



Exploring complex PTSD in patients visiting a psychiatric outpatient clinic in Kathmandu, Nepal

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ABSTRACT

Decades of research on trauma patients have shown that a post-traumatic stress disorder (PTSD) diagnosis does not always cover the full spectrum of symptoms after severe trauma. Complex PTSD (CPTSD) was recently introduced in the International Classification of Diseases 11th Revision. There have been no published studies on CPTSD in the South Asian region to date. The objective of this study was to evaluate CPTSD in a sample of trauma patients in Nepal. We also examined quality of life (QOL) and mental health comorbidities and their association with CPTSD caseness. One hundred patients with a history of trauma who visited the outpatient psychiatry clinic at a hospital in Kathmandu from 2017 to 2018 were assessed. The Composite International Diagnostic Interview Version 2.1 was used to evaluate PTSD, major depressive disorder, and generalized anxiety disorder (GAD). Disturbance of self-organization symptoms from the Structured Interview for Disorders of Extreme Stress (SIDES) together with the PTSD diagnosis was used to confirm CPTSD caseness. The World Health Organization (WHO) QOL Scale Brief Version (WHOQOL-BREF) was used to assess QOL in four domains. Among the 83 patients who had PTSD, 42 also had CPTSD. CPTSD was significantly associated with major depressive disorder, GAD, female gender, and lower QOL in all four domains. CPTSD was prevalent among these patients. Having CPTSD was significantly associated with worse outcomes in terms of QOL and comorbid mental disorders, even with similar trauma. There is a need to explore CPTSD symptoms and to address trauma patients with CPTSD in this region.

1. Introduction

The experience of serious trauma can cause several forms of mental illness such as post-traumatic stress disorder (PTSD), adjustment disorder, anxiety, and depression (Lazar, 2014; Pietrzak et al., 2012). In the literature and in clinical practice, many trauma patients have shown clusters of symptoms that were not sufficiently covered by the existing diagnoses. This was especially evident after childhood trauma. The concept of complex PTSD (CPTSD) was proposed to fill that gap (Herman, 1992; Spinazzola et al., 2005).

The Fourth Edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV) included the category “associated features of PTSD”: “Disorders of Extreme Stress Not Otherwise Specified” (DESNOS). This symptom constellation and diagnostic category mirrored Herman’s description but was not a recognized diagnosis. Due to controversies and

lack of adequate evidence, the working group of the DSM-5 (APA, 2013) found that CPTSD lacked a distinct identity. Both DESNOS and CPTSD were excluded from the DSM-5. Instead, it included PTSD specifiers with dissociative symptoms and separate symptoms for children below 6 years of age. After long and rigorous discussions and with emerging evidence (Brewin et al., 2017; Cloitre et al., 2013; Karatzias et al., 2017; Maercker et al., 2013) the CPTSD diagnosis was accepted and included in the 11th Edition of the World Health Organization (WHO) International Classification of Diseases (ICD-11).

Exposure to an event or series of events of an extremely threatening or horrific nature, which is commonly prolonged or repetitive, and from which escape is difficult or impossible, is required for a CPTSD diagnosis. Some examples of these types of severe traumatic event are serious childhood abuse, prolonged domestic violence, torture, and genocide. CPTSD requires that the diagnostic criteria for PTSD are met

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along with all three symptoms of “Disturbances of Self-Organization” (DSO) as follows: (1) problems in affect regulation; (2) beliefs about oneself as diminished, defeated, or worthless, accompanied by feelings of shame, guilt, or failure related to the traumatic event; and (3) difficulties in sustaining relationships and in feeling close to others (World Health Organization, 2019).

The recent inclusion of the CPTSD diagnosis in the ICD-11 has increased the interest in this disorder among clinicians, researchers, patients, and others. Differentiating between PTSD and CPTSD is important. CPTSD patients often have increased somatic and psychiatric co-morbidity and lower quality of life (QOL) than PTSD patients (Brenner et al., 2019; Brewin et al., 2017). One study found that CPTSD patients were more impaired than PTSD patients in terms of several measures of psychopathology, such as depression, anxiety, aggression, sleep disturbances, and somatization (Floen and Elklit, 2007). Another study found that CPTSD was more strongly associated with depressive symptoms, while PTSD was more associated with anxiety (Hyland et al., 2017c). A study by Cloitre and associates found that patients with CPTSD had more overall impairment of functioning than PTSD patients (Cloitre et al., 2013).

CPTSD is a new diagnosis and has not been studied as thoroughly as “classic” PTSD (referred to hereafter as “PTSD”). Some new research has explored the sociodemographic profiles as well as other factors associated with CPTSD; however, these studies have been based mostly in the Western world (Brewin et al., 2017; Giarratano et al., 2017). There are currently few published articles on CPTSD from other parts of the world (Ho et al., 2020; Shrira et al., 2019; Silove et al., 2017; Tay et al., 2018; Vallieres et al., 2018). We are unaware of any publications on CPTSD from South Asia. There is thus a knowledge gap regarding the trans-cultural validity of the CPTSD diagnosis. In the southeastern region of the world, psychological distress is manifested with somatic complaints as the main symptom at presentation (KOHRT, 2005). Similar findings can be expected in terms of CPTSD.

To explore the presence of CPTSD symptoms in trauma victims in a low-income country we conducted a study with the following objectives:

- 1) To assess whether patients who had suffered trauma had CPTSD caseness.
- 2) To explore whether patients who had suffered serious childhood trauma had a higher prevalence of CPTSD caseness than those who had not.
- 3) To assess whether patients with CPTSD caseness had lower QOL and higher comorbidity of mental illnesses than patients without CPTSD.
- 4) To explore the sociodemographic profile of patients with CPTSD caseness.

2. Methods

2.1. Study population

This study was a cross-sectional examination of patients with a history of trauma attending the psychiatry and mental health Outpatient Department (OPD) of the Institute of Medicine (IOM) at Tribhuvan University Teaching Hospital (TUTH) in Kathmandu, Nepal. All new patients between the ages of 18 and 60 years, attending the psychiatric OPD of IOM, TUTH were asked whether they had experienced trauma. Those who had a history of trauma were informed about the research project and were able to participate after giving written consent. For those patients who were illiterate, the consent paper was read to them and signed on their behalf by a companion. The interview took an average of 2 h. Two of the 102 OPD patients interviewed were excluded from the final analysis, as they were older than 60 years. Further details of this study can be found in the previously published article (Koirala et al., 2020).

The inclusion criterion was having experienced at least one trauma as defined by the PTSD section of the ICD-10 (World Health

Organization, 2004). The exclusion criteria were serious medical, neurological, or mental disorders. The data collection took place from April 1st, 2017 to August 14th, 2018.

2.2. Measures and instruments

2.2.1. Sociodemographic questionnaire

A research questionnaire was created to assess sociodemographic characteristics such as age, gender, marital status, education, and living place. The Kuppuswami socioeconomic scale was used to measure the socioeconomic status (SES) of the patients. This is a widely used scale to evaluate the SES of South Asian populations (Sharma, 2017), which has been modified to fit the Nepalese context (Ghosh and Ghosh, 2009). Details of the sociodemographic profile and SES are available in the previously published article (Koirala et al., 2020).

2.2.2. Version 2.1 of the composite international diagnostic interview (CIDI 2.1)

The CIDI is a comprehensive, standardized diagnostic interview designed for assessing mental disorders according to the definitions of the Diagnostic Criteria for Research of the ICD-10 (Wittchen, 1994). The CIDI 2.1 has been translated and validated in the Nepali language (Van Ommeren et al., 1999). Sections K, E, and D were used to diagnose PTSD, depression, and generalized anxiety disorder (GAD), respectively. Section K includes a list of 10 possible traumatic events along with a question to specify the primary trauma. It gives an overview of the traumatic events that an individual has experienced in his/her lifetime. Among the reported life events, one was related to a natural disaster and the others were related to man-made events (e.g., rape or assault). We therefore divided the trauma types into “earthquake” (the only natural disaster reported) and “man-made” to observe their relationships with the outcome of CPTSD.

2.2.3. Structured Interview for Disorders of Extreme Stress (SIDES)

CPTSD was not a recognized diagnosis at the time when this study was planned and conducted. Different limitations were faced while exploring it in a post hoc manner. We were not able to use validated instruments designed for the ICD-11 CPTSD diagnosis, such as the International Trauma Questionnaire (ITQ) (Cloitre et al., 2018). The CPTSD caseness in this study was therefore determined by combining the CIDI ICD-10 PTSD diagnosis with the three SIDES DSO symptoms. Nevertheless, the SIDES criterion used remains one of the most widely used questionnaires to evaluate DSO symptoms.

SIDES is a validated instrument that examines a large spectrum of symptoms after exposure to traumatic stress (Zlotnick and Pearlstein, 1997). The instrument is well validated and the psychometric properties are appropriate for diagnosing patients with DESNOS.

SIDES was translated into Nepali by a multidisciplinary team led by Dr. Mark Van Ommeren (Personal communication) following the guidelines used for the sociocultural translation of mental health questionnaires (Van Ommeren et al., 1999). The forward and backward translation of the questionnaires was done by different individuals; however, the questionnaire was not validated. Those involved were part of a larger team that had translated SIDES into several other languages (de Jong et al., 2005). SIDES consists of 45 items that concern current and past functioning/symptoms in the following six dimensions: (1) disorders of affect regulation; (2) amnesia and dissociation; (3) somatization; (4) disruptions of self-perception; (5) disorders in relationships with others; and (6) disrupted systems of meaning (Pelcovitz et al., 1997). To adapt the DSM-IV DESNOS criteria to the ICD-11 CPTSD criteria, we selected 24 of the questions that corresponded to the DSO symptoms.

The following 14 questions were chosen from SIDES Section I “Alteration in regulation of affect and impulses” to measure the affect regulation criteria of CPTSD: two questions from the (Ia) “Affect regulation” subsection; four questions from the (Ib) “Modulation of anger”

subsection; three questions from the (Ic) “Self-destructive” subsection; one question from the (Id) “Suicidal preoccupation” subsection; and four questions from the (Ie) “Difficulty in modulating sexual involvement or preoccupation” subsection.

From SIDES Section III “Alteration of self-perception”, one question from each of the following subsections was selected to examine the negative self-concept criteria of CPTSD: (IIIa) “Ineffectiveness”; (IIIb) “Permanent damage”; (IIIc) “Guilt and responsibility”; (IIId) “Shame”; (IIIe) “Nobody can understand”; and (IIIf) “Minimizing”. Similarly, four questions from Section V “Alteration of relations with others” represented the criteria for interpersonal difficulties of CPTSD. Three questions were selected from subsection Va “Inability to trust others” and one from subsection Vc “Victimizing others”. These questions were scored as “Yes” if present or “No” if absent.

A minimum of seven of the 14 criteria for affect regulation was considered the threshold for positive DSO/CPTSD caseness. Similarly, a minimum of three of the six symptoms was considered positive for negative self-concept criteria, and a minimum of two of the four symptoms was considered positive for interpersonal difficulties.

We followed the guidelines of SIDES to evaluate the threshold of each subdomain. Those who met the criteria for PTSD diagnosis as well as all three DSO criteria were considered positive for CPTSD caseness.

2.2.4. The Childhood trauma questionnaire (CTQ)

The brief version of the CTQ is a screening tool that aims to detect experiences of childhood abuse and neglect in adults and adolescents (Bernstein et al., 2003). It has been culturally modified to fit the Nepali context and has been used before (Kohrt et al., 2015). It was translated using the guidelines for the sociocultural translation of mental health questionnaires (Van Ommeren et al., 1999). Forward and backward translation of the questionnaires was done by different individuals; however, the questionnaire was not validated. Similar to the previous report (Kohrt et al., 2015), the sexual abuse section was removed from the original questionnaire because these questions are normally considered to be inappropriate and offensive in Nepali culture. The scoring ranged from five to 25 for each subcategory. Cut-off scores of 12 and 14 were used for emotional abuse and neglect, respectively. A cut-off score of nine was used for both physical abuse and neglect. This was in line with the thresholds reported in the literature (Bernstein and Fink, 1998).

2.2.5. The WHOQOL Scale Brief Version (WHOQOL-BREF)

This instrument is an abbreviated form of the WHOQOL 100-item version (WHOQOL-100), which was developed by assessment in 15 different international centers to maintain cross-cultural validity. WHOQOL-100 provides scores across multiple domains and is therefore a comprehensive measure. The shorter version with 26 items (WHOQOL-BREF) was developed to be more practical (World Health Organization, 1996). It has also been found to have good psychometric properties. The first two questions assess the overall perception of the QOL and the perception of health status. The remaining questions explore the following four other domains of QOL: physical, psychological, social, and environmental. We used the Nepali version of the WHOQOL-BREF validated by Giri and associates (Giri et al., 2013).

2.3. Statistical analysis

SPSS Version 26 software was used for the statistical analysis (IBM, 2019). The Chi-square (χ^2) test was used for categorical variables. Bivariate logistic regression was used to find the factor/s related to CTPSD. Different models were tested for the multivariate logistic regression: the first included all the explanatory variables; the second included variables that had shown significance in the previous literature; and the third included all variables with a p-value <0.25. The variance inflation factor (VIF) of the selected variables was calculated, and those without a confounding effect (i.e., VIF <2) were included in

the final multivariate logistic regression model. Residual analysis was done on the results from the final model. For the QOL, the test of normality of all four variables using a stem-and-leaf plot revealed that the domain scores did not follow a normal distribution. Hence, we used the Mann-Whitney *U* test to compare QOL domain scores with two categories of CTPSD (i.e., “Yes” and “No”). Domain scores were computed using rating scales, as they were not normally distributed. The alpha level was set at 0.05.

2.4. Ethical considerations

The study was approved by the Institutional Review Board of the IOM, reference no 278(6-11-E) 073/074; the Nepal Health Research Council (NHRC), reference no 801, and the Regional Ethical Committee of South-Eastern Norway (REK Sør-Øst), reference no. REK 2015/2081.

3. Results

Among the 100 participants, 52 were female. The mean age was 33.3 years (range = 18–60). Among the 83 patients suffering from lifetime PTSD, 42 also had lifetime CPTSD caseness (50.6%). Seventeen patients had neither PTSD nor CPTSD caseness (17%). Table 1 shows the socio-demographic breakdown of CPTSD in the sample.

3.1. Sociodemographic profile of CPTSD and comorbid psychiatric illnesses

Table 1 shows the distribution of the sociodemographic profiles of the sample, and the comorbid psychiatric disorders related to lifetime CPTSD.

Table 1
Sociodemographic variables and psychiatric disorders related to CPTSD.

| Variables | CPTSD caseness (42) (%) ^a | CPTSD negative (58) (%) ^a | χ^2 (p-value) |
|--------------------------|--------------------------------------|--------------------------------------|--------------------|
| Age | | | |
| 18–30 years | 21 (50) | 22 (37.9) | 0.461 |
| 31–45 years | 16 (38.1) | 26 (44.8) | |
| 46–60 years | 5 (11.9) | 10 (17.3) | |
| Gender | | | |
| Male | 13 (31) | 35 (60.3) | 0.007 |
| Female | 29 (69) | 23 (39.7) | |
| Marital status | | | |
| Single/widowed/separated | 12 (28.6) | 9 (15.5) | 0.182 |
| Married | 30 (71.4) | 49 (84.5) | |
| Religion | | | |
| Hindu | 35 (83.3) | 47 (81) | 0.975 |
| Other | 7 (16.7) | 11 (19) | |
| Living place | | | |
| Rural | 19 (45.2) | 30 (51.7) | 0.662 |
| Urban | 23 (54.8) | 28 (48.3) | |
| Education | | | |
| Illiterate | 7 (16.7) | 10 (17.2) | 0.462 |
| Up to high-school level | 21 (50) | 35 (60.3) | |
| Above high-school level | 14 (33.3) | 13 (22.4) | |
| SES | | | |
| Upper class | 23 (54.8) | 35 (60.3) | 0.724 |
| Lower class | 19 (45.2) | 23 (39.7) | |
| Lifetime depression | | | |
| Yes | 29 (69) | 16 (27.6) | <0.001 |
| No | 13 (31) | 42 (72.4) | |
| Lifetime GAD | | | |
| Yes | 22 (52.4) | 18 (31) | 0.052 |
| No | 20 (47.6) | 40 (69) | |

^a Within the CPTSD category percentage.

3.2. CPTSD and trauma

Table 2 shows the distribution of factors related to trauma in terms of CPTSD.

Residual analysis was performed on all the contingency tables greater than 2 × 2 dimensions presented in Tables 1 and 2 using adjusted standardized residuals in IBM SPSS software. The residuals were found to be within plus minus 2 standard deviation for all the independent variable categories and CPTSD categories thus suggesting statistically insignificant association. The table is attached in the annex.

3.3. Factors independently associated with CPTSD

Bivariate logistic regression analysis was carried out individually between each of the explanatory variables and CPTSD caseness as a dependent variable. The initial analysis included all the variables from the bivariate model. The full model was not supported by the Hosmer–Lemeshow test with a p-value <0.005. The Omnibus model, although significant (<0.005), showed a high degree of freedom (14). Next, variables were selected that were close to showing significance in our bivariate analysis or were shown to be associated with CPTSD in previous studies. The clinical significance of variables can be missed in multivariate regression if they are selected only on the basis of the statistical significance (>0.05); hence, a p-value <0.25 was used as the selection criterion for multivariate analysis to add clinical significance. This helped to include predictors in the final model to account for alpha inflation in the bivariate models. This approach has been supported by the literature (Bendel and Afifi, 1977; Mickey and Greenland, 1989).

The following variables that had a p-value <0.25 were selected for the multivariate analysis (Table 3): female gender (p = 0.004); marital status (married) (p = 0.118); trauma type other than earthquake (p = 0.160); time since trauma (>1 year) (p = 0.222); lifetime depression (p < 0.001); and lifetime GAD (p = 0.033). A multivariate analysis using logistic regression was performed on these variables to find the relationship with CPTSD caseness. The full model containing all predictors was statistically significant (χ^2 [6, N = 100] = 36.97, p < 0.001), indicating that the model was able to distinguish between the factors associated with CPTSD. Overall, the model explained between 30.9% (Cox and Snell R-square) and 41.6% (Nagelkerke R-square) of the variation in CPTSD factors and correctly classified 81% cases. As shown in Table 3, only three variables made a statistically significant contribution to the model: female gender (0.011), lifetime depression (<0.001), and lifetime GAD (0.034).

Table 2
Association between CPTSD caseness and trauma.

| Variables | CPTSD caseness (42) (%) ^a | CPTSD negative (58) (%) ^a | χ^2 (p-value) |
|----------------------------|--------------------------------------|--------------------------------------|--------------------|
| Time since trauma (years) | | | |
| <1 | 8 (19) | 6 (10.3) | 0.459 |
| 1–10 | 29 (69) | 45 (77.6) | |
| >10 | 5 (12) | 7 (12.1) | |
| Trauma frequency | | | |
| Up to two trauma types | 33 (78.6) | 45 (77.6) | 1.00 |
| More than two trauma types | 9 (21.4) | 13 (22.4) | |
| Trauma type | | | |
| Earthquake | 18 (42.9) | 39 (67.2) | 0.026 |
| Man-made | 24 (57.1) | 19 (32.8) | |
| CTQ neglect total | | | |
| Positive | 23 (54.8) | 27 (46.6) | 0.543 |
| Negative | 19 (45.2) | 31 (53.4) | |
| CTQ abuse total | | | |
| Positive | 13 (31) | 17 (29.3) | 1.00 |
| Negative | 29 (69) | 41 (70.7) | |

^a Within the CPTSD category percentage.

Table 3
Factors associated with CPTSD.

| Variables | Bivariate analysis | | Multivariate analysis | |
|----------------------------------------|---------------------|---------|-----------------------|---------|
| | OR (95%CI) | p-value | OR (95%CI) | p-value |
| Age (>40 years) | 1.335 (0.508–3.512) | 0.558 | NA ^a | |
| Gender (female) | 3.40 (1.47–7.86) | 0.004 | 3.739 (1.361–10.274) | 0.011 |
| Marital status (married) | 0.459 (0.173–1.22) | 0.118 | 0.445 (0.120–1.645) | 0.225 |
| Religion (other than Hindu) | 0.855 (0.301–2.43) | 0.768 | NA | |
| Living place (Urban) | 1.23 (0.585–2.88) | 0.522 | NA | |
| Education (literate) | 1.042 (0.361–3.005) | 0.940 | NA | |
| SES (upper) | 1.26 (0.563–2.81) | 0.577 | NA | |
| Trauma frequency (more than two types) | 0.944 (0.361–2.47) | 0.907 | NA | |
| Trauma type (man-made) | 2.74 (1.20–6.22) | 0.016 | 2.992 (0.924–9.964) | 0.068 |
| Lifetime depression | 5.86 (2.45–14.0) | <0.001 | 6.44 (2.346–17.682) | <0.001 |
| Lifetime GAD | 2.44 (1.07–5.56) | 0.033 | 3.14 (1.092–9.028) | 0.034 |
| CTQ total abuse | 1.08 (0.455–2.56) | 0.860 | Not applicable | |
| CTQ total neglect | 1.39 (0.626–3.08) | 0.418 | Not applicable | |
| Time since trauma (>1 year) | 0.490 (0.156–1.538) | 0.222 | 0.842 (0.185–3.826) | 0.823 |

^a NA = not available.

3.4. CPTSD caseness and QOL

The Mann-Whitney U test revealed that lower QOL was significantly associated with CPTSD caseness in all domains: physical (p = 0.002), psychological (p = <0.001), social (p = 0.003), and environmental (p = 0.001). CPTSD caseness had a medium effect size (r) on all the domains (Table 4).

4. Discussion

In our study, 42% of the total sample had lifetime CPTSD caseness. There has been a wide variation of rates of CPTSD reported in different studies. Our rate was similar to the finding of a similar study in which clinical patients were studied (Hyland et al., 2017c). A study by Teodorescu and associates on refugees visiting a clinic showed a lower rate of DESNOS symptoms (Teodorescu et al., 2012), whereas other clinical studies have shown even higher rates (Cloitre et al., 2018; Hyland et al., 2018). CPTSD was present in almost 50% of the patients with PTSD; this

Table 4
Association between QOL and CPTSD caseness.

| Variables | Group statistics | | Mann-Whitney U test values | |
|-----------------------------|------------------|--------|----------------------------|-----------------|
| | CPTSD | Median | p-value | Effect size (r) |
| Physical domain of QOL | Yes (41) | 10.86 | 0.002 | 0.307 |
| | No (58) | 13.14 | | |
| Psychological domain of QOL | Yes (41) | 10.00 | <0.001 | 0.354 |
| | No (58) | 12.66 | | |
| Social domain of QOL | Yes (41) | 12.00 | 0.003 | 0.302 |
| | No (58) | 13.33 | | |
| Environmental domain of QOL | Yes (41) | 12.57 | 0.001 | 0.320 |
| | No (58) | 14.00 | | |

Cohen (1988) criteria (r): 0.1 = small effect, 0.3 = medium effect, 0.5 = large effect.

ratio was similar to those in earlier studies (Hyland et al., 2017c; Perkonig et al., 2016; Wolf et al., 2015). This variation suggests that the rates may differ according to the population studied; hence there is a need for further exploration with a larger sample size considering different types of trauma and populations. The significant presence of CPTSD in trauma-affected patients seeking clinical help and in PTSD-diagnosed patients also highlighted the importance of exploring CPTSD in these groups.

A strong association between female gender and CPTSD is well known. Our finding was consistent with the results of some previous studies (Knefel et al., 2015; Perkonig et al., 2016). However, other studies have shown a variable role of gender as a risk factor for CPTSD (Brewin et al., 2017): some have found that both PTSD and CPTSD are more prevalent among females (Hyland et al., 2017c), whereas others have shown no association with gender (Cloitre et al., 2013; Giarratano et al., 2017; Hyland et al., 2021; Wolf et al., 2015). This variation has been attributed to the nature of the samples (e.g., clinical samples), extreme traumatic experiences, or highly unfavorable environments leading to different results (Brewin et al., 2017). In many developing countries, including Nepal, women are generally a more vulnerable group than men, with less independence, lower access to proper healthcare and other resources, and a greater risk of suffering domestic violence and family control (Kohrt and Worthman, 2009). Furthermore, women seem to be at a higher risk for most mental health problems (Duncan et al., 2018; Ramikie and Ressler, 2018). The higher rates of CPTSD in women might warrant special attention being given to this group.

Our results showed that man-made trauma was significantly associated with CPTSD caseness in the bivariate analysis. However, this finding was not significant in the final multivariate model. The previous literature indicates that CPTSD is less likely when a trauma occurs in a limited timeframe to the general population on a large scale, such as during an earthquake. Previous studies have shown a strong relationship between interpersonal trauma and CPTSD (Hyland et al., 2017b, Hyland et al., 2021; Palic et al., 2016; Silove et al., 2017): people affected by interpersonal traumas seem to be more likely to get CPTSD. Since the difference in our study was significant in the bivariate analysis but not in the multivariate model, a larger sample size could possibly lead to more conclusive results.

CPTSD caseness was significantly associated with depressive disorder and GAD. This finding was in accordance with previous research, which has shown that CPTSD has high co-morbidity with other mental illnesses (Brenner et al., 2019; Hyland et al., 2018, Hyland et al., 2021; Karatzias et al., 2019). When using a hierarchical diagnosing system such as the ICD-11, psychiatrists in resource-limited settings such as South Asia may stop exploring the diseases further once a diagnosis such as depression or anxiety has been made. We fear that this might cause other serious issues, such as CPTSD, to be overlooked. In a country like Nepal where trauma-related disorders such as PTSD remain neglected, bringing awareness about a new diagnostic entity, CPTSD, is a challenge as well as a necessity. The lack of a social construct that correlates with the diagnosis of CPTSD makes it more challenging for it to be understood by health professionals as well as the general population. Further research with a larger sample of the general population could create awareness of CPTSD as well as exploring its prevalence in this part of the world.

Few studies have explored the relationship between the time since trauma and CPTSD. A trauma-exposed population-based study by Karatzias and associates (Karatzias et al., 2019) showed that time since trauma was inversely correlated with the presence of CPTSD. By contrast, in our study, time since trauma did not show a significant relationship with CPTSD caseness. This could have been due to the relatively small sample size and the inclusion of a clinical sample of patients seeking mental health services. Larger and more diverse population studies are needed to explore this relationship.

Age, marital status, religion, living place, education, and SES did not

show any significant correlations with CPTSD caseness. This result is supported by other studies that have shown no association of CPTSD with age, ethnicity, or minority status (Cloitre et al., 2014; Wolf et al., 2015). However, some studies have shown an association of CPTSD with younger age, growing up in an urban area (Karatzias et al., 2019), a lower level of education, and lower social class (Perkonig et al., 2016). These varying results indicate that larger studies including more diverse groups of the population are needed to identify the specific socio-demographic variables, if any, that are associated with CPTSD.

Our study did not show any relationship between childhood trauma and CPTSD. Neither abuse nor neglect was correlated with CPTSD. This was in contrast to most of the findings from previous studies, which have shown a relationship between childhood trauma and CPTSD (Cloitre et al., 2009; Giarratano et al., 2017; Hyland et al., 2017b; Karatzias et al., 2019; Knefel et al., 2015). Notably, a few studies have shown that trauma experienced in adulthood also can cause CPTSD even in individuals without previous childhood trauma (Elklit et al., 2014; Nickerson et al., 2016; Palic et al., 2016). While childhood trauma is known to be a predisposing factor for most mental illnesses, including CPTSD, it is not a necessary factor for CPTSD and has therefore not been included in the diagnostic criteria (Brewin et al., 2017). Again, the limited sample size, and the facts that most of the patients had experienced earthquake trauma and relatively few reported serious childhood trauma, could explain the lack of a clear statistical effect here. The removal of the questions related to sexual trauma from childhood due to the cultural adaptation of the questionnaire might also have contributed to a lack of a clear effect of childhood trauma.

Few articles have explored the QOL of CPTSD patients. A large proportion of CPTSD patients were identified by their clinicians as having PTSD alone before the CPTSD diagnosis came to be regarded as valid. PTSD is generally associated with low QOL (Berle et al., 2018; Davidson, 2000), and those with CPTSD often have even worse levels (Hyland et al., 2017a). We found that the QOL of patients with CPTSD caseness was significantly lower in all four domains: physical, psychological, social, and environmental. This indicates that CPTSD may have a large impact on the daily functioning of these patients as well as on their working capacity. This mirrors a previous study that showed an association of increased work-related burden with CPTSD (Brenner et al., 2019). CPTSD has an impact on different aspects of a patient's life. It has been shown that CPTSD is likely to need additional clinical interventions compared with PTSD for a better treatment outcome (Karatzias and Cloitre, 2019). This seems to be the case in Nepal.

One limitation of the current study was that due to the cultural context, questions about a history of childhood sexual abuse were removed from the Nepali translation of the CTQ. This may have confounded the impact of any childhood trauma that the participants may have endured. Also, since the sample size was small, and the participants were selected from one group among the population (i.e., those presenting at a psychiatric clinic), it was difficult to generalize the data.

Despite these limitations, our study provides the first published data on the presence of CPTSD among the South Asian population. Additionally, it sheds light on the factors associated with CPTSD in this previously unstudied context.

5. Conclusion

We found that CPTSD symptoms were prevalent among patients who had experienced major trauma in their life and who were seeking medical help in the South Asian context. While PTSD is commonly diagnosed and treated in other parts of the world, it is not specifically managed in Nepal. There are significant challenges in bringing awareness about the diagnosis and management of both PTSD and CPTSD in this region.

Due to its high comorbidity with depressive disorder and anxiety disorder, and its association with low QOL, it is important to evaluate and assess this new and serious diagnosis in clinical settings as well as in

the general population to determine the true prevalence. Furthermore, CPTSD may be more difficult to treat than PTSD, and many of the available treatment modalities have not been confirmed in this part of the world. We recommend further interventional research to explore the proper modalities of the management of CPTSD in this region.

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Appendix A. Supplementary data

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References

- APA. 2013. Diagnostic and Statistical Manual of Mental Disorders: DSM-5, fifth ed. American Psychiatric Association, Washington, D.C.
- Bendel, R.B., Afifi, A.A., 1977. Comparison of stopping rules in forward “stepwise” regression. *J. Am. Stat. Assoc.* 72 (357), 46–53.
- Berle, D., Hilbrink, D., Russell-Williams, C., Kiely, R., Hardaker, L., Garwood, N., Gilchrist, A., Steel, Z., 2018. Personal wellbeing in posttraumatic stress disorder (PTSD): association with PTSD symptoms during and following treatment. *BMC Psychol* 6 (1), 7.
- Bernstein, D.P., Fink, L., 1998. Childhood Trauma Questionnaire: A Retrospective Self-Report: Manual. Psychological Corporation, Orlando.
- Bernstein, D.P., Stein, J.A., Newcomb, M.D., Walker, E., Pogge, D., Ahluvalia, T., Stokes, J., Handelsman, L., Medrano, M., Desmond, D., Zule, W., 2003. Development and validation of a brief screening version of the Childhood Trauma Questionnaire. *Child Abuse Negl.* 27 (2), 169–190.
- Brenner, L., Köllner, V., Bachem, R., 2019. Symptom burden and work-related impairment among patients with PTSD and complex PTSD. *Eur. J. Psychotraumatol.* 10 (1), 1694766.
- Brewin, C.R., Cloitre, M., Hyland, P., Shevlin, M., Maercker, A., Bryant, R.A., Humayun, A., Jones, L.M., Kagee, A., Rousseau, C., Somasundaram, D., Suzuki, Y., Wessely, S., van Ommeren, M., Reed, G.M., 2017. A review of current evidence regarding the ICD-11 proposals for diagnosing PTSD and complex PTSD. *Clin. Psychol. Rev.* 58, 1–15.
- Cloitre, M., Garvert, D.W., Brewin, C.R., Bryant, R.A., Maercker, A., 2013. Evidence for proposed ICD-11 PTSD and complex PTSD: a latent profile analysis. *Eur. J. Psychotraumatol.* 4.
- Cloitre, M., Garvert, D.W., Weiss, B., Carlson, E.B., Bryant, R.A., 2014. Distinguishing PTSD, complex PTSD, and borderline personality disorder: a latent class analysis. *Eur. J. Psychotraumatol.* 5.
- Cloitre, M., Shevlin, M., Brewin, C.R., Bisson, J.I., Roberts, N.P., Maercker, A., Karatzias, T., Hyland, P., 2018. The International Trauma Questionnaire: development of a self-report measure of ICD-11 PTSD and complex PTSD. *Acta Psychiatr. Scand.* 138 (6), 536–546.
- Cloitre, M., Stolbach, B.C., Herman, J.L., van der Kolk, B., Pynoos, R., Wang, J., Petkova, E., 2009. A developmental approach to complex PTSD: childhood and adult cumulative trauma as predictors of symptom complexity. *J. Trauma Stress* 22 (5), 399–408.
- Davidson, J.R., 2000. Trauma: the impact of post-traumatic stress disorder. *J. Psychopharmacol.* 14 (2 Suppl. 1), S5–S12.
- de Jong, J.T., Komproe, I.H., Spinazzola, J., van der Kolk, B.A., Van Ommeren, M.H., 2005. DESNOS in three postconflict settings: assessing cross-cultural construct equivalence. *J. Trauma Stress* 18 (1), 13–21.
- Duncan, L.E., Ratanatharathorn, A., Aiello, A.E., Almlj, L.M., Amstadter, A.B., Ashley-Koch, A.E., Baker, D.G., Beckham, J.C., Bierut, L.J., Bisson, J., Bradley, B., Chen, C. Y., Dalvie, S., Farrer, L.A., Galea, S., Garrett, M.E., Gelernter, J.E., Guffanti, G., Hauser, M.A., Johnson, E.O., Kessler, R.C., Kimbrel, N.A., King, A., Koen, N., Kranzler, H.R., Logue, M.W., Maihofer, A.X., Martin, A.R., Miller, M.W., Morey, R.A., Nugent, N.R., Rice, J.P., Ripke, S., Roberts, A.L., Saccone, N.L., Smoller, J.W., Stein, D.J., Stein, M.B., Sumner, J.A., Uddin, M., Ursano, R.J., Wildman, D.E., Yehuda, R., Zhao, H., Daly, M.J., Liberzon, I., Ressler, K.J., Nievergelt, C.M., Koenen, K.C., 2018. Largest GWAS of PTSD (N=20 070) yields genetic overlap with schizophrenia and sex differences in heritability. *Mol. Psychiatr.* 23 (3), 666–673.
- Elklit, A., Hyland, P., Shevlin, M., 2014. Evidence of symptom profiles consistent with posttraumatic stress disorder and complex posttraumatic stress disorder in different trauma samples. *Eur. J. Psychotraumatol.* 5.
- Floen, S.K., Elklit, A., 2007. Psychiatric diagnoses, trauma, and suicidality. *Ann. Gen. Psychiatr.* 6, 12.
- Ghosh, A., Ghosh, T., 2009. Modification of Kuppuswamy socioeconomic status scale in context to Nepal. *Indian Pediatr.* 46 (12), 1104–1105.
- Giarratano, P., Ford, J.D., Nochajski, T.H., 2017. Gender differences in complex posttraumatic stress symptoms, and their relationship to mental health and substance abuse outcomes in incarcerated adults. *J. Interpers. Violence*, 886260517692995.
- Giri, S., Neupane, M., Pant, S., Timalisina, U., Koirala, S., Timalisina, S., Sharma, S., 2013. Quality of life among people living with acquired immune deficiency syndrome receiving anti-retroviral therapy: a study from Nepal. *HIV/AIDS (Auckland, NZ)* 5, 277.
- Herman, J.L., 1992. Complex PTSD: a syndrome in survivors of prolonged and repeated trauma. *J. Trauma Stress* 5 (3), 377–391.
- Ho, G.W.K., Hyland, P., Shevlin, M., Chien, W.T., Inoue, S., Yang, P.J., Chen, F.H., Chan, A.C.Y., Karatzias, T., 2020. The validity of ICD-11 PTSD and Complex PTSD in East Asian cultures: findings with young adults from China, Hong Kong, Japan, and Taiwan. *Eur. J. Psychotraumatol.* 11 (1), 1717826.
- Hyland, P., Brewin, C.R., Maercker, A., 2017a. Predictive validity of ICD-11 PTSD as measured by the impact of event scale-revised: a 15-year prospective study of political prisoners. *J. Trauma Stress* 30 (2), 125–132.
- Hyland, P., Murphy, J., Shevlin, M., Vallieres, F., McElroy, E., Elklit, A., Christoffersen, M., Cloitre, M., 2017b. Variation in post-traumatic response: the role of trauma type in predicting ICD-11 PTSD and CPTSD symptoms. *Soc. Psychiatr. Psychiatr. Epidemiol.* 52 (6), 727–736.
- Hyland, P., Shevlin, M., Elklit, A., Murphy, J., Vallieres, F., Garvert, D.W., Cloitre, M., 2017c. An assessment of the construct validity of the ICD-11 proposal for complex posttraumatic stress disorder. *Psychol. Trauma* 9 (1), 1–9.
- Hyland, P., Shevlin, M., Fyvie, C., Karatzias, T., 2018. Posttraumatic stress disorder and complex posttraumatic stress disorder in DSM-5 and ICD-11: clinical and behavioral correlates. *J. Trauma Stress* 31 (2), 174–180.
- Hyland, P., Vallieres, F., Cloitre, M., Ben-Ezra, M., Karatzias, T., Olf, M., Murphy, J., Shevlin, M., 2021. Trauma, PTSD, and complex PTSD in the Republic of Ireland: prevalence, service use, comorbidity, and risk factors. *Social Psychiatry and Psychiatr. Epidemiology* 56 (4), 649–658. <https://doi.org/10.1007/s00127-020-01912-x>.
- Ibm, C., 2019. IBM SPSS Statistics for Windows, ed. IBM Corp, Version 26.0.
- Karatzias, T., Cloitre, M., 2019. Treating adults with complex posttraumatic stress disorder using a modular approach to treatment: rationale, evidence, and directions for future research. *J. Trauma Stress* 32 (6), 870–876. <https://doi.org/10.1002/jts.22457>.
- Karatzias, T., Hyland, P., Bradley, A., Cloitre, M., Roberts, N.P., Bisson, J.I., Shevlin, M., 2019. Risk factors and comorbidity of ICD-11 PTSD and complex PTSD: findings from a trauma-exposed population based sample of adults in the United Kingdom. *Depress. Anxiety* 36 (9), 887–894.
- Karatzias, T., Shevlin, M., Fyvie, C., Hyland, P., Efthymiadou, E., Wilson, D., Roberts, N., Bisson, J.I., Brewin, C.R., Cloitre, M., 2017. Evidence of distinct profiles of posttraumatic stress disorder (PTSD) and complex posttraumatic stress disorder (CPTSD) based on the new ICD-11 trauma questionnaire (ICD-TQ). *J. Affect. Disord.* 207, 181–187.
- Knefel, M., Garvert, D.W., Cloitre, M., Lueger-Schuster, B., 2015. Update to an evaluation of ICD-11 PTSD and complex PTSD criteria in a sample of adult survivors of childhood institutional abuse by Knefel & Lueger-Schuster (2013): a latent profile analysis. *Eur. J. Psychotraumatol.* 6, 25290.
- Kohrt, B.A., 2005. “Somatization” and “comorbidity”: a study of jhum-jhum and depression in rural Nepal. *Ethos* 33 (1), 125–147.
- Kohrt, B.A., Worthman, C.M., 2009. Gender and anxiety in Nepal: the role of social support, stressful life events, and structural violence. *CNS Neurosci. Ther.* 15 (3), 237–248.
- Kohrt, B.A., Worthman, C.M., Ressler, K.J., Mercer, K.B., Upadhaya, N., Koirala, S., Nepal, M.K., Sharma, V.D., Binder, E.B., 2015. Cross-cultural gene-environment interactions in depression, post-traumatic stress disorder, and the cortisol awakening response: FKBP5 polymorphisms and childhood trauma in South Asia. *Int. Rev. Psychiatr.* 27 (3), 180–196.
- Koirala, R., Soegaard, E.G.I., Ojha, S.P., Hauff, E., Thapa, S.B., 2020. Trauma related psychiatric disorders and their correlates in a clinical sample: a cross-sectional study in trauma affected patients visiting a psychiatric clinic in Nepal. *PLoS One* 15 (6), e0234203.
- Lazar, S.G., 2014. The mental health needs of military service members and veterans. *Psychodyn. Psychiatry* 42 (3), 459–478.
- Maercker, A., Brewin, C.R., Bryant, R.A., Cloitre, M., van Ommeren, M., Jones, L.M., Humayan, A., Kagee, A., Llosa, A.E., Rousseau, C., Somasundaram, D.J., Souza, R., Suzuki, Y., Weissbecker, I., Wessely, S.C., First, M.B., Reed, G.M., 2013. Diagnosis and classification of disorders specifically associated with stress: proposals for ICD-11. *World Psychiatr.* 12 (3), 198–206.
- Mickey, R.M., Greenland, S., 1989. The impact of confounder selection criteria on effect estimation. *Am. J. Epidemiol.* 129 (1), 125–137.
- Nickerson, A., Cloitre, M., Bryant, R.A., Schnyder, U., Morina, N., Schick, M., 2016. The factor structure of complex posttraumatic stress disorder in traumatized refugees. *Eur. J. Psychotraumatol.* 7, 33253.
- Palic, S., Zerah, G., Shevlin, M., Zeligman, Z., Elklit, A., Solomon, Z., 2016. Evidence of complex posttraumatic stress disorder (CPTSD) across populations with prolonged

- trauma of varying interpersonal intensity and ages of exposure. *Psychiatr. Res.* 692–699.
- Pelcovitz, D., van der Kolk, B., Roth, S., Mandel, F., Kaplan, S., Resick, P., 1997. Development of a criteria set and a structured interview for disorders of extreme stress (SIDES). *J. Trauma Stress* 10 (1), 3–16.
- Perkonig, A., Hofler, M., Cloitre, M., Wittchen, H.U., Trautmann, S., Maercker, A., 2016. Evidence for two different ICD-11 posttraumatic stress disorders in a community sample of adolescents and young adults. *Eur. Arch. Psychiatr. Clin. Neurosci.* 266 (4), 317–328.
- Pietrzak, R.H., Goldstein, R.B., Southwick, S.M., Grant, B.F., 2012. Psychiatric comorbidity of full and partial posttraumatic stress disorder among older adults in the United States: results from wave 2 of the National Epidemiologic Survey on Alcohol and Related Conditions. *Am. J. Geriatr. Psychiatr.* 20 (5), 380–390.
- Ramikie, T.S., Ressler, K.J., 2018. Mechanisms of sex differences in fear and posttraumatic stress disorder. *Biol. Psychiatr.* 83 (10), 876–885.
- Sharma, R., 2017. Revised kuppuswamy's socioeconomic status scale: explained and updated. *Indian Pediatr.* 54 (10), 867–870.
- Shrira, A., Molloy, B., Mudahogora, C., 2019. Complex PTSD and intergenerational transmission of distress and resilience among Tutsi genocide survivors and their offspring: a preliminary report. *Psychiatr. Res.* 271, 121–123.
- Silove, D., Tay, A.K., Kareth, M., Rees, S., 2017. The relationship of complex post-traumatic stress disorder and post-traumatic stress disorder in a culturally distinct, conflict-affected population: a study among west papuan refugees displaced to Papua New Guinea. *Front. Psychiatr.* 8, 73.
- Spinazzola, J., Cook, A., Ford, J., Lanktree, C., Blaustein, M., Cloitre, M., DeRosa, R., Hubbard, R., Kagan, R., Liataud, J., Mallah, K., Olafson, E., van der Kolk, B., 2005. Complex trauma in children and adolescents. *Psychiatr. Ann.* 35, 390–398.
- Tay, A.K., Mohsin, M., Rees, S., Tam, N., Kareth, M., Silove, D., 2018. Factor structures of complex posttraumatic stress disorder and PTSD in a community sample of refugees from west papua. *Compr. Psychiatry* 85, 15–22.
- Teodorescu, D.S., Heir, T., Hauff, E., Wentzel-Larsen, T., Lien, L., 2012. Mental health problems and post-migration stress among multi-traumatized refugees attending outpatient clinics upon resettlement to Norway. *Scand. J. Psychol.* 53 (4), 316–332.
- Vallieres, F., Ceannt, R., Daccache, F., Abou Daher, R., Sleiman, J., Gilmore, B., Byrne, S., Shevlin, M., Murphy, J., Hyland, P., 2018. ICD-11 PTSD and complex PTSD amongst Syrian refugees in Lebanon: the factor structure and the clinical utility of the International Trauma Questionnaire. *Acta Psychiatr. Scand.* 138 (6), 547–557.
- Van Ommeren, M., Sharma, B., Thapa, S.B., Makaju, R., Prasain, D.R.B., de Jong, J.T., 1999. Preparing instruments for transcultural research: use of the translation monitoring form with Nepali-speaking Bhutanese refugees. *Transcult. Psychiatr.* 36 (3), 285–301.
- Wittchen, H.U., 1994. Reliability and validity studies of the WHO–Composite International Diagnostic Interview (CIDI): a critical review. *J. Psychiatr. Res.* 28 (1), 57–84.
- Wolf, E.J., Miller, M.W., Kilpatrick, D., Resnick, H.S., Badour, C.L., Marx, B.P., Keane, T. M., Rosen, R.C., Friedman, M.J., 2015. ICD-11 complex PTSD in US national and veteran samples: prevalence and structural associations with PTSD. *Clin. Psychol. Sci.* 3 (2), 215–229.
- World Health Organization, 1996. WHOQOL-BREF: Introduction, Administration, Scoring and Generic Version of the Assessment: Field Trial Version, December 1996. World Health Organization.
- World Health Organization, 2004. International Statistical Classification of Diseases and Related Health Problems, second ed. World Health Organization, Geneva. 10th revision.
- World Health Organization, 2019. International Statistical Classification of Diseases and Related Health Problems (11th Revision). World Health Organization, Geneva.
- Zlotnick, C., Pearlstein, T., 1997. Validation of the structured interview for disorders of extreme stress. *Compr. Psychiatr.* 38 (4), 243–247.