

# Proposed ICD-11 complex posttraumatic stress disorder, characteristics and symptoms of adults in an inpatient psychiatric setting: A descriptive study

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## Abstract

**Background:** Applying the framework of ICD-11, complex posttraumatic stress disorder will be diagnosed using the core criteria of a posttraumatic stress disorder and the presence of three additional symptoms that identify 'disturbances in self-organization': affective dysregulation, negative self-concept and disturbances in relationships. An understanding of characteristics and the symptom burden of patients with a complex posttraumatic stress disorder, hospitalised in psychiatric hospitals, is vital to develop interventions and therefore improve services.

**Methods:** The recruitment of adults in a psychiatric inpatient setting took place in the form of a consecutive sample. The data base for this prospective descriptive study comprised data collected during regular inpatient treatment available from the internal clinic database: The sociodemographic information was collected using a clinical questionnaire and symptom values were assessed with the Brief Symptom Inventory, the Beck Depression Inventory and the Impact of Events Scale - Revised. Patients were additionally assessed using the International Trauma Questionnaire.

**Results:** 133 agreed to participate, 47.4% (n = 63) of the patients did not fulfil the inclusion criteria of diagnosis. The final sample comprised 50 female and 20 male participants. On average, the patients were 37.84 years old (SD = ± 11.2) and 50.0% (n = 35), single people. 72.9% (n = 51) had completed secondary school or had higher education and 84.3% (n = 59) of the participants were unemployed. 92.9% indicated having a form of childhood traumatic experience and all participants had more than two trauma events. Overall, there were gender differences in the perceived symptom burden and manifestation in the symptom domains.

**Conclusion:** The findings indicate that there may be several adverse factors related to complex posttraumatic stress disorder. The impairment was much more likely to be severe and have an impact on the functional level. The present research adds new results to the growing literature.

**Trial registration:** Ethical approval was obtained from the Swiss Cantonal Ethic Commission (BASEC - Nr 201500096). This research was also registered on the World Health Organization WHO Clinical Trials Search Portal, Trial DRKS00012268

**Abbreviations:** AR: Affect Regulation; AV: Avoidance; BASEC: Business Administration System for Ethics Committees; BDI Beck Depression Inventory; BSI: Brief Symptom Inventory; CPTSD: Complex Posttraumatic Stress Disorder; DGPPN: German Association for Psychiatry, Psychotherapy and Psychosomatics; DESNOS: Disorder Of Extreme Stress, Not Otherwise Specified; DIPS: Diagnostisches Interview bei psychischen Störungen; DRKS: German Clinical Trial Register; DR: Disturbed Relationships; DSO: Disturbances In Self-Organisation; GSI: Global Severity Index; HRSD: Hamilton Rating Scale For Depression; ICD-11: International Classification of Disease, 11th version; Impact of Event Scale: IES; IES-R: Impact of Event Scale - Revised; ipw: Integrierte Psychiatrie Winterthur; ITQ: International Trauma Questionnaire; MD mass: Missing Data Mass; NSC: negative self-concept; PTSD: Posttraumatic Stress Disorder; RE: Re-experiencing; TH: Sense of Threat; WHO: World Health Organization.

## Background

Complex posttraumatic stress disorder (CPTSD) was first described by Herman in 1992 [1]. The author discussed the impact of chronic stress on emotion regulation, self-organisation, self-perception, and interpersonal functioning. Furthermore, she highlighted a possible

distinction between posttraumatic stress disorder (PTSD) and CPTSD [1]. Until now, CPTSD has been operationalised for research and clinical practice as a "disorder of extreme stress, not otherwise specified" (DESNOS) [2-4]. In the literature, DESNOS has been characterised by pathological abnormalities in interpersonal relationships, somatisation, affective regulation, dissociation and altered self-schemata [1,4-6]. The beta version of the International Classification of Disease, 11th version (ICD-11), available online since 2015, contains two diagnoses of stress and trauma-related illnesses: posttraumatic stress disorder (PTSD) and complex posttraumatic stress disorder (CPTSD). In 2018, the World Health Organization (WHO) is expected to approve ICD-11 as the latest, official version [4,7].

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Recent studies have explored if the newly developed International Trauma Questionnaire (ITQ) can distinguish between classes of patients according to the PTSD and CPTSD symptom profiles as proposed [5,7-11]. Some discussions are still ongoing as to whether or not the two diagnoses describe different entities [12,13]. However, several studies provide sound evidence for the newly proposed diagnosis of CPTSD [5,7-11,14-19]. Since CPTSD is not a sub-diagnosis but rather a sibling disorder, the diagnostics for these two disorders differ. For PTSD, the following three symptom domains are proposed: re-experiencing the traumatic event, avoidance of the event and persistent perceptions of heightened current threat. [4,5,7,18,20]. The prerequisite is that the affected person develops the symptoms after a stressful situation of catastrophic extent or exceptional threat. This situation can be, for example, abuse of a physical or mental nature, experience of a natural catastrophe, war experience and accidents. ICD-11 proposes to diagnose CPTSD by using the criteria for PTSD, by the addition of symptoms of the following three domains: affective dysregulation, a negative self-concept and disturbed relationships [4,5,7-10,18,21]. The domain affective dysregulation involves symptoms such as self-harming behaviour, dissociation, emotional numbness, anger outbursts, irritability, excessive crying and anhedonia. This domain also includes being unable to manage one's own emotions and is often referred to as difficulties with emotional regulation. A negative self-concept comprises low self-esteem, negative beliefs due to traumatic experiences, feelings of guilt and shame. It further involves feelings of worthlessness and no sense of self. Disturbed relationships are based on a lack of skills in building and maintaining close social relationships, a feeling of being cut off from others and not feeling close to another person.

The prevalence of PTSD in the European population is estimated to be between 0.56% and 6.67% [22]. In this study, the general prevalence for PTSD in Switzerland was estimated as being in the lower third of the specified range. This calculation considered the different measurement methods, sample sizes, settings and sociodemographic factors of previous research. The results from Burri and Maercker [22] suggest that different aftermaths of war are correlated to the prevalence of PTSD. The literature currently covers few results on the prevalence of CPTSD in clinical samples [8,12,23]. In a study on inpatients by Cloitre *et al.* [5], 36.1% of the population had CPTSD, 31.8% had PTSD and 32.1% had clinically unremarkable symptoms. Furthermore, the research results suggest that, after child abuse, the probability of developing CPTSD is double that of developing PTSD. A study conducted by Wolf *et al.* [12] estimated a CPTSD prevalence of 13% for traumatised veterans and a CPTSD prevalence of 0.6% for the US population.

It has been suggested that CPTSD may be mostly relevant to groups exposed to repeated and prolonged interpersonal trauma and is strongly associated with a more frequent accumulation of distinct types of traumatic experiences and poorer functional impairment [1,4,8,16,23]. CPTSD is also understood to be a chronic illness [1,23,24]. Those affected often try to divert or regulate stressful effects by excessive alcohol consumption or self-harming behaviour [24-26]. Closely related to low self-efficacy due to lack of self-regulatory competences, a problem area arises involving inadequate self-care, impairment in quality of life and, indeed, in everyday life itself. These problems can lead, for example, to individuals neglecting to eat and attend to personal care [27]. There is often a strong mistrust, or avoidance of any social contact, due to traumatic experiences and/or any social relationships. Often, patients lack close friends or relatives [28]. In everyday life, dissociative symptoms can lead to severe problems with social interactions. An intense depersonalisation experience, "standing beside oneself",

stuporous states or dissociative run-out (fugue) can occur [29,30] during periods of stress. These stressful periods can include things such as being under time pressure or facing a challenging professional situation. These phenomena can lead to social neglect and more intense feelings of shame, guilt and lower self-esteem. Dissociative symptoms may be the result of neurobiological protective systems, which protect the organism from overwhelming burdens [3,6,29].

Symptoms in general are discussed in the literature as a common reason for seeking treatment [31]. During the trajectory of illness, those affected often experience multiple, as well as, competing symptoms [32,33]. That condition can alter life quality and everyday life of affected persons [34]. Moreover, not only do these symptoms cause distress, but they can also affect social interactions [35]. A symptom is described as a subjective feature, that is as a subjective individual perception that influences feelings towards the illness [33]. Furthermore, a symptom can be interpreted as a multidimensional and complex phenomenon. More than three symptoms associated with each other are described as a symptom cluster [33,36]. There is currently strong evidence relating to individual symptoms while the study of symptom clusters is described as poor [33]. Therefore, an understanding and description of characteristics and the distinct levels of symptom burden of patients with CPTSD, hospitalised in psychiatric hospitals, is vital for researchers and practitioners to research on CPTSD patients. Consequently, this study focuses on the collection and description of variables, through standardised assessment instruments and characteristics of adult inpatients with CPTSD. These results could serve as a reference, for hypothesis generation and basis for further research.

## Aims

The aims of this study are as follows:

To describe the demographic variables such as gender, age, education, occupational status and marital status for adult CPTSD inpatients.

To identify specific types of trauma exposure and their frequency for adult CPTSD inpatients.

To describe the level of symptom burden for adult CPTSD inpatients through standardised assessment instruments.

## Method

### Study design

This study is the first part of a larger project to investigate the symptom management and the social process of adult inpatients with CPTSD [37]. A single-side prospective descriptive design using routinely collected data was selected to generate the results.

### Setting

The current study was conducted at the institution Integrierte Psychiatrie Winterthur, Zurcher Unterland (ipw). The institution is a large, community-based organisation providing psychiatric services in the city of Winterthur in the Canton of Zurich, Switzerland. The recruitment was carried out in an inpatient mental health ward for psycho-traumatology. The ward treats approximately 200 patients per year and employs 25 clinicians, such as psychiatrists, psychologists, mental health nurses and other therapists. It provides treatment for a diverse adult population from the German speaking region of Switzerland. Inpatient treatment lasts between two and three months. Patients can refer themselves or be referred through a psychiatrist or psychologist. The ward has a capacity for 17 patients.

## Participants and recruitment

Participants for the current investigation included a sample of adult inpatients whose data was collected through consecutive recruitment from 1.1.2016 until 31.5.2017. All participants received detailed information during their admission phase and the research intention and aims were explained. After the patient agreed to participate in the study informed, written consent was obtained. All patients referred for regular inpatient treatment offered by the ward and who fulfilled the criteria were asked if they wished to participate. The criteria were as follows: it was the patient's first inpatient treatment on the psycho-traumatology ward; the patient was between 18 - 60 years old; the diagnosis of CPTSD, based on the ITQ, was fulfilled and the patient had a good knowledge of German. Exclusion criteria included acute or latent suicidality and a main diagnosis other than CPTSD. Patients who might endanger themselves or others were also excluded.

The data base for this quantitative study comprises data that was collected during regular inpatient treatment and was available from the internal clinic database. Timing: T1 = data were collected during the admission phase by the corresponding practitioner (psychologist or psychiatrist): The socio-demographic information was collected using a clinical questionnaire, and symptom values were assessed with the Brief Symptom Inventory, the Beck Depression Inventory and the Impact of Events Scale - Revised. Patients who agreed to participate in this study were additionally assessed using the ITQ. This procedure was completed within the first week of inpatient treatment.

## Instruments

The International Trauma Questionnaire (ITQ) is the new proposed diagnostic instrument that is currently under development [5,8,20]. For this research project, we used the version 1.3 translated from English to German by Knefel, Lueger-Schuster and Maercker in 2015. The scale can be used to generate a self-report ICD-11 PTSD or CPTSD diagnosis [9,21,38]. The measure corresponds to the three clusters of PTSD, Re-experiencing (RE) (items P1–P2), Avoidance (AV) (items P3–P4), and Sense of Threat (TH) that is manifested by increased arousal and hypervigilance (items P5–P6). ICD-11 CPTSD is measured by the inclusion of 20 symptoms that describe disturbances in self-organisation (DSO). These items include four clusters, with two clusters relating to affect regulation (AR) characterised by hyper-activation (C1–C5) and deactivation (C6–C9). The third cluster relates to negative self-concept (NSC; C11–C14), the fourth cluster to disturbed relationships (DR; C15–C17). The last three items are relating to impairment (I; C18–C20) [8,9,38].

The response format corresponds to the degree the symptoms bothered the individual in the past month, using a Likert-type ranging from 0 (not at all) to 4 (extremely). The scale can be used to generate a self-report ICD-11 PTSD or CPTSD diagnosis. A diagnosis of PTSD requires a score of  $\geq 2$  for at least one symptom in each of its three clusters. A diagnosis of CPTSD requires PTSD diagnosis and the following scores for each of the three DSO clusters. AR for consistency requires a score of  $\geq 10$  on items 1–5 (hyper-activation) or a score of  $\geq 8$  on items 6–9 (deactivation). For the NSC items a score of  $\geq 8$  and for DR a score of  $\geq 6$  are required. In a current study, the reliability estimates were adequate with Cronbach's alpha for the total scale ( $\alpha=0.91$ ), hyper-activation ( $\alpha=0.73$ ), deactivation ( $\alpha=0.75$ ), negative self-concept ( $\alpha=0.83$ ), and relational disturbance ( $\alpha=0.79$ ) [9,38,39].

Three forms of typical psychological reactions in the context of traumatic disturbances have been shown as the consequences of extreme events: intrusion, avoidance and hyperarousal [40,41]. The

Impact of Event Scale - Revised (IES-R) measures these three domains [40]. The time required for completion of the IES-R is estimated to be five minutes. The three subscales "intrusion", "avoidance" and "hyperarousal" typically detect forms of individual reactions to, or symptoms of extremely stressful events. There is good psychometric evidence for the German version of this instrument. The internal consistency (Cronbach's alpha) is for the scale intrusions at  $\alpha = .90$ , for the scale avoidance  $\alpha = .79$ , for the scale hyperarousal at  $\alpha = .90$ . The Retest Reliability (three months) for intrusions is  $rtt = .80$ , avoidance  $rtt = .66$  and hyperarousal  $rtt = .79$ . The intercorrelations between the IES-R and associated "Diagnostisches Interview bei psychischen Störungen" (DIPS) (Diagnostic Interview for Psychiatric Disorders) symptom sums were  $r = .53$  (avoidance),  $r = .59$  (intrusions) and  $r = .72$  (hyperarousal). The responses are recorded at even intervals (0 = not at all, 1 = somewhat, 2 = moderate, 3 = fairly, 4 = extreme), unlike the original IES scale with a five-step response format [40].

Depressive moods are a frequent symptom in traumatic disorders [4,7,42]. The Beck Depression Inventory is an assessment instrument often used in clinical practice. It can be used to assess the degree of depression and takes between five and ten minutes to complete [43]. Consisting of 21 items, each item has a score of 0-3. Values from 0 to 9 signify no depression, from 10 to 18 a mild to moderate depression, from 19 to 30 a moderate or severe depression, and 30+ a major depression [43]. Beck's original report showed a correlation coefficient of .86 for the items, and the Spearman Brown correlation for the reliability of the BDI had a coefficient of .93 and a split-half reliability of .86. An alpha coefficient between 0.76 and 0.95 was found in a psychiatric sample [43]. Correlations with the Hamilton Rating Scale for Depression (HRSD) were 0.61 to 0.86. A correlation of 0.62 with the Hopkins Symptom Checklist was achieved. Checklist depression scores were measured. At the cut-off point of 9, the sensitivity was 84.6% and the specificity 86.4% [43].

The Brief Symptom Inventory (BSI) is the short form of the SCL-90. It is a German-language translation by Franke [44]. Its origin can be found in Derogatis's American "Brief Symptom Inventory" (BSI) [45,46]. The BSI is an assessment instrument with 53 items for the assessment of subjective impairment by physical and mental symptoms. The time required for completion is between five and ten minutes plus possibly an additional five minutes for instructions. It records the following symptoms: somatisation, compulsiveness, insecurity in social contact, depression, anxiety, aggressiveness/hostility, phobic anxiety, paranoid thinking and psychoticism. Measurement is on a Likert-type (not at all 0, a little 1, moderate 2, strong 3, very strong 4) [44]. For the primary dimensions of the BSI, the reliability values of Cronbach's were between  $\alpha = .97$  and .98 (Franke, 1997). The test-retest reliability, measured as a correlation between two measurements before and after one week, yielded satisfactory (anxiety, somatisation, aggression/hostility, psychoticism) to good (depression, obsessiveness, paranoid thinking, phobic anxiety, social insecurity, Global Severity Index (GSI) reliability values [44,47].

## Analyses

The sociodemographic and medical data of the patients were analysed using the following descriptive statistical methods: Absolute and relative frequencies, mean values, minimum and maximum values, percentage, standard deviations, histograms and bar graphs. The Statistical Package for the Social Sciences 24 (SPSS) software was used for the analyses. Sample size calculation was not required, as all patients were included. The following procedures for dealing with missing values were used: 1111 = not documented, 2222 = incomplete or imprecise

data documented, 3333 = not collected because of exclusion criteria. If necessary, a MD measurement (Missing Data Measurement) would have been calculated to determine the proportion of missing to existing values. With this procedure, we assumed we could identify concentration tendencies of missing values within the matrix. By applying simple or multiple imputation methods, we attempted to eliminate the issues of partial high information loss in elimination methods.

## Results

### Sociodemographic results

During the sampling period, 138 patients were asked to take part in this research, of which n = 5 declined and n = 133 agreed to participate. The response rate in this study was 96.3%. n = 63 were excluded from the study, having not fulfilled the inclusion criteria of CPTSD diagnosis. After this procedure, the sample consisted of n = 70. Consequently, we describe in this clinical sample a prevalence for CPTSD of 52.6%. All participants were resident in German speaking parts of Switzerland. 71.4% (n = 50) of the participants were women and accordingly 28.6% (n = 20) were men. Further, 34.3% (n = 24) of patients were between 30 - 39 years old and 28.6% (n = 20) were between 40 - 49 years old. Patients ranged in age from 18 to 63 years. On average, the patients were 37.84 years old (SD = ± 11.2). With 50.0% (n = 35), single people were the most frequently represented in the sample, followed by divorced people with 24.3% (n = 17). At the time of this study, 84.3% (n = 59)

of the participants were either unemployed or unemployable for other reasons (e.g. disability pension or signed off sick). Of all patients, 37.1% (n=26) lived together with others. The remaining patients were living in different settings and/or alone. Of all patients, 72.9% (n = 51) had a high school diploma or higher education. Table 1 further shows the amount of additional diagnoses in this sample. All patients had at least two diagnoses.

### Traumatic events

In our sample, none of the patients had one single trauma type only. 11.4% (n = 8) described 2 traumatic events and 18.6% (n = 13) 3 traumatic events. Patients with 4 traumatic events were with 28.6% (n = 20) most often represented (Table 2, traumatic events frequency). Nearly all patients in this sample described early child abuse in their history, 92.9% (n = 65). Followed by the second most commonly reported forms of traumatic event - sexual abuse in adulthood with 77.1% (n = 54) and neglect as the third most commonly reported exposure with 67.1% (n = 47) (Table 3-4).

### Symptom burden

Among the ICD-11 CPTSD ITQ items, patients rated item 18 (impairment) with M = 3.20 and SD = ± .972 highest, followed by item 19 with M = 3.16 and SD = ± 1.099. Followed by item 4 (hyper-activation) with M = 3.13 and SD = ± 1.076 similarly to item 13 reflecting one symptom of the negative self-concept cluster with M = 3.13 and SD =

Table 1. Sociodemographic variables

		n	Absolute percentage (%)	Cumulative percentage (%)
Gender	male	20	28.6%	28.6%
	female	50	71.4%	100.0%
Age	18-29	15	21.4%	21.4%
	30-39	24	34.3%	55.7%
	40-49	20	28.6%	84.3%
	50-59	9	12.9%	97.1%
	60+	2	2.9%	100.0%
Marital status	single	35	50.0%	50.0%
	married - living together	12	17.1%	67.1%
	married - separated	6	8.6%	75.7%
	divorced	17	24.3%	100.0%
Occupational status	employed (100%)	5	7.1%	7.1%
	employed (>100%)	6	8.6%	15.7%
	unemployed	29	41.4%	57.1%
	unemployable for other reasons	30	42.9%	100.0%
Living situation	living alone	21	30.0%	30.0%
	living with others	26	37.1%	67.1%
	living alone with nursing support	10	14.3%	81.4%
	living in a social institution	6	8.6%	90.0%
	living in a psychiatric unit/ institution	1	1.4%	91.4%
	homeless	6	8.6%	100.0%
Education	no education	5	7.1%	7.1%
	primary school	3	4.3%	11.4%
	apprenticeship	11	15.7%	27.1%
	high school	19	27.1%	54.3%
	vocational school	22	31.4%	85.7%
	university	10	14.3%	100.0%
comorbid diagnoses	2 diagnoses	18	25.7%	25.7%
	3 diagnoses	19	27.1%	52.8%
	4 diagnoses	16	22.9%	75.7%
	5 diagnoses	13	18.6%	94.3%
	6 diagnoses	4	5.7%	100.0%

± 1.048 and item 16 reflecting one symptom of disturbed relationships, also with M = 3.13 and SD = ± .916 (Table 5).

In our sample, females had, described on average, in every ICD 11 – DOS cluster, a numeric higher symptom burden than men (Figure 1). An exception was found in the cluster disturbed relationships. In this cluster, in contrast, a greater proportion of males experienced a numeric higher level of symptom burden with M = 8.95 and SD = ± 1.72 compared to M = 7.82, in female. (Table 5). Also, in our results with the IES - R, females reported in the domains intrusions with M = 7.82 and SD = ± 1.97, Likewise, in hyperarousal with M = 25.28 and SD = ± 6.95 numeric higher symptom levels than male, whereas men had

**Table 2.** Traumatic events frequency

		n	Absolute	Cumulative
			percentage (%)	percentage (%)
traumatic events	2 traumatic events	8	11.4	11.4
	3 traumatic events	13	18.6	30
	4 traumatic events	20	28.6	58.6
	5 traumatic events	17	24.3	82.9
	6 traumatic events	7	10	92.9
	7 traumatic events	4	5.7	98.6
	8 traumatic events	1	1.4	100

**Table 3.** Traumatic events

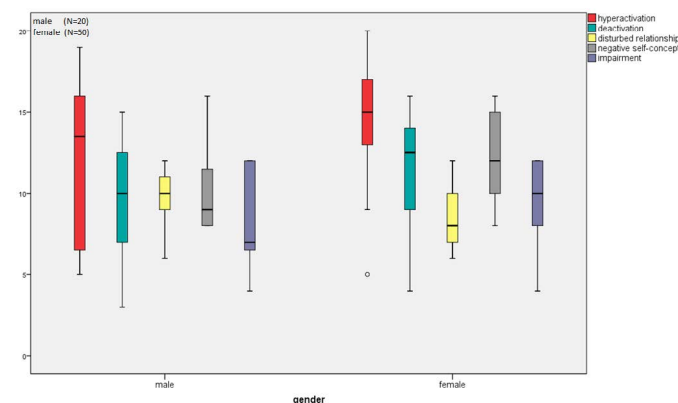
	Frequencies	Absolute percentage
Child abuse	65	92.9%
Sexual abuse in adulthood	54	77.1%
Physical abuse in adulthood	38	54.3%
Domestic abuse	42	60.0%
School violence	21	30.0%
Neglect	47	67.1%
War	15	21.4%
Accident	16	22.9%

**Table 4.** Descriptive results for CPTSD features (i.e., ITQ items).

	N	Min	Max	Mean	SD
CPTSD item 1 (hyper-activation)	70	0	4	2.90	1.374
CPTSD item 2 (hyper-activation)	70	0	4	3.01	1.097
CPTSD item 3 (hyper-activation)	70	0	4	2.99	1.042
CPTSD item 4 (hyper-activation)	70	0	4	3.13	1.076
CPTSD item 5 (hyper-activation)	70	0	4	2.07	1.355
CPTSD item 6 (deactivation)	70	0	4	3.09	1.316
CPTSD item 7 (deactivation)	70	0	4	2.49	1.164
CPTSD item 8 (deactivation)	70	0	4	2.70	1.301
CPTSD item 9 (deactivation)	70	0	4	2.79	1.128
CPTSD item 10 (explorative item)	70	0	4	2.77	1.265
CPTSD item 11 (negative self-concept)	70	1	4	2.71	1.079
CPTSD item 12 (negative self-concept)	70	1	4	3.00	1.063
CPTSD item 13 (negative self-concept)	70	1	4	3.13	1.048
CPTSD item 14 (negative self-concept)	70	0	4	2.94	1.141
CPTSD item 15 (disturbed relationships)	70	0	4	2.87	.977
CPTSD item 16 (disturbed relationships)	70	0	4	3.13	.916
CPTSD item 17 (disturbed relationships)	70	0	4	2.81	1.054
CPTSD item 18 (impairment)	70	0	4	3.20	.972
CPTSD item 19 (impairment)	70	0	4	3.16	1.099
CPTSD item 20 (impairment)	70	0	4	3.03	1.154

**Table 5.** Comparison of symptom burden assessed with different assessment instruments

	N	Female				Male			
		Min	Max	Mean	SD	Min	Max	Mean	SD
DSO - hyper-activation	70	5.00	20.00	14.84	3.25	5.00	19.00	12.25	5.02
DSO - deactivation	70	4.00	16.00	11.52	3.27	3.00	15.00	9.90	3.65
DSO - negative self-concept	70	8.00	16.00	12.42	2.70	8.00	16.00	10.20	2.86
DSO - disturbed relationships	70	6.00	12.00	8.46	1.97	6.00	12.00	9.70	1.72
DSO - impairment	70	4.00	12.00	9.72	2.19	4.00	12.00	8.55	2.89
IES - R intrusions	70	7.00	35.00	25.28	7.81	8.00	35.00	24.20	6.93
IES - R avoidance	70	5.00	40.00	23.70	8.69	6.00	36.00	26.10	7.79
IES - R hyperarousal	70	8.00	35.00	25.28	6.95	7.00	35.00	21.50	8.40
BDI Score	70	15.00	72.00	48.34	14.17	12.00	64.00	36.45	15.62
BSI - Somatization	70	4.00	28.00	14.98	7.47	4.00	27.00	11.55	6.23
BSI - Obsessive-Compulsive	70	1.00	24.00	16.56	6.07	5.00	24.00	14.30	6.21
BSI - Interpersonal Sensitivity	70	3.00	16.00	10.22	4.09	7.00	16.00	11.00	3.11
BSI - Depression	70	4.00	24.00	13.86	5.25	2.00	24.00	9.45	5.73
BSI - Anxiety	70	2.00	24.00	14.64	6.56	4.00	24.00	13.00	5.46
BSI - Hostility	70	3.00	20.00	10.52	3.58	5.00	17.00	10.40	3.52
BSI - Phobic Anxiety	70	2.00	20.00	10.22	6.36	2.00	19.00	8.00	5.30
BSI - Paranoid Ideation	70	1.00	20.00	9.56	5.03	3.00	20.00	7.90	4.27
BSI - Psychoticism	70	.00	20.00	10.50	5.21	4.00	20.00	8.80	3.89



**Figure 1.** International Trauma Questionnaire: symptom clusters and impairment

with M = 26.10 and SD = ± 7.79 higher numeric results in the domain avoidance (Table 5).

Yet again, in the depressive symptom burden measured by the BDI, women reported numeric higher symptom burden than men with M = 48.34 and SD = ± 14.17 compared to M = 36.45 and SD = ± 15.62. as can be seen in Table 5.

The results for the BSI domains were as follows: For somatization, males had with M = 11.55 with SD = ± 6.23 a numeric lower score compared to females' M = 14.98 and SD = ± 7.47. Likewise, in the domain obsessive – compulsive, males had with M = 14.30 and SD = ± 6.21, a numeric lower score compared to females with M = 16.56 and SD = ± 6.07. Again, in the domain depression, males had a numeric lower score with M = 9.45 and SD = ± 5.73 than females with M = 13.86, SD = ± 5.25. Also, for anxiety males had a numeric lower score, M = 13.00 with SD = ± 5.46 compared to females with M = 14.64 and SD = ± 6.56. Additional, phobic anxiety was again rated numeric lower by males with M = 8.00 M, SD = ± 5.30 compared to females with M = 10.22 and SD = ± 6.36. Furthermore, males also had numeric lower results in paranoid ideation with M = 7.90, SD = ± 4.27 compared to M

= 9.56 and SD =  $\pm$  5.03 in females. The last domain where males also had numeric lower results with M = 8.80, SD =  $\pm$  3.89 compared to M = 10.50 with SD =  $\pm$  5.21 in females was psychoticism. In contrast to the previous domains, males had a higher numeric score in social insecurity with M = 11.00, SD =  $\pm$  4.09 compared to females with M = 10.22 and SD =  $\pm$  3.11. Moreover, hostility was the second domain rated numeric higher by males with M = 12.80, SD =  $\pm$  3.52 than females with M = 10.30 and SD =  $\pm$  3.58, in addition (Table 5).

## Discussion

The response rate in this study was at 96.3% extremely high. This element might be due to the circumstances and setting of the data collection. 47.4% (n = 63) patients had to be excluded from our initial sample (n = 133), due to not fulfilling the inclusion criteria of CPTSD. In the first study by Cloitre *et al.* [5], using a latent profile analysis (LPA) to determine whether individuals were distinguishable according to PTSD and CPTSD or not, their results indicated that 36.1% of their population suffered from CPTSD. Further studies replicated these findings and supported the results [10,14,17,18], whereas other studies found less than 50% in their sample had a CPTSD diagnosis [19]. Our findings in this sample of 52.6% of people with CPTSD might be due to the clinical setting of a specialised ward for psycho-traumatology and the result may have been influenced by our sample size. The CPTSD-sample comprised 50 female and 20 male participants. The trauma literature has consistently indicated that PTSD is more common among females, with double the prevalence rate of males [48,49]. Recent studies also support these assumptions in samples of CPTSD-patients [19,23]. Another study suggests, gender appears not to distinguish between PTSD and CPTSD response to trauma experience [23]. Although this is a descriptive study, with a rather small clinical sample, our results are consistent with and support this existent literature.

Under the assumption that CPTSD is associated with less likelihood of having secure attachment [11], our current sociodemographic findings are interesting. 82.9% of the participants were not married or in a relationship. In addition, 62.9% were living on their own, or with support from social institutions. This raises the question, if these results may identify the consequences of early forms of interpersonal threat and harm in the form of negative social and socialising outcomes. Despite having a mostly high educational level, at the time of this study 84.3% of people were unemployed. The result of being unemployed adheres with the findings from Hyland and colleagues [23] that unemployment status significantly increased risk of CPTSD. However, at the same time, this raises the question as to the influencing factors for such a condition. It is possible that CPTSD may be influenced by other adverse social elements described above. We assume, in addition, the high prevalence of comorbidity, ranging from two to six additional diagnoses, may also have an impact on the condition to perform a sufficient function capacity to be able to work. It is common to have comorbid disorders in psychiatric illnesses [50], yet CPTSD was also associated with more comorbidity, severe impairment and other psychiatric conditions [11]. On the one hand, having these comorbid illnesses might have led to different findings. On the other hand, the proposed CPTSD diagnosis, with its symptom clusters, takes this into account and therefore aims to reduce the multiple diagnoses. Our descriptive results relating to additional diagnoses support the occurrence of the proposed CPTSD diagnosis and comorbidity. To extend the work regarding the role of adverse factors (e.g. single status, unemployment, comorbidity) in CPTSD, future research will be important.

In our sample, people indicated having had multiple trauma experiences, ranging in number from two to eight. The literature states that people with multiple types of trauma experience were at

an increased risk for the development of CPTSD [11]. Our results support this assumption. Studies have also indicated that childhood and multiple traumatisation are risk factors for CPTSD [5,7,15,51]. There is emerging evidence that childhood traumatic experience is more closely related to CPTSD than to PTSD [5,15,51]. Our findings, where 92.9% of respondents indicated having any form of childhood traumatic experience, are therefore consistent with the existing evidence. However, in this study we defined child abuse as emotional, physical, sexual abuse during childhood. Therefore, we cannot make further differentiated conclusions.

While in some studies the most commonly endorsed symptom domain was affective dysregulation [23], the highest rated items in our sample corresponded to different CPTSD symptom domains (Table 4). Females had, on average, in every ICD 11 – DOS cluster, a higher numeric symptom burden than male. The exception to this finding was in the cluster disturbed relationships, where males experienced a higher numeric level of symptom burden with M = 8.95 compared to females with M = 7.82. Evidence shows traumas often create some form of impairment such as social withdrawal, disconnection, isolation and avoidance of social interactions [52]. Some of these factors also define the symptom domain disturbed relationships. Results from our measurements with IES-R appear to show supportive indications for those measured with ITQ. Once again, females had a numeric higher symptom burden in intrusions and similarly in hyperarousal. However, in the domain avoidance, males had higher numeric values.

The current literature describes CPTSD patients to be highly impaired by depression, anxiety and sleep disturbances [14]. Our findings support this evidence. Even though females had, yet again, a higher symptom burden compared to males, both fulfilled the BDI “cut-off” for the diagnosis of a severe depression. The measurements also showed moderate depressive ratings with BSI where, once again, females had a higher rating than males. Likewise, in all other domains measured, females had higher numeric values than males with the exception of the domains interpersonal sensitivity and hostility. In these domains males were rated higher than females. These results also agree with our findings from ITQ where men were rated numeric higher in difficulties in social interactions.

These findings may be generated through sample size, form of data collection or other circumstances. However, our results are supported by a recent study with a non-clinical sample where significant gender differences were evident on nearly every symptom cluster [23]. This suggests our results may also highlight some differences in gender, the perceived difficulties in symptoms and response to trauma.

Despite having the strength of providing data directly from clinical practice, there are several limitations we must address. First is the limited comparability. As a study with non-experimental design, there is also no generalisability of the results possible and we cannot make assertions about causality. A further limitation is the data collection in the form of a consecutive sample. Our design did not include a clinical sample other than inpatients in mental health treatment. Although participants in this study were in inpatient treatment for the first time, it is not possible to know the degree to which these symptoms may have been impacted by earlier outpatient therapies. For example, it may be the case that treatment had reduced PTSD symptoms while CPTSD symptoms were more resistant to intervention. A further limitation might be the method of assessing the CPTSD diagnosis. The diagnosis is based on self-report only. It is possible the results will not generalise to other practice settings. Furthermore, the small sample sizes suggest caution against over-interpreting these results and our findings require replication in larger samples. Also, we did not define the trauma event

child abuse more specific. For instance, divided into, emotional abuse, sexual abuse or physical abuse during childhood. A major limitation is, as a study without a comparison group, we cannot draw inferences about associations, causal or otherwise. Or interpret our results other than with the inclusion and comparison with actual literature. Either did we test any hypothesis. Our results may reflect several bias due to the absence of statistical tests. Moreover, based on the design our results are not repeatable and the study cannot be replicated. However, our results can serve as reference to generate hypotheses for further clinical research. For instance, in rigorous analytical studies with control groups. Finally, as a new scale, it is important to indicate that the ITQ, still requires further validation.

## Conclusion

To our knowledge, this is the first study presenting data of adult inpatients with CPTSD, collected in a specialised ward for psychotraumatology. The results highlight several significant difficulties experienced by adult inpatients with CPTSD. Furthermore, several adverse factors in these patients could be identified (e.g. high unemployment, divorced or unmarried status). This study also documents the prevalence of comorbidity in the form of several additional diagnoses, multiple trauma experiences, types of trauma experience and a high level of symptom burden measured by different validated assessment instruments. Results from other studies further indicate the impairment in people with CPTSD was more likely to be severe and have an impact on the functional level [10]. Thus, targeting these broader symptoms in the context of treatment may aid in promoting greater treatment success. Currently, best-practice treatment approaches for PTSD focus primarily on the reduction of fear-related symptoms [53]. However, literature suggests treatment of CPTSD may require different clinical interventions than the standard evidence-based methods of treating PTSD. Consequently, specific research for instance with control groups are needed. Hence, as already stated, further research and the provision of rigorous research in clinical correlates and characteristics may lead to development of interventions and maximise treatment efficacy for CPTSD [42,54]. The present research adds new results to the growing literature on complex posttraumatic stress disorder.

## Declarations

### Authors' contributions

MS participated in designing the trial and took primary responsibility for interpreting, analysing the data drafting this manuscript. JB participated in managing data collection and in drafting this manuscript. AM, WS participated in designing the study, were involved in interpreting and analysing the data and drafting the manuscript. All authors have read and approved the final manuscript.

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### Ethics approval and consent to participate

Ethical approval has been obtained from the Cantonal Ethic Commission (BASEC – Nr. 201500096) and the ethic commission of

the ipw. This research was registered to the World Health Organization WHO Clinical Trials Search Portal through the German Clinical Trial Register (DRKS), Trial DRKS00012268. Written informed consent for all aspects of the study was obtained from the participants. The patients were always able to withdraw their study participation without explanation. This decision did not affect further inpatient treatment. No new interventions were performed on the patient. Thus, patients were not at increased risk of being harmed through the study.

### Consent for publication

All participants received detailed information, written consent for publication was obtained.

### Availability of data and materials

Data will be available upon request from the first author.

### Competing interests

The authors declare that they have no competing interests.

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