2016). Predominantly, the DSO domain in CPTSD is found to have overlapping symptoms with prominent symptoms of emotional disorders, especially depressive symptoms such as feeling worthless, interpersonal withdrawal, emotional avoidance, feeling cut-off from others, and difficulty in staying close to others (Gilbar, 2019; Hyland, Karatzias, Shevlin, & Cloitre, 2019). Furthermore, ICD-11 CPTSD has been found to be associated with psychotic symptoms such as mind-reading, experiencing special messages sent through TV or radio, being under the control of some extraordinary power, a feeling of having extra-special powers, feeling that people were following or spying on you, and auditory and visual hallucinations (Frost, Louison, Karatzias, Hyland, & Shevlin, 2019). Studies exploring characteristics that are associated with and central to PTSD as compared to characteristics that are associated with and central to CPTSD are

especially warranted. Knowledge gained from such studies may 1) uncover symptoms that account for the comorbidity between *ICD-11* PTSD and CPTSD and other disorders, 2) improve differential diagnosis between *ICD-11* PTSD and CPTSD in clinical practice, and 3) be useful in identifying therapeutic interventions that are particularly relevant for the treatment of the particular disorder (i.e. PTSD or CPTSD) (Karatzias & Cloitre, 2019).

Personality trait inventories have been applied to explore PTSD trait characteristics, heterogeneity of PTSD responses, and co-occurrence of PTSD with other disorders in prior research (Cox, Clara, & Enns, 2002; Miller, Fogler, Wolf, Kaloupek, & Keane, 2008; Miller, Greif, & Smith, 2003). The shift from a categorical approach towards a dimensional approach to diagnostics of personality disorders (PD) has helped in assessing differences in degree, rather than kinds, thereby allowing descriptions of psychopathological variation. The *Diagnostic and Statistical Manual of Mental Disorders, fifth edition* (DSM-5) (American Psychiatric Association, 2013) includes a novel empirically derived hybrid categorical-dimensional model, the *Alternative Model for Personality Disorders* (AMPD) placed in section III, (for 'Emerging Measures and Models'). In addition to general diagnostic criteria that correspond to the current DSM-5 section II classification of PDs, the AMPD encompasses a dimensional assessment of personality functioning, utilized to determine the severity of a PD (criterion A) and maladaptive personality traits which are used to describe the stylistic features of a PD (criterion B). Criterion A defines the degree of disturbances in self-functioning (i.e. identity and self-direction) and interpersonal functioning (i.e. empathy and intimacy), and it is operationalized by the Level of Personality Functioning Scale (LPFS). Criterion B permits the assessment of dimensional maladaptive personality traits. The maladaptive personality traits are delineated by five higher-ordered broad traits (Negative Affectivity, Detachment, Antagonism, Disinhibition, and Psychoticism) defining a wide range of behavioural tendencies, comprising 25 lower-ordered trait facets that specify specific and narrow behaviours (Skodol et al., 2011). The maladaptive personality traits in the AMPD are operationalized with the Personality Inventory for DSM-5 (PID-5) (Krueger, Derringer, Markon, Watson, & Skodol, 2012). Among common mental health disorders, shared personality traits have shown to account for comorbidity (Kotov, Gamez, Schmidt, & Watson, 2010; Kotov et al., 2017), whereas lower-order trait facets have been used to describe differences and specific variations in psychopathology (Bach, Markon, Simonsen, & Krueger, 2015).

The maladaptive personality trait model from the AMPD in DSM-5, as operationalized with PID-5, has

been found to have excellent internal consistency, test-retest reliability, convergent validity with different personality instruments, and discriminating potential (Barchi-Ferreira, Bel, & Osório, 2020). Two prior studies have used the maladaptive personality trait model to study PTSD psychopathology (James et al., 2015; Waszczuk et al., 2018). Investigating veterans (James et al., 2015) and World Trade Center first responders (Waszczuk et al., 2018), the results from the two studies indicated that PTSD might especially be associated with the trait domains Detachment, Negative Affectivity, and Psychoticism. Furthermore, veterans with and without PTSD could be discriminated on maladaptive personality traits, highlighting the relevance of maladaptive personality traits to the study of PTSD psychopathology (James et al., 2015). This study attempted to extend the findings on the composition of maladaptive personality traits from the AMPD in DSM-5 to the study of *ICD-11* PTSD and CPTSD.

The main objective was to apply the maladaptive personality traits from the AMPD in DSM-5 to explore clinical differences between *ICD-11* PTSD and CPTSD. Specifically, we aimed to 1) identify differences between *ICD-11* PTSD and CPTSD on maladaptive personality trait domains and facets, and 2) examine the association between PTSD and DSO symptom clusters and maladaptive trait domains and facets.

This study is the first to investigate *ICD-11* PTSD and CPTSD on dimensional maladaptive personality traits. We expected that both PTSD and CPTSD would generally endorse high scores on multiple maladaptive trait domains and facets, but that CPTSD would have substantially higher scores on specific traits conceptually similar to the symptom cluster of the DSO domain than PTSD.

2. Method

2.1. Participants and procedures

Psychiatric outpatients clinically diagnosed with F43.1 PTSD based on *ICD-10* were consecutively recruited during a period of 22-months (December 2017 – September 2019) from a clinic for specialized trauma treatment and six psychiatric outpatient clinics in Denmark. The inclusion criteria were *ICD-10* PTSD, age between 18 and 64 years, capable of speaking and understanding Danish, admitted to an outpatient psychiatric facility, and received no more than seven treatment sessions. Exclusion criteria were naturally established by the clinics (i.e. current psychotic disorder, substance abuse or dependence, age <18 years).

In total, 115 participants were recruited. Three were excluded because they did not fulfill the diagnostic inclusion criteria (i.e. *ICD-10* PTSD assessed

with the MINI International Neuropsychiatric Interview version 7.0.2, (MINI)). Further six were excluded because of incomplete survey data. In the present study we wanted to assess psychiatric outpatients with ICD-11 PTSD or ICD-11 CPTSD. Therefore, the participants were divided into subgroups based on scores from the ITQ (see the result section 3.1). Of the 106 participants with an ICD-10 PTSD diagnosis 22 participants were further excluded from the analysis, because they did not fulfil either an ICD-11 PTSD or CPTSD diagnosis according to scores on ITQ. We found no significant difference on gender proportion between the group of participants that did not obtain any ICD-11 PTSD diagnoses (no ICD-11) (12 women, 55%; 10 men, 45%) and the group that obtained an ICD-11 diagnosis (48 women, 57%; 36 men, 43%); $\chi^2(1, n = 84) = 5.839e-31, p = 1$. There was no significant difference in age between the no ICD-11 group ($M = 38.73, SD = 13.09$) and the ICD-11 group ($M = 42, SD = 11.68$); $t(30.34) = -1.14, p = 0.26$. There was also no significant difference on number of traumatic experiences between the no ICD-11 group ($M = 5, SD = 3.13$) and the ICD-11 group ($M = 6.20, SD = 3.30$); $t(34.25) = 1.59, p = 0.1$. Furthermore, there was also no significant difference on witnessed traumatic experiences between the two groups; $t(39.50) = 0.35, p = 0.73$.

The final sample comprised $N = 84$ outpatients with complete data and a probable ICD-11 PTSD or CPTSD diagnosis. Twenty-six (31%) were single, 37 (44%) lived with a partner, and the rest lived with either their parents, children, or others (all $n = 21, 25.1%$). Twenty-four (28.6%) had no children, 12 (14.3%) had one child, and 48 (57.1%) had two children or more. Twenty (23.8%) had finished primary school as their highest education level, 18 (21.4%) had a vocational education, 14 (16.7%) had finished upper secondary school, and 32 (38.1%) had a bachelor degree or higher. Most patients were on sick leave ($n = 38, 45.2%$), followed by being in rehabilitation ($n = 17, 20.1%$), employed ($n = 15, 17.9%$), unemployed ($n = 7, 8.3%$), receiving early retirement ($n = 6, 7.1%$) or were retired ($n = 1, 1.2%$).

The clinically-based inclusion diagnosis F43.1 PTSD and comorbid mental disorders were assessed with the structured diagnostic Interview MINI. All 220 PID-5 self-report questions were read aloud to ensure completion. Participants completed the ITQ and the Life Events Checklist from home via secure online access. Most of the data collection was completed by the first author (LM). However, a smaller subset ($n = 21$) was completed by an experienced psychologist trained by LM, and regular supervision was provided. Participation was voluntary, and all participants provided written informed consent. Transportation expenses were compensated, but no

further remuneration was provided. The study design was approved by the Regional Ethics Committee of Zealand (J.nr. 17-000048) and notified to the Danish Data Protection Agency.

2.2. Measures

2.2.1. Personality Inventory for DSM-5

We used the full 220-items self-report version of the Personality Inventory for DSM-5 (PID-5; Krueger et al., 2012) measuring five broad maladaptive personality trait domains and 25 lower-order trait facets. The items were measured on a four-point Likert scale from 0 (*Very false or often false*) to 3 (*Very true or often true*). Mean scores for the domains and facets were calculated according to the guidelines on the official scoring sheet for the questionnaire (see <https://www.psychiatry.org/psychiatrists/practice/dsm/educational-resources/assessment-measures#Personality>). For interpretation of the traits, we used the following scores as degree of trait severity: absent to very low (0), low to moderate (0–1), moderate to high (1–2), or very high (2–3). Internal consistency of the five trait domains was generally within the acceptable range with scores yielding $\alpha = .86$ for Negative Affectivity, $\alpha = .89$ for Detachment, $\alpha = .87$ for Antagonism, $\alpha = .86$ for Disinhibition, and $\alpha = .91$ for Psychoticism. The facet scores' alpha coefficients ranged from .48 (Irresponsibility) to .91 (Depressivity, Psychoticism) with a median value of .84.

2.2.2. International Trauma Questionnaire

We used the self-report International Trauma Questionnaire (ITQ; Cloitre et al., 2018) to assess ICD-11 PTSD and CPTSD. Three symptom clusters each comprising two items measured PTSD in the past month. Further, six items with two items per cluster measured disturbances in self-organization (DSO) including three clusters: Affective Dysregulation, Negative Self-concept, and Disturbances in Relationships. The participants answered the DSO items in terms of how they typically felt, thought about themselves, and related to others. Three items for each domain (PTSD and DSO) measured the level of functional impairment. The items were measured on a five-point scale from 0 (*Not at all*) to 4 (*Extremely*). The ITQ has demonstrated good psychometric properties in several studies (Cloitre et al., 2018; Hyland et al., 2017). Since there was no formal Danish translation when the study began, we translated the ITQ into Danish and professionally back-translated it. To ensure consistency in the chosen Danish terminology, the final Danish translation received consensus from a group of psychiatrists and psychologists. The authors of the measure approved the back-translation (M. Cloitre, Personal communication with

L. Møller, November 19th, 2019). The Cronbach's alpha value was $\alpha = 0.85$ for the total scale, and for both subdomain; $\alpha = 0.71$ for PTSD and $\alpha = 0.81$ for DSO.

2.2.3. Life Events Checklist

The Life Events Checklist (LEC; Gray, Litz, Hsu, & Lombardo, 2004) assesses 16 potentially traumatic experiences and one additional traumatic experience representing any other extraordinarily traumatic experience. We included three additional items to consider traumatic experiences before age 18, specifically: *childhood physical abuse* (being hit, punched, or hurt by someone responsible for caregiving such as a parent, foster parent, teacher, or coach), *childhood sexual abuse* (being touched sexually or being sexually assaulted by someone older or a caregiver), and *neglect* (not being properly clothed or fed or being left without care). The participants checked whether they directly experienced the traumatic event, witnessed it, learned about it, were not sure, or whether it did not apply to them. This study calculated mean scores for self-experienced traumatic events. The traumatic event items were coded as binary variables with endorsement of the traumatic experience as 1, otherwise 0. In addition, we estimated how many reported witnessing a close relative experience a traumatic event, and heard about traumatic experiences that happened to someone close.

2.2.4. MINI International Neuropsychiatric Interview 7.0.2

We used the MINI International Neuropsychiatric Interview (MINI; Sheehan et al., 1998) to assess for PTSD, other current mental state disorders, and suicidal ideation. MINI 7.0.2 is a short structured diagnostic interview developed to assess 17 DSM-5 psychiatric disorders. Validation studies comparing MINI with the Structured Clinical Interview for Diagnostic and Statistical Manual-III-R patient version (SCID-p) and the composite international diagnostic interview for ICD-10 (CIDI) showed similar validation properties as found for SCID-p and CIDI (Lecrubier et al., 1997).

2.3. Data analysis

First, we estimated frequencies and prevalence rates for ICD-11 PTSD and CPTSD, current mental state disorders, suicidal ideation, and traumatic experiences. We used Pearson's chi-square analysis to compare frequencies of traumatic experiences, current mental state disorders, and suicidal ideation between the ICD-11 PTSD and CPTSD groups. However, we used Fisher's exact test when the estimated expected value of any cell in the contingency table was below 5. Second, to examine the degree of difference between ICD-11 PTSD and CPTSD on maladaptive personality trait domains or facets, we estimated Cohen's

d effect sizes; statistical differences were tested via a series of independent t-tests. We used Welch's *t*-test because we had unequal group sizes. We inspected the data for normal distribution and applied the Mann-Whitney U non-parametric test when normality was violated. Finally, we estimated a series of Pearson correlation coefficients to test the bivariate association between the maladaptive personality trait domains and facets, and the symptom clusters of ITQ. We used the final sample ($N = 84$) for the Pearson correlation coefficient estimations. The Benjamini-Hochberg method was applied to control the false discovery rate of multiple comparisons in all comparison analysis. All statistical analyses were conducted in R (R Core Team, 2019).

3. Results

3.1. Traumatic experiences and diagnostic status

The participants had on average experienced 6.20 ($SD = 3.30$, median = 6) types of traumatic experiences during their life, witnessed 2.25 ($SD = 2.89$) traumatic experiences that happened to someone else, and heard about 2 ($SD = 3.13$) traumatic experiences that happened to someone close. The most commonly reported type of self-experienced traumatic experiences was physical assault, 77.38%; childhood physical assault, 51.19%; and transportation accident, 50%.

The identified diagnostic rates of ICD-11 PTSD and CPTSD were 23% ($n = 24$) and 57% ($n = 60$), respectively. We found that patients who had CPTSD according to ICD-11 were more likely to have high levels of suicidal ideation (42%), compared to patients who were diagnosed with PTSD (0%); $\chi^2(1, n = 84) = 12.31$, adjusted $p = .01$ (Table 1). We found no significant differences between ICD-11 PTSD and CPTSD on any types of traumatic experiences.

3.2. PID-5 trait domains and facets in PTSD and CPTSD

As presented in Table 2, we conducted a series of t-tests and Mann Whitney U tests to estimate differences between ICD-11 PTSD and CPTSD on maladaptive traits. At the trait domain level, Negative Affectivity ($d = 0.75$) and Psychoticism ($d = 0.80$) differentiated patients diagnosed with CPTSD from those diagnosed with PTSD with higher severity scores. At the facet level, 10 trait facets out of 25 differentiated outpatients with ICD-11 CPTSD from outpatients with ICD-11 PTSD with higher severity scores and large effect sizes.

Table 1. Comorbid mental state disorders.

MINI-disorders:	ICD-11 PTSD	ICD-11 CPTSD	χ^2 (1)	p-values	FDR-BH
	(n = 24)	(n = 60)			Adjusted p-values
Depressive episode	15 (63%)	52 (87%)	4.80	0.02*	0.07
Suicidal ideation (low)	10 (42%)	13 (22%)	4.61	0.02*	0.07
Suicidal ideation (medium)	0	8 (13%)	2.16	0.1*	0.28
Suicidal ideation (high)	0	25 (42%)	12.31	<0.001	0.01
Panic disorder	10 (42%)	25 (42%)	0	1	1
Agoraphobia	6 (25%)	13 (22%)	0	0.97	1
Social phobia	1 (4%)	9 (15%)	1.02	0.27*	0.59
Obsessive-compulsive disorder	5 (21%)	8 (13%)	0.28	0.51*	0.94
PTSD					
Depersonalization	14 (58%)	40 (67%)	.22	0.64	1
Derealization	10 (42%)	25 (42%)	0	1	1
Psychosis	0	0	(..)	(..)	(..)

* = Fisher's exact test. FDR-BH = False Discovery Rate, Benjamini-Hochberg method. PTSD = Post-traumatic stress disorder. CPTSD = complex post-traumatic stress disorder.

Table 2. PID-5 descriptive statistics and difference test.

PID-5 scales	ICD-11 PTSD		ICD-11 CPTSD		PTSD vs. CPTSD		
	(n = 24)		(n = 60)		p-values	FDR-BH	Cohen's d
	mean	SD	mean	SD		Adjusted p-values	
Negative Affectivity	1.4	.53	1.8	.5	0.004	0.017	.75
Emotional Lability	1.9	.8	2.2	.6	0.194	0.265	.34
Anxiousness	1.8	.61	2.2	.64	0.004	0.017	.72
Separation Insecurity	.62	.64	1.08	.75	0.009*	0.025	.66
Depressivity	.96	.57	1.7	.62	< 0.001	0.015	1.29
Hostility	1.3	.6	1.6	.68	0.046	0.086	.48
Suspiciousness	1.13	.50	1.60	.70	0.002*	0.015	.78
Submissiveness	.72	.75	1.44	1.03	0.005*	0.017	.80
Perseveration	1.1	.67	1.6	.62	0.006	0.018	.72
Detachment	1.6	.51	1.8	.55	0.038	0.081	.51
Withdrawal	1.8	.65	2.2	.67	0.013	0.033	.64
Intimacy Avoidance	1.3	.95	1.3	.87	0.921	0.987	.02
Anhedonia	1.7	.54	2.1	.54	0.005	0.017	.72
Depressivity (see Negative Affectivity)							
Restricted Affectivity	1.1	.74	1.3	.73	0.282	0.358	.26
Antagonism	.45	.47	.44	.39	0.996*	0.996	.005
Manipulativeness	.68	.58	.71	.69	0.96*	0.993	.06
Deceitfulness	.24	.51	.34	.44	0.097*	0.162	.23
Grandiosity	.42	.52	.27	.32	0.286*	0.358	.34
Attention seeking	.47	.54	.54	.69	0.908*	0.987	.11
Callousness	.4	.5	0.5	.51	0.663	0.796	.11
Hostility (see Negative Affectivity)							
Disinhibition	1.1	.56	1.4	.49	0.042	0.084	.52
Irresponsibility	.49	.37	.65	.48	0.168*	0.252	.38
Impulsivity	1	.89	1.3	.83	0.192	0.265	.33
Distractibility	1.8	.75	2.2	.60	0.034	0.078	.56
Risk Taking	1	.57	1	.76	0.913	0.987	.02
Rigid Perfectionism	1.4	.68	1.7	.75	0.124	0.196	.37
Psychoticism	.9	.46	1.3	.53	0.001	0.015	.80
Unusual Beliefs and Experiences	.7	.61	1	.71	0.052	0.092	.46
Eccentricity	1	.66	1.5	.71	0.003	0.017	.75
Cognitive and Perceptual Dysregulation	1.1	.49	1.4	.51	0.002	0.015	.76

SD = standard deviation. FDR-BH = False discovery rate, Benjamini-Hochberg method. * = Mann Whitney U test, non-parametric difference test.

3.3. ITQ symptom clusters and PID-5 trait domains and facets

As presented in Table 3, we estimated bivariate correlations between ITQ symptom clusters and PID-5 trait domains and facets. The ITQ symptom cluster *Re-experiences* had a significant weak positive correlation and a significant weak negative correlation with PID-5 trait facets. The ITQ symptom cluster

Avoidance had a significant moderate positive correlation with one trait domain out of five and a weak and a moderate significant positive correlation with PID-5 trait facets. We found a significant moderate positive correlation between the ITQ symptom cluster *Sense of Threat* and a PID-5 trait domain. Furthermore, the ITQ symptom cluster *Sense of Threat* was found to have two weak significant

Table 3. Pearson correlation coefficients for ITQ symptom clusters and PID-5 domains and traits.

	PTSD			DSO		
	Re-experiences	Avoidance	Sense of Threat	Affective Dysregulation	Negative Self-concept	Disturbances in Relationship
	<i>r</i>	<i>r</i>	<i>r</i>	<i>r</i>	<i>r</i>	<i>r</i>
Negative Affectivity	.02	.15	.07	-.04	.46**	.15
Emotional Lability	.07	.02	-.02	-.07	.22	.11
Anxiousness	.05	.23	.09	-.08	.50**	.14
Separation Insecurity	-.06	.09	.10	.06	.33*	.09
Depressivity	.12	.22	.20	.06	.75**	.37**
Hostility	.15	.11	.22	.29*	.19	.25
Suspiciousness	.09	.10	.13	-.01	.45**	.29*
Submissiveness	-.27*	.15	-.13	-.09	.32*	.10
Perseveration	.11	.25	.11	.12	.42**	.30*
Detachment	.23	.38**	.36**	.28	.33*	.57**
Withdrawal	.20	.38**	.29*	.39**	.28*	.59**
Intimacy Avoidance	.19	.28*	.22	.14	.16	.37**
Anhedonia	.15	.23	.37**	.16	.40**	.41**
Restricted Affectivity	.12	.25	.17	.45**	.12	.28*
Antagonism	-.10	-.14	.04	.18	.05	-.04
Manipulativeness	-.15	-.13	.04	.18	-.02	-.06
Deceitfulness	-.13	-.08	.06	.19	.09	.05
Grandiosity	.05	-.11	0	.04	-.21	-.10
Attention Seeking	-.14	-.02	.05	.10	.10	-.04
Callousness	.18	.04	.19	.24	-.01	.08
Disinhibition	.22	.04	.20	.09	.38**	.19
Irresponsibility	.19	.02	.20	.05	.32*	.10
Impulsivity	.22	-.04	.09	.06	.24	.10
Distractibility	.10	.12	.22	.09	.36**	.26
Risk Taking	.11	.04	.08	.25	.11	.11
Rigid Perfectionism	.18	.21	.23	.18	.22	.22
Psychoticism	.24	.22	.23	.21	.43**	.29*
Unusual Beliefs and Experiences	.17	.09	.12	.16	.30*	.13
Eccentricity	.18	.22	.25*	.16	.38**	.28*
Cognitive & Perceptual Dysregulation	.28*	.26*	.20	.22	.40**	.33*

N = 84. The *p*-values are corrected for false discovery rates; * *p* < .05, ** *p* < .01. *r* = Pearson correlation coefficient. DSO = disturbances in self-organization. Significant values are in bold.

positive correlations and one moderate significant positive correlation on the facet level.

The ITQ symptom cluster *Affective Dysregulation* had significant moderate positive correlations to three PID-5 trait facets. The ITQ symptom cluster *Negative Self-concept* had significant moderate positive correlations to three PID-5 trait domains. Furthermore, we found one strong positive correlation and 11 moderate positive correlations between the ITQ symptom cluster *Negative Self-concept* and PID-5 trait facets. The ITQ symptom cluster *Disturbances in Relationship* had significant moderate positive correlations to two PID-5 trait domains and had moderate positive correlations to nine PID-5 trait facets.

4. Discussion

The present study investigated differences of ICD-11 PTSD and CPTSD on a broad range of clinical symptoms by means of a dimensional approach assessing maladaptive personality traits.

As hypothesized, we found that both PTSD and CPTSD had elevated scores (above 1.5) on multiple maladaptive trait domains and facets. The trait

domains and facets, found to be elevated in this study, are indicative of internalizing psychopathology. This is consistent with results from prior cluster and factor analytic studies finding that PTSD falls within the internalizing dimension of psychopathology (Cox et al., 2002; Miller et al., 2003; Miller, Kaloupek, Dillon, & Keane, 2004; Miller & Resick, 2007).

The hypothesis that CPTSD would have substantially higher scores on specific traits conceptually similar to the symptom cluster of the DSO domain than PTSD was supported in our results. The higher scores on the domains Negative Affectivity and Psychoticism suggest that individuals with CPTSD express more frequent and more intense experiences of a wide range of negative emotions (e.g. anxiety, depression, guilt/shame) and their interpersonal (e.g. dependency) manifestation, and exhibit more eccentric, or unusual behaviours and cognitions, including both process (e.g. perception, dissociation) and content (e.g. beliefs) (American Psychiatric Association, 2013, pp. 779–781). Furthermore, as a consequence of the elevated scores of the CPTSD group on the trait facets included under the detachment domain (i.e. Withdrawal, Anhedonia), they

showed more constriction of emotions, especially the capacity to feel pleasure. This is in line with the American Psychiatric Association's description of people with PTSD: 'they have less enjoyment from, engagement in, or energy for life's experience, have a higher preference for being alone, and avoiding social contacts and activity' (American Psychiatric Association, 2013, pp. 779–781).

The higher levels of Negative Affectivity differentially associated with CPTSD compared to PTSD did not come as a surprise. There appears to be a conceptual overlap between the DSO domain and facets constituting the Negative Affectivity domain. Results from the correlation analysis showed that the PID-5 domain Negative Affectivity and all the encompassing facets were only significantly associated with DSO symptom clusters, except for a negative correlation between Submissiveness and the ITQ cluster Re-experiencing. This finding may evidence criterion validity. DSO symptoms are described as pervasive, persistent, and severe and, therefore, are similar to personality disorders' general criteria. Thus, the maladaptive personality trait domains, specifically Negative Affectivity and in part Detachment, may function as criterion variables. The results from this study extends prior study results demonstrating an association between Negative Affectivity and PTSD (James et al., 2015; Waszczuk et al., 2018) to the diagnoses of PTSD and CPTSD as formulated in ICD-11. The result of significant higher levels of psychoticism in patients with CPTSD as compared to PTSD is consistent with previous work showing that dissociative symptoms and even psychosis symptoms are more common in CPTSD (Frost et al., 2019; Hyland et al., 2020). The correlation analysis revealed that the psychoticism trait is especially associated with the ITQ symptom cluster Negative Self-concept and in part with the ITQ symptom cluster Disturbances in Relationships. These findings suggest a heterogenetic expression of the Negative Self-concept symptoms with possible features of derealization, depersonalization, strange and unpredictable thoughts, and unusual experiences of reality. In contrast to the AMPD approach in DSM 5, Section III, the ICD-11 approach to classification of PDs has chosen to integrate features similar to the psychoticism trait domain under personality functioning. Therefore, these features are not conceptualized as trait characteristics. The overlap between the two approaches reflects different traditions for describing personality dysfunction (trait theory versus psychodynamic traditions) in different ways. Our findings suggest that psychoticism trait features are indicative of higher severity of personality functioning.

All the patients in our sample had low scores on the Antagonism trait domain; we found no significant associations between the Antagonism trait domain or the underlying facets and the symptom clusters of the PTSD or DSO domain. This result is in line with

previous results (James et al., 2015), suggesting that externalizing features are relatively limited in our sample of psychiatric outpatients. Individuals characterized by externalizing PTSD or DSO features may rather end up with a substance use disorder diagnosis or perhaps in prison.

The trait domain Detachment was significantly associated with four out of six ITQ symptom clusters. The facet Withdrawal, part of the Detachment domain, was significantly associated with almost all the ITQ symptom clusters except the Re-experience symptom cluster. Our results suggest that trauma survivors diagnosed with either PTSD or CPTSD are more or less withdrawn from their inner and outer world alike. A detached state weakens the patient's foundation in their inner and outer world and isolation from oneself, the world, and others may be the consequence. Whether detachment, especially withdrawal, is an essential characteristic cross-cutting the ICD-11 post-traumatic disorders needs to be investigated in future studies.

The results from the correlation analysis demonstrated that the ITQ Negative Self-concept symptom cluster showed a relatively high number of significant correlations across all the personality trait domains and facets. Our results indicate that the self-image in CPTSD is characterized by different states, comprising amongst others: 'a range of negative emotions (i.e. anxiety, depression, guilt/shame); fears of separation from significant others based on lack of confidence in one's ability to care for oneself; perseveration; preference of being alone to being with others; lack of enjoyment from, engagement in, or energy for life's experiences; expectations of – and sensitivity to – signs of interpersonal ill-intent or harm; difficulty concentrating and focusing on tasks; disregard for – and failure to honour – financial and other obligations or commitments; odd, eccentric, or unusual behaviours and cognitions, including both perception and dissociation and beliefs' (American Psychiatric Association, 2013, pp. 779–781).

Our results revealed no significant correlations between any of the ITQ symptom clusters and the trait facets Emotional Lability, Risk-taking, and Impulsivity. These three trait features have been found to be characteristic Borderline Personality Disorder (BPD) traits in prior studies. In a study that investigated individuals with PTSD as a consequence of childhood abuse, the symptom Impulsivity amongst others, was found to differentiate BPD from complex PTSD (Cloitre, Garvert, Weiss, Carlson, & Bryant, 2014). Moreover, another prior study found Emotional Lability and in part, Risk-taking to be core trait features of patients with BPD (Bach, Sellbom, Bo, & Simonsen, 2016). Even though the mean scores on Emotional Lability were relatively high for both PTSD and CPTSD, the non-significant correlation indicates that Emotional Lability is not an integrated concept of CPTSD.

Thus, our findings suggest that affect dysregulation in the DSO domain is conceptually different from Emotional Lability. The results from the present study add information to the empirical knowledge base suggesting that there may be differential characteristics between BPD and ICD-11 CPTSD.

We found a range of disorders comorbid to PTSD and CPTSD. In line with previous research, our results suggest that patients identified with CPTSD had more comorbid disorders. Due to the higher number and complexity of symptoms in CPTSD, we believe that higher comorbidity rates are simply what will be found in CPTSD, compared to PTSD. We found no significant differences between PTSD and CPTSD on the dissociative subtype traits of PTSD (i.e. depersonalization, derealization) assessed with the MINI interview. Findings from prior studies suggest that individuals with PTSD who present dissociative symptoms are more likely to report childhood adversity, earlier traumatic events, and more previous traumatic exposure (Stein et al., 2013). The diagnostic groups in our sample (i.e. PTSD and CPTSD) were not differentiated on these parameters. This may be one reason that we did not find a significant difference on the dissociative subtype symptoms between the PTSD and CPTSD groups. Nevertheless, it is noteworthy that above 50% of the participants in the present study were found to exhibit these particular symptoms additional to PTSD symptoms. Prior studies have found prevalence of the PTSD dissociative subtype to range between 12% to 44% (Swart, Wildschut, Draijer, Langeland, & Smit, 2019). Further work is required to explicate the difference between CPTSD and the PTSD dissociative subtype construct.

The elevated personality trait domains and facets for PTSD and CPTSD in the present study are also common clinical features of the most prevalent comorbid disorders of PTSD (i.e. affective disorders, anxiety disorders, substance use disorder, and borderline personality disorder). Many of these features in the present study were significantly correlated with the symptom clusters of the DSO-domain. This suggests that DSO symptoms may play an important role in CPTSD comorbidity. As shown in a previous study, especially symptoms from the negative self-concept were connected to depression, whereas avoidance symptoms were connected to anxiety (Gilbar, 2019). Nevertheless, symptom similarity between disorders warrants precaution in clinical practice, because it may complicate clinical decision-making and differential diagnosis.

The results from this study should be interpreted taking the following limitations into consideration. The sample size and the selected sample comprising psychiatric outpatients might compromise generalizability of the present study. Extrapolating the results to other treatment facilities (i.e. psychiatric inpatients, outside psychiatric settings) and to the general

population should be done with caution. Furthermore, outpatients with a comorbid substance use disorder or comorbid psychosis were naturally excluded from the sample, because they are referred to specialized abuse treatment or facilities that treat psychosis. However, the exclusion of PTSD outpatients with a comorbid substance use disorder or comorbid psychosis have very likely resulted in a selection bias. Particularly, the restricted level of externalizing maladaptive personality traits in the current study may be a consequence of this selection bias. Thus, generalization of the results to other PTSD and CPTSD population should be done with caution. Patients were illegible for participation in the present study if they had received maximum seven treatment sessions. However, we did not register the number and type of current psychotherapeutic treatments. To the best of our knowledge, most of the participants had not received psychotherapeutic treatment before recruitment and were on a waiting list for treatment. Nevertheless, in few of the recruitment clinics psychotherapeutic treatment were provided between the clinical ICD-10 diagnostic assessment and the research assessment. Psychotherapeutic treatment may potentially have influenced the severity of symptomatology, diagnostic rates of ICD-11 PTSD and CPTSD, and comorbidity rates. This may especially be true for the PTSD group because these patients may require less treatment. We did not control for differences in treatment sessions between the participants. The sample size might have been somewhat small to prevent risk of type 2 error. Furthermore, there were almost three times fewer participants in the PTSD group than in the CPTSD group, this may have affected the statistical power of the difference tests. We used a cross-sectional design in the current study. Therefore, the temporal relationship between the pattern of maladaptive personality traits, traumatic experience, and ICD-11 PTSD or CPTSD cannot be determined.

In conclusion, considering the level of endorsed severity on personality features ICD-11 CPTSD is likely to be a more debilitating disorder than PTSD. Furthermore, the results add to the existing knowledge of associations between the ICD-11 PTSD disorders and other mental health disorders. In particular, this study documents that ICD-11 CPTSD has a different comorbidity pattern compared with ICD-11 PTSD. The utility of a broader assessment approach might be a relevant method to understand psychopathology differences between ICD-11 PTSD and CPTSD and their comorbidity patterns with other mental disorders.

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No potential conflict of interest was reported by the authors.

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Data availability statement

The data that support the findings of this study are available on request from the corresponding author, LM. The data are not publicly available due to legislation restrictions; the data contains information that could compromise the privacy of research participants.

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