

# Dissociative symptoms in complex post-traumatic stress disorder and in post-traumatic stress disorder

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## Abstract

Since it is possible to find the definition of complex post-traumatic stress disorder (cPTSD) only in International Classification of Diseases (ICD-11), several studies have used different definitions of “complex PTSD”, consequently very few studies examine the correlation between dissociative symptoms and cPTSD according to the ICD-11 definition.

The primary objective of this study was to explore differences in dissociative experiences (measured with Dissociative Experience Scale, DES) between PTSD and cPTSD according to ICD-11 criteria. Furthermore, we examined relations between total and subscales of dissociation (amnesia, absorption, derealization/ depersonalization) and clinical symptomatological variables of PTSD and cPTSD patients. Results showed that 30 subjects affected by cPTSD had significantly higher DES scores than those 20 affected by PTSD, with large effect sizes. Only DES Amnesia subscale is positively correlated with total Clinician-Administered PTSD Scale (CAPS) score, with Hamilton Depression Rating Scale (HAM-D) total score, with Impact of Event Scale-Revised (IES-R) Re-Experience subscale and IES-R total score in PTSD sample, while only Beck Depression Inventory (BDI) somatic subscale is related with DES Amnesia subscale and DES Absorption subscale in cPTSD sample. The findings from this study sustain cPTSD as a severe clinical syndrome with higher dissociative symptoms respect to PTSD.

## Key words

Complex Post-Traumatic Stress Disorder • Post-Traumatic Stress Disorder • Dissociation • Dissociative Symptoms

## Introduction

Post-traumatic stress disorder (PTSD) is a psychiatric illness caused by psychological traumatic events, where the fear memories are aberrantly consolidated, and the fear extinction fails to function<sup>1</sup>. In their lifetime 60.7% of men and 51.2% of women may be exposed to traumatic events that have the potential to trigger the development of PTSD<sup>2,3</sup>. Lifetime prevalence of PTSD is estimated between 2.3%<sup>4</sup> and 6.1%<sup>5,6</sup> in civilians and 30% in veterans<sup>4</sup>. The difference between the prevalence of traumatic events and the prevalence of stress-related disorders could be due to protective factors such as resilience<sup>7</sup>. Not only resilience protects the individual from developing a stress-related psychopathology, but it could also mitigate the severity of a full-blown disorder<sup>8</sup>.

The 11<sup>th</sup> revision to the International Classification of Diseases (ICD-11), released in the 2018 by the World Health Organization (WHO)<sup>9</sup>, separates two distinct post-traumatic stress syndromes: PTSD and complex PTSD (cPTSD). PTSD is comprised of three symptom clusters: re-experiencing of the trauma in the here and now, avoidance of traumatic reminders and a persistent sense of current threat that is manifested by exaggerated startle and hypervigilance. cPTSD, generated by interpersonal traumatic experiences perpetuated in the time from which victims have limited or no possibilities to avoid, includes all PTSD clusters and three additional

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clusters that reflect 'disturbances in self-organisation' (DSO): affect dysregulation, negative self-concept and disturbances in relationships<sup>10</sup>.

Despite dissociation does not appear in diagnostic criteria for PTSD/cPTSD it has a relevant role in post-traumatic phenomenological clinical picture, sometimes determining a clinical subtype with specific features<sup>11-16</sup>. Moreover, dissociative symptoms are central in trauma-related disorders and their clinical management because of their association with self-harm and suicidal behaviour<sup>17-18</sup>. Since it is possible to find the definition of cPTSD only in ICD-11, several studies have used different definitions of "complex PTSD"<sup>19</sup>, consequently very few studies examine the relations between dissociative symptoms and cPTSD according to the definition of ICD-11. Results indicate that dissociative experiences are particularly relevant for patients with cPTSD<sup>19</sup>.

The primary objective of this study was to explore the presence and the severity of dissociative experiences in PTSD and cPTSD according to ICD-11 criteria. We examined also the association between some clinical dimensions of dissociation (amnesia, absorption, derealization / depersonalization) and other post-traumatic symptomatological variables, separately in PTSD patients and cPTSD patients. We hypothesized that dissociation may be a relevant clinical feature in differentiating PTSD and cPTSD.

## Methods

### Participants

The sample consisted in subjects affected by PTSD/cPTSD on the basis of ICD-11 criteria, evaluated in the period between February 2018 and October 2019 by two independent psychiatrists (LL and GDL) at the Psychiatry and Clinical Psychology Unit, in the Fondazione Policlinico Tor Vergata, the Hospital of University of Rome Tor Vergata.

These subjects met also the following inclusion criteria for the study: an age between 16 and 60; being able to take part in the interview for clinical evaluation; acceptance of informed consent. Exclusion criteria were: the presence of mental retardation (IQ < 70); delirium; neurodegenerative disorders; all other factors affecting the psychiatrist's ability to complete a complete assessment.

A total of 50 PTSD patients were included in the final sample: 30 patients (60%) met the criteria for PTSD, 20 patients (40%) for cPTSD.

### Measures

The Clinician-Administered PTSD Scale (CAPS) measures frequency and intensity of PTSD symptoms rated for the last-week period<sup>20</sup>.

The Hamilton Depression Scale (HAM-D), due to its good psychometric properties, is one of the most frequently used tools of depressive symptoms<sup>21</sup>.

The Impact of Event Scale-Revised (IES-R) is self-report questionnaire used to assess post-traumatic symptoms<sup>22</sup>. The three subscales of the IES-R reflect the three clusters of symptoms presented in Post-Traumatic Stress Disorder: intrusion, avoidance, hyper-arousal.

The Symptom Checklist-90-Revised (SCL-90-R) is a 90-item self-report that measures a broad range of psychological symptoms<sup>23</sup>. The SCL-90-R categorizes symptoms into nine clinical sub-scales (Somatization, Obsessive-Compulsivity, Interpersonal Sensitivity, Depression, Anxiety, Hostility, Phobic Anxiety, Paranoid Ideation, and Psychoticism) and three global indices including Global Severity Index (GSI), Positive Symptom Distress Index (PSDI) and Positive Symptom Total (PST). For the purposes of the current study, and in accord with previous reports<sup>24-25</sup>, we used PSDI.

The Beck Depression Inventory (BDI) is a 21-item self-report inventory that evaluates cognitive and somatic symptoms of depression (range 0-63)<sup>26</sup>.

The Dissociative Experience Scale (DES) is a self-rating instrument comprising 28 items that build on the assumption of a "dissociative continuum" ranging from mild normative to severe pathological dissociation. Subjects are asked to make slashes on 100-mm lines to indicate where they fall on a continuum for questions on experiences of amnesia, absorption, depersonalization, and derealization<sup>27</sup>.

The Beck Hopelessness Scale (BHS) is a self-report scale developed by Beck et al.<sup>28</sup> to measure three major aspects of hopelessness, associated to suicidal ideation and behaviour: feelings about the future, loss of motivation, and expectations.

The Childhood Trauma Questionnaire (CTQ) is a retrospective self-completed questionnaire covering the following five domains of childhood trauma: sexual abuse, physical abuse, emotional abuse, physical neglect, emotional neglect and minimization<sup>29</sup>.

### Statistical analysis

In order to compare clinical and demographic features of PTSD and cPTSD patients, Pearson Chi-squared tests and t-test were used, as appropriate. Correlation analysis was performed with Spearman's rho. Statistical significance was set at  $p < 0.05$ .

## Results

The two samples were primarily composed by women (66.67% of PTSD group, 80% of cPTSD group,  $p = .353$ ) with a mean age of 34.933 (SD = 12.457) for PTSD and 35.150 (SD = 9.172) for cPTSD group ( $p = 0.944$ ,  $d = 0.020$ ) (see Table I). Patients with PTSD had a slight-

**TABLE I.** Statistics of sociodemographic and clinical characteristics of sample.

	PTSD	cPTSD	P <sub>2</sub> -tailed	Cohen's d
Gender (w/m)	20/10	16/4	0.353	
Age (years)	34.933 (12.457)	35.150 (9.172)	0.944	0.020
Education (years)	15.333 (3.633)	14.050 (2.645)	0.155	0.404
Employed (yes/no)	28/2	15/5	0.100	
Stable relationship (yes/no)	10/20	6/14	1.000	
CTQ-Emotional abuse	7.207 (3.342)	10.294 (4.043)	<b>0.013</b>	0.832
CTQ-Physical abuse	5.414 (1.181)	8.176 (3.432)	<b>0.005</b>	1.076
CTQ-Sexual abuse	5.103 (0.409)	7.765 (4.777)	<b>0.036</b>	0.785
CTQ-Emotional neglect	9.241 (3.632)	15.118 (6.051)	<b>0.001</b>	1.178
CTQ-Physical neglect	6.241 (1.864)	9.471 (5.444)	<b>0.029</b>	0.794
CTQ-Minimization	10.207 (2.782)	6.941 (3.132)	<b>0.001</b>	1.102
Psychiatric comorbidity (yes/no)	19/11	18/2	<b>0.050</b>	
Psychotropic drug (yes/no)	12/18	17/3	<b>0.003</b>	

Note: CTQ: Childhood Trauma Questionnaire

ly higher education respect to the patients with cPTSD. The 93.33% of PTSD patients and 75% of cPTSD was employed. Only the 33.33% (10) of PTSD and 30% (6) of cPTSD patients was in stable relationship (see Table I). It is important to note that 3 of the 20 patients with PTSD diagnosis without stable relationship were widowers.

The two groups are statistical different respect to the presence of childhood trauma. In particular patients with cPTSD reported a major presence in all subscale of Childhood Trauma Questionnaire (see Table I): Emotional Abuse ( $d = 0.832$ ), Physical Abuse ( $d = 1.076$ ), Sexual Abuse ( $d = 0.785$ ), Emotional Neglect ( $d = 1.178$ ), Physical Neglect ( $d = 0.794$ ) were significantly higher in cPTSD whereas Minimization ( $d = 1.102$ ) was significantly lower in cPTSD.

Furthermore, 63.33% (19) of PTSD sample and 90% (18) of cPTSD sample had a psychiatric comorbidity ( $p = .050$ ); only 40% (12) of patients with PTSD take psychotropic drugs respect to 85% (17) of patients with cPTSD ( $p = .003$ , see Table I).

The descriptive statistics for all symptomatological variables (included total and subscale scores of DES) are presented in Table II.

cPTSD group had significant higher scores of traumatic symptomatology in total and subscale score of CAPS (administered by the clinician) and IES-R (completed by the patients) (see Table II). In particular, cPTSD sample showed higher scores respect PTSD sample in CAPS-Re-Experience subscale ( $d = 1.1070$ ), in CAPS-Avoidance-Numbing ( $d = 1.146$ ), CAPS-Hyper-arousal ( $d = 1.015$ ), CAPS-Associative Features ( $d = 1.014$ ) and in CAPS total score ( $d = 1.561$ ; Fig. 1).

At the same time, PTSD group showed higher score in IES-Re-Experience subscale ( $d = 0.896$ ), IES-Avoidance subscale ( $d = 0.894$ ), IES-Hyper-arousal subscale ( $d = 0.956$ ) and in IES total score ( $d = 1.033$ ; Fig. 1).

Also regard depressive symptoms, the groups had significant different scores in HAM-D (administered by clinicians): cPTSD showed higher scores (21.900,  $SD = 5.418$  respect PTSD group ( $d = 2.276$ ; Fig. 1). This difference was observed also in BDI total score ( $d = 0.831$ ; Fig. 1), in BDI-Cognitive ( $d = 0.791$ ) but not in BDI-Somatic subscale ( $p = 0.624$ ,  $d = 0.145$ ).

The two groups were also different in PSDI index of SCL-90-R ( $d = 0.834$ ; Fig. 1).

Respect the dissociative symptoms, patients with cPTSD showed significant differences respect to patients with PTSD (see Table II). In particular, cPTSD sample had higher scores respect PTSD sample in DES-Amnesia subscale (7.321,  $SD: 7.002$  vs 3.476,  $SD: 3.293$  respectively,  $p = 0.031$ ,  $d = 0.703$ ), in DES-Absorption subscale ( $d = 1.309$ ; Fig. 1), in DES-Derealization-Depersonalization subscale ( $d = 0.934$ ; Fig. 1) and in DES-Total Score ( $d = 1.174$ ; Fig. 1).

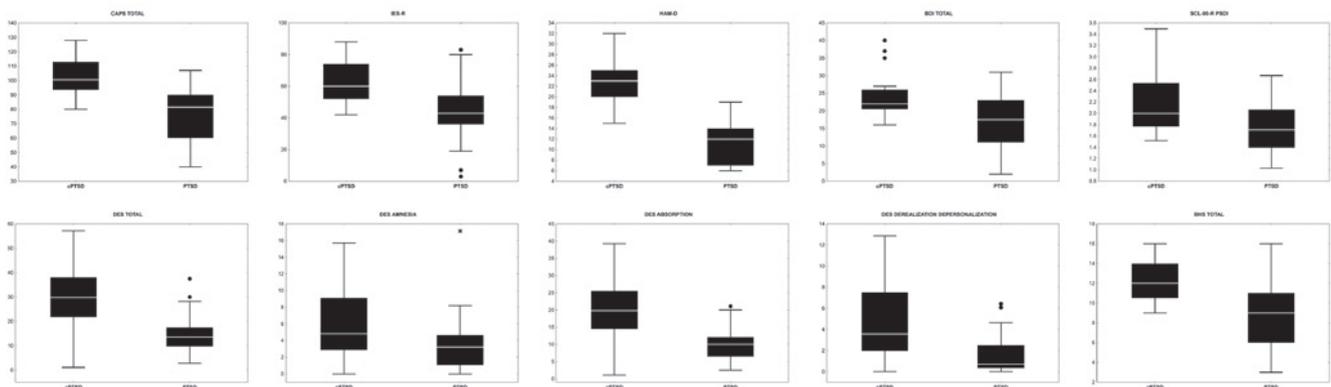
Statistical differences were present also in BHS-Feelings subscale ( $d = 0.714$ ), BHS-Loss of motivation subscale ( $d = 0.996$ ), BHS Total score ( $d = 1.094$ ; Fig. 1) but not in BHS-Future Expectations subscale ( $p = 0.059$ ,  $d = 0.528$ ).

Results of correlations analyses for symptomatological and dissociative symptoms are shown in Table 3. No significant correlation was found between DES total score and all symptomatological variables explored. DES-Amnesia subscale showed positive correlations

**TABLE II.** Statistics of symptomatological variables of sample.

	PTSD	cPTSD	P <sub>2</sub> -tailed	Cohen's d
CAPS-Re-experience	17.533 (6.606)	23.800 (4.526)	< 0.0001	1.107
CAPS-Avoidance-numbing	20.133 (6.415)	26.700 (4.953)	0.000	1.146
CAPS- Hyper-arousal	16.500 (6.241)	22.400 (5.345)	0.001	1.015
CAPS-Associative features	10.333 (6.483)	17.200 (7.046)	0.001	1.014
CAPS-Total	76.400 (20.498)	104.400 (14.936)	0.000	1.561
IES-Re-experience	16.633 (8.282)	22.900 (5.399)	0.002	0.896
IES-Avoidance	14.667 (6.890)	20.100 (5.139)	0.003	0.894
IES-Hyper-arousal	12.267 (5.650)	17.050 (4.261)	0.001	0.956
IES-R-Total	43.567 (18.878)	60.050 (12.382)	0.001	1.033
HAM-D	11.300 (3.743)	21.900 (5.418)	0.000	2.276
BDI-Cognitive	10.367 (6.305)	15.600 (6.916)	0.010	0.791
BDI-Somatic	7.333 (3.546)	7.900 (4.229)	0.624	0.145
BDI-Total	17.467 (8.136)	24.200 (8.069)	0.006	0.831
SCL-90-R-PSDI	1.716 (0.421)	2.143 (0.589)	0.009	0.834
DES-Amnesia	3.476 (3.293)	7.321 (7.002)	0.031	0.703
DES-Absorption	9.964 (4.709)	19.911 (9.656)	0.000	1.309
DES-Derealization-depersonalization	1.488 (1.785)	5.018 (5.038)	0.006	0.934
DES-Score	14.464 (7.669)	30.964 (18.344)	0.001	1.174
BHS-Feelings	2.133 (1.074)	2.800 (0.768)	0.014	0.714
BHS-Loss of motivation	2.700 (1.685)	4.400 (1.729)	0.001	0.996
BHS- Future expectations	2.933 (1.680)	3.650 (0.933)	0.059	0.528
BHS-Total	9.167 (3.333)	12.350 (2.412)	0.000	1.094

Note: CAPS: Clinician-Administered PTSD Scale; IES-R: Impact of Event Scale-Revised; HAM-D: Hamilton Depression Rating Scale; BDI: Beck Depression Inventory; SCL-90-R: Symptoms CheckList-90-Revised, DES: Dissociative Experiences Scale; BHS: Beck Hopelessness Scale.



**FIGURE 1.** Boxplots of CAPS total score, IES-R total score, HAM-D total score, BDI total score, SCL-90-R PSDI, DES total score, DES amnesia, DES absorption, DES derealization – depersonalization, and BHS total score in cPTSD and PTSD.

**TABLE III.** Statistics of Spearman's rho correlations between symptomatological variables and dissociative symptoms. Significant correlations are indicated in bold.

	DES-Tot. score		DES-amnesia		DES-absorption		DES-Dep-Der	
	PTSD	cPTSD	PTSD	cPTSD	PTSD	cPTSD	PTSD	cPTSD
CAPS-Re-experience	0.168	-0.211	0.355	-0.236	0.107	-0.111	0.083	-0.145
CAPS-Avo-numbling	-0.049	-0.050	0.011	0.216	-0.050	0.041	-0.180	-0.249
CAPS-H-arousal	0.086	0.036	0.305	0.017	-0.031	0.146	-0.191	0.185
CAPS-Assoc. F.	0.071	0.095	0.105	0.146	0.149	0.144	0.251	0.035
CAPS-Total	0.180	-0.018	<b>0.367</b>	0.065	0.123	0.099	0.012	-0.028
IES-R-Re-experience	0.274	0.181	<b>0.451</b>	0.208	0.192	0.090	0.001	0.227
IES-R-avoidance	0.062	-0.107	0.185	-0.020	0.012	-0.193	-0.125	-0.166
IES-R-H-arousal	0.228	0.271	0.265	0.321	0.176	0.212	0.076	0.070
IES-R-total	0.223	0.149	<b>0.387</b>	0.154	0.148	0.074	-0.042	0.092
HAM-D	0.328	0.093	<b>0.499</b>	0.186	0.239	0.143	0.001	0.013
BDI-Cognitive	0.066	0.110	0.080	0.156	0.019	0.216	0.173	0.102
BDI-Somatic	-0.089	0.418	0.196	<b>0.526</b>	-0.138	<b>0.455</b>	-0.132	0.144
BDI-Total	0.053	0.202	0.139	0.265	0.001	0.287	0.142	0.110
SCL-90-R-PSDI	0.213	0.298	0.154	0.355	0.188	0.330	-0.007	0.309
BHS-Feelings	-0.126	0.085	-0.312	-0.082	-0.001	0.131	0.292	0.335
BHS-Loss of mot	0.181	-0.078	0.162	0.141	0.215	0.042	0.163	-0.091
BHS-Future exp	-0.123	-0.099	-0.281	-0.291	-0.045	-0.004	0.120	-0.054
BHS-Total	0.024	-0.133	-0.189	-0.149	0.119	-0.047	0.128	-0.221

Note: CAPS: Clinician-Administered PTSD Scale; IES-R: Impact of Event Scale-Revised; HAM-D: Hamilton Depression Rating Scale; BDI: Beck Depression Inventory; SCL-90-R: Symptoms CheckList-90-Revised, DES: Dissociative Experiences Scale; BHS: Beck Hopelessness Scale.

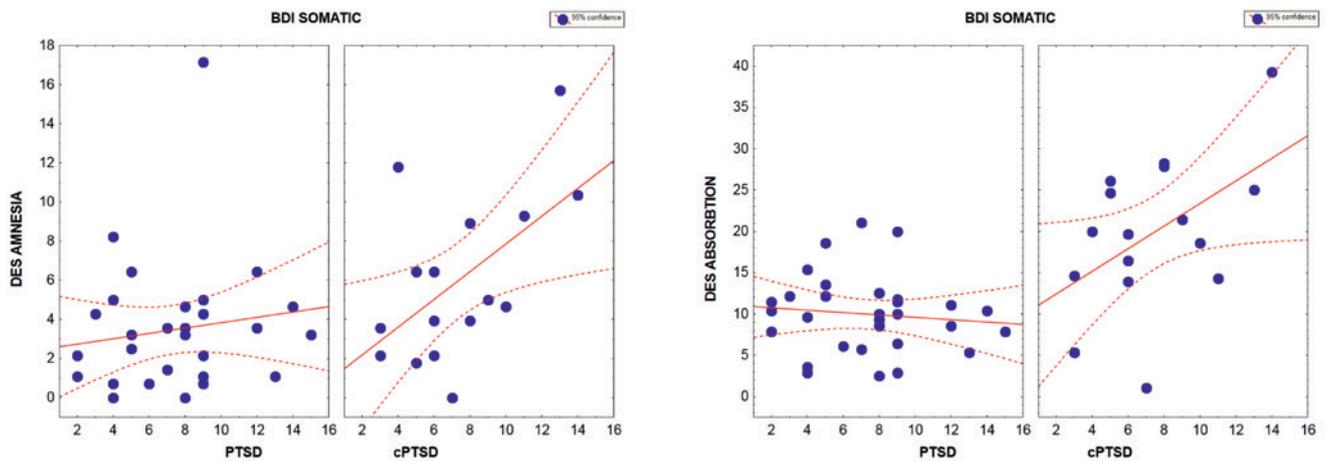
with CAPS total score ( $r = 0.367$ ), IES-R-Re-experience subscale ( $r = 0.451$ ), IES-R total score ( $r = 0.387$ ) and HAM-D total score (0.449) in PTSD sample but not in cPTSD sample (respectively:  $r = 0.065$ ;  $r = 0.208$ ;  $r = 0.154$ ;  $r = 0.186$ ). In contrast, DES-Amnesia subscale showed a statistical correlation with BDI-Somatic subscale in cPTSD group ( $r = 0.526$ ; Fig. 2) but not in PTSD group ( $r = 0.196$ ). DES-Absorption subscale not show significant correlation with all symptomatological variables explored except for BDI-Somatic subscale in cPTSD patients ( $r = 0.455$ ; Fig. 2). No correlation was found between depersonalization-derealization subscale of DES and any variable explored.

## Discussion

The primary objective of this study was to explore the associations between dissociative experiences and PTSD/cPTSD according to ICD-11 criteria. We found significant differences in dissociative experiences scores between PTSD and cPTSD. Patients with cPTSD showed significantly higher scores respect to those patients with PTSD in Amnesia subscale ( $d = 0.703$ ), in

Absorption subscale ( $d = 1.309$ ), in Derealization-Depersonalization subscale ( $d = 0.934$ ) and in DES Total Score ( $d = 1.174$ ) (see Table II and Fig. 1). Consequently, our hypothesis that dissociation may be a relevant clinical feature in differentiating PTSD and cPTSD was confirmed. These findings are in line also with those results published before<sup>30</sup> and after<sup>19</sup> the ICD-11 formulation of cPTSD.

The presence of more severe symptoms in dissociative domains of patients with cPTSD is also a confirmation of Van der Hart's structural theory of dissociation<sup>31 32</sup> in according to which individuals who have complex trauma reactions experience a division of their personality resulting in multiple dysfunctional outcomes such as fixation and avoidance<sup>33</sup>. Consequently, the severity of dissociation would be expected to increase from PTSD to cPTSD. However, according with dissociative subtype of PTSD in DSM-5<sup>13</sup>, previous studies suggested that dissociation reflects a unique cluster of PTSD symptoms<sup>11 12</sup>. A recent study<sup>16</sup> showed that patients with dissociative PTSD had more severe symptomatology in all CAPS clusters except avoidance, while another study showed that patients with dissociative PTSD had



**FIGURE 2.** Scatterplots of DES amnesia and DES absorption vs BDI somatic in cPTSD and PTSD.

high levels both all PTSD symptoms and dissociative symptoms<sup>14</sup>. In contrast, in our study only amnesia subscale of dissociative symptoms is related with total CAPS score ( $r = 0.367$ ), with IES-R Re-Experience subscale ( $r = 0.451$ ) and IES-R total score ( $r = 0.387$ ) in PTSD sample.

In cPTSD sample only BDI somatic-subscale is related with DES-Amnesia subscale ( $r = 0.526$ ) and DES-Absorption subscale ( $r = 0.455$ ). A previous study, before the ICD-11 edition, show that at hierarchical regression analyses only dissociative and depression symptoms were significant predictors of somatic symptoms in PTSD<sup>34</sup>. We can hypothesize that somatic depression symptoms in cPTSD patients may be a form of somatoform dissociation.

Somatoform dissociation is concept describing specific forms of dissociative symptoms experienced as somatic disturbances due to alterations of normal integrative functions of consciousness, memory or identity related to stressful experiences<sup>35-37</sup>.

Similar to previous studies<sup>19 38-40</sup>, our study supports the diagnostic differences between the two constructs of PTSD and cPTSD of ICD-11. Early life events (as measured by CTQ), post-traumatic psychopathology (CAPS and IES-R), depressive symptoms (HAM-D and BDI), hopelessness (BHS) and general psychopathology (SCL-90-R PSDI) were significantly higher in cPTSD respect to PTSD, with large effect sizes.

Literature shows that individuals with cPTSD are more likely to be unemployed, less likely to be married and

more likely to live alone<sup>41</sup> compared to individuals with PTSD. At the same way, cPTSD diagnosis has been associated with lower social status education<sup>42</sup>. Conversely, our study not show differences between PTSD and cPTSD sample in employment status, stable relationship and in educational level.

Our study has several limitations. Firstly, the study was based on a small, predominately women, clinical sample. Secondly, current research was an observational study with cross-sectional data, therefore no follow-up analysis of symptomatological variables could be made. Thirdly, our study was conducted in a single geographic area. Fourthly, one of the clinical instruments we utilized was the CAPS, a semi-structured interview that assesses PTSD symptomatology on the basis of DSM criteria. In conclusion, current study confirmed that cPTSD clinical picture is characterized by a more severe post-traumatic psychopathology respect to PTSD. Subjects affected by cPTSD had more dissociative experiences than those affected by PTSD. Dissociative dimensions were weakly related to other psychopathological dimensions of trauma-related disorders, differently in PTSD and cPTSD. Further studies are required to better understand the relation between dissociation and other symptoms in cPTSD. Moreover, more in general, PTSD and cPTSD need to be better investigated, not only at clinical level but looking also to biological level<sup>4 15 24 25 43-45</sup>, searching for features might possibly explain their psychopathological differences.

#### Conflict of interest

The Authors declare to have no conflict of interest.

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