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Exploring differences between the ICD-11 and DSM-5 models of PTSD: Does it matter which model is used?

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ABSTRACT

Alternative symptom profiles for posttraumatic stress disorder (PTSD) are presented in the DSM-5 and ICD-11. This study compared DSM-5 PTSD symptom profiles with ICD-11 PTSD symptom profiles among a large group of trauma-exposed individuals from Denmark. Covariates, and rates of co-occurrence with other psychiatric disorders were also investigated. A sample of treatment-seeking adult survivors of childhood sexual abuse ($n = 434$) were assessed using self-report measures of PTSD and other psychiatric disorders. A significantly larger proportion of individuals met caseness for DSM-5 PTSD (60.0%) compared to ICD-11 PTSD (49.1%). This difference was largely attributable to low endorsement of the ICD-11 re-experiencing criteria. Replacement of the 'recurrent nightmares' symptom with the 'recurrent thoughts/memories' symptom seemed to balance the proportion of individuals meeting caseness for both taxonomies. Levels of co-occurrence with anxiety and thought disorder were higher for the DSM-5 model of PTSD compared to the ICD-11 model. Current results merit careful consideration in the selection of symptom indicators for the new ICD model of PTSD, particularly with respect to the re-experiencing symptom category.

1. Introduction

In the 5th edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-5: American Psychiatric Association [APA,2013]), the symptom profile for posttraumatic stress disorder (PTSD) was expanded to include twenty symptoms. These symptoms are contained within four categories (intrusions, avoidance, negative alternations in cognitions and mood [NACM], and alternations in arousal and reactivity). Several studies have provided support for the latent symptom structure of the DSM-5 model of PTSD (Biehn et al., 2013; Armour, Contractor, Palmieri, & Elhai, 2014). An alternative approach to classifying and diagnosing PTSD is proposed in the upcoming 11th revision to the International Classification of Diseases (ICD-11: Maercker et al., 2013) prepared by the World Health Organisation (WHO) and set for release in 2017.

For ICD-11, the WHO emphasised clinical utility as the organizing principle in classification development including characteristics that diagnoses should be consistent with clinician's mental health taxonomies, limited in number of symptoms, and based on distinctions important for management and treatment (Reed, 2010). The ICD-11 model includes six symptoms belonging to three categories; re-experiencing of the traumatic event(s) in the present accompanied by emotions of fear or horror (re-experiencing: 2 symptoms), avoidance of traumatic reminders (avoidance: 2 symptoms), and a sense of current threat that is manifested by excessive hypervigilance or an enhanced startle reaction (sense of threat: 2 symptoms). Initial studies testing the latent symptom structure of the ICD-11 model of PTSD have provided empirical support (Hansen, Hyland, Armour, Elklit, & Shevlin, 2015; Forbes et al., 2015; Tay, Rees, Chen, Kareth, & Silove, 2015).

1.1. DSM-5 and ICD-11: prevalence rates and comorbidity

The presence of two alternative methods of describing the same purported disorder provides a unique challenge to researchers and clinicians working with trauma-exposed individuals. Determination of the correct symptom profile for PTSD has implications for guiding research that elucidates the key etiological factors in the onset of the disorder; for refining treatment interventions that

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target the most important symptoms; and for facilitating the development of effective early interventions to prevent the onset of chronic PTSD (Elhai & Palmieri, 2011). A critical topic for research therefore is to determine whether the alternative symptom profiles of PTSD presented in the DSM-5 and the proposed ICD-11 produce discrepant prevalence and comorbidity rates.

Hansen et al. (2015) reported significantly higher rates of diagnosis according to the DSM-5 symptom profile (30.4%) compared to the ICD-11 symptom profile (22.6%) among a heterogeneous sample ($N = 3746$) of trauma-exposed persons. Among a very large sample ($N = 23{,}936$) drawn from 13 countries, Stein et al. (2014) reported similar rates of PTSD for DSM-5 (3.0%) and ICD-11 (3.2%), and marginally lower levels of comorbidity with fear and distress for ICD-11. O'Donnell et al. (2014) reported significantly higher rates of PTSD according to DSM-5 (6.7%) than ICD-11 (3.3%) in a sample of individuals hospitalised for physical injury ($N = 510$) six years following trauma. However, ICD-11 rates increased to 6.1% when the re-experiencing category was expanded to include a third symptom measuring 'intrusive thoughts/memories'. Moreover, comorbidity rates with depression were found to be significantly lower according to the ICD-11 model.

Although research assessing differences in prevalence of PTSD based on the two classification systems is scarce, the available evidence suggests that the alternative diagnostic systems may affect the proportion of trauma-exposed individuals that will receive a diagnosis. Furthermore, the findings of O'Donnell et al. (2014) suggest that the ICD-11's re-experiencing category is overly restrictive and is likely the reason for observed differences in prevalence between the two diagnostic systems. Despite the possible differences in prevalence, existing findings indicate that comorbidity rates with alternative psychiatric diagnoses may be lower according to the proposed ICD-11 model of PTSD. Indeed a primary objective of the restricted symptom profile of PTSD proposed for ICD-11 is to reduce the level of comorbidity with other psychiatric disorders (Maercker et al., 2013).

1.2. The current study

The existing literature suggests that fewer trauma-exposed individuals display symptom profiles consistent with ICD-11 PTSD than DSM-5 PTSD. Tentative findings suggest that this difference may be partly attributable to low endorsement of the ICD-11 re-experiencing criteria (O'Donnell et al., 2014). Building on the findings of O'Donnell et al. (2014) therefore the current study assessed ICD and DSM PTSD taxonomic performance among a sample of Danish adult-survivors of childhood sexual abuse (CSA). First, it was predicted that there would be significant differences in the proportion of CSA victims who exhibited symptom profiles consistent with DSM-5 PTSD and ICD-11 PTSD. Second, it was predicted that endorsement variation in relation to the ICD-11 re-experiencing symptoms specifically would account for the discrepancies between the two taxonomies. Third and finally, it was predicted that both DSM-5 and ICD-11 PTSD symptom profiles, from subclinical thresholds to severe, would exhibit strong associations with a range of alternative psychiatric diagnoses.

2. Method

2.1. Participants

Participants were all victims of childhood sexual abuse (CSA: $n = 434$) that attended four different Danish treatment centres for victims of CSA. The majority of participants were women (85%), and all were Caucasian. All attendees presented with distress and impairment resulting from their traumatic abuse history and received individual psychotherapy of an eclectic nature that suited their needs. The centres are supported by the Ministry of Social Affairs. Exclusion criteria were (1) evidence of intoxication at time of visit, (2) a diagnosis of a psychotic disorder, (3) self-harming behaviour, (4) engagement in treatment elsewhere, and (5) diagnosis of a personality disorder. Ethical approval for use of data gathered from this sample was obtained from the relevant university ethical boards in Denmark. The mean age of the sample was 36.87 years (SD = 10.94; range 18–77). Almost all (91%) had experienced CSA before the age of 15 committed by a person at least five years older than them and on an average of 23.47 years ago (SD = 12.30). The mean age for CSA onset was 7.12 years (SD = 4.03), and the average age at which the abuse ended was 13.44 years (SD = 4.42). The average duration of abuse was 7.05 years (SD = 6.75) and the mean number of experienced abuse acts was 3.34 (SD = 1.33).

2.2. Measures

The symptoms of PTSD were assessed using the 31-item Harvard Trauma Questionnaire Part IV (HTQ-IV: Mollica et al., 1992). Designed to reflect the DSM-IV model of PTSD the HTQ-IV contains additional items that largely reflect the newly introduced PTSD symptoms in the DSM-5. The mapping of each HTQ item to the models of PTSD can be seen in Table 1. Items were rated on a four-point Likert scale (1 = 'not at all', 2 = 'a little', 3 = 'quite a bit', 4 = 'all the time'). There were two limitations associated with using the HTQ to capture the DSM-5 PTSD symptoms: (1) the B4 and B5 criteria (i.e. physiological and psychological reactivity to reminders of the traumatic event) were assessed with a single item; and (2) the E2 criterion (i.e. reckless or self-destructive behaviour) was not assessed. The Danish version of the HTQ-IV has been used in a range of trauma populations with reports of good reliability and validity (Bach, 2003). Mollica et al. (1992) reported 88% concordance between those reporting symptoms consistent with PTSD diagnostic criteria based on the HTQ-IV and a diagnostic interview. Cronbach's alpha (α) among the current sample for the 18 items used to measure DSM-5 PTSD was satisfactory ($\alpha = .83$), whereas the reliability for the 6 items used to measure ICD-11 PTSD was slightly lower ($\alpha = .69$). The slightly lower reliability estimate for ICD-11 was likely due to the limited number of items.

The DSM-5's B-E criteria were considered to be met if participants endorsed at least one symptom of intrusions, one symptom of avoidance, two symptoms of NACM, and two symptoms of arousal (see Hansen et al., 2015 for full details). The HTQ-IV does not measure criteria F-H. The ICD-11 criteria were met if participants endorsed at least one symptom of each of the three clusters of re-experiencing, avoidance, and sense of threat. Symptom endorsement in both cases was indicated by item scores 3 and above on the HTQ-IV as indicated originally in relation to the DSM-IV (see Elklit & Shevlin, 2007).

Psychiatric disorders were assessed using the Millon Clinical Multiaxial Inventory-III (MCMI-III: Millon, Millon, Davis, & Grossman, 2009). The MCMI-III is a commonly used self-report measure that provides information on ten disorders (anxiety, somatoform, bipolar disorder, dysthymia, alcohol dependence, drug dependence, PTSD, thought disorder, major depression, and delusional disorder—PTSD was excluded for the purposes of this study) outlined in the DSM-IV (APA, 1994). Standardised base rate (BR) scores for each disorder can range from 0 to 115. The MCMI-III includes three threshold points to indicate the severity of the self-reported symptoms of each disorder: BR scores from 65 reflect "sub-clinical" levels of a disorder, BR scores from 75 reflect "clinical" levels of a disorder, and BR scores from 85 reflect "severe" levels of a disorder (Grove & Vrieze, 2009). The MCMI-III is intended for adults (18 and over) with at least an 8th grade reading level

Table 1
Item mapping of the HTQ-IV for the DSM-5 and ICD-11 models of PTSD.

DSM-5 symptoms of PTSD	HTQ items	ICD-11	DSM-5
B1. Intrusive thoughts	HTQ1. Recurrent thoughts or memories of the most hurtful or terrifying events	–	RE
B2. Distressing dreams	HTQ3. Recurrent nightmares	RE	RE
B3. Dissociative reactions	HTQ2. Feeling as though the event is happening again	RE	RE
B4/5. Emotional reactivity and physiological reactivity	HTQ16. Sudden emotional or physical reaction when reminded of the most hurtful or traumatic events	–	RE
C1. Efforts to avoid thoughts	HTQ15. Avoiding thought or feelings associated with the traumatic or hurtful events	A	A
C2. Efforts to avoid reminders	HTQ11. Avoiding activities that remind you of the traumatic or hurtful event	A	A
D1. Trauma related amnesia	HTQ12. Inability to remember parts of the most hurtful or traumatic events	–	NACM
D2. Negative beliefs about oneself	HTQ14. Feeling as if you don't have a future	–	NACM
D3. Self-blame	HTQ 19. Blaming yourself for the things that have happened	–	NACM
D4. Negative emotional state	HTQ23. Feeling ashamed of the hurtful or traumatic events that have happened to you HTQ21. Feeling guilty for having survived HTQ31. feeling quilt for not doing anything or not doing enough	–	NACM
D5. Diminished interest in activities	HTQ13. Less interest in daily activities	–	NACM
D6. Detachment	HTQ4. Feeling detached or withdrawn from people	–	NACM
D7. Inability to feel positive emotions	HTQ5. Unable to show emotions	–	NACM
E1. Irritability/anger	HTQ10. Feeling irritable or having outburst of anger	–	AR
E3. Hypervigilance	HTQ9. Feeling on guard	S	AR
E4. Exaggerated startle response	HTQ 6. Feeling jumpy and easily startled	S	AR
E5. Difficulty concentrating	HTQ7. Difficulty concentrating	–	AR
E6. Sleep disturbance	HTQ8. Trouble sleeping	–	AR

Note. HTQ—harvard trauma questionnaire; RE—re-experiencing; A—avoidance; S—sense of threat; NACM—negative alternations in cognition and mood; AR—arousal.

who are seeking mental health services and has been developed and standardized specifically for clinical populations. It is composed of 175 true-false questions. The scale was translated into Danish and has been demonstrated to possess good discriminative (Elklit, 2004). Scale intercorrelations were alike across the Danish and US samples, and the Cronbach's alpha values of the MCM-III scales (.64–.93) of the Danish sample was comparable to the range of values (.66–.95) in the MCMI-III manual (Millon et al., 2009).

3. Results

3.1. DSM-5 and ICD-11 caseness based on the HTQ-IV

A significantly larger proportion of the current sample of CSA victims met caseness for DSM-5 PTSD, based on the HTQ-IV, as compared to ICD-11 PTSD (60.6% vs. 49.1%, $z = 3.41$, $p < .001$). In order to determine the process underlying this difference, the proportion of trauma-survivors who satisfied the re-experiencing and arousal/sense of threat categories were assessed (the avoidance category was not assessed as the same symptom indicators were used in both systems and the same number of endorsed symptoms were required).

A small but statistically significant difference existed between the DSM-5 and the ICD-11 in relation to the proportion of CSA victims who satisfied the respective arousal/sense of threat symptom requirements (DSM-5 arousal = 90.8% vs. ICD-11 sense of threat = 85.5%; $z = 2.41$, $p = .008$). Contrastingly, a large difference existed between the two diagnostic systems in relation to the re-experiencing category: 86.6% of the sample satisfied the DSM-5 re-experiencing symptom requirements whereas just 59.7% satisfied the ICD-11's re-experiencing symptom requirements ($z = 8.96$, $p < .0001$).

Based on the findings of O'Donnell et al. (2014) we expanded the re-experiencing category to three symptoms through the inclusion of the 'recurrent thoughts/memories' symptom (HTQ1). This led to an additional 17% of the sample satisfying the re-experiencing cluster requirement (76.7% in total). Subsequently, it was investigated whether expansion of the re-experiencing symptom category was necessary or if the replacement of the recurrent nightmares symptom (HTQ3) for the recurrent thoughts/memories symptom (HTQ1) would produce a similar effect. The result of this replacement of symptom indicators was that a total of 73% of the sample satisfied the re-experiencing criteria. Although this proportion was slightly lower than when three indicators were used, the difference between the two proportions was not significant ($z = 1.25$, $p = .11$). In other words, the replacement of one symptom had the same effect as expanding the symptom category to three indicators.

When the 'recurrent nightmares' symptom was replaced by the 'recurrent thoughts/memories' symptom within the re-experiencing category, the overall proportion of the CSA sample meeting caseness for ICD-11 PTSD, based on the HTQ-IV, increased from 49.1% to 58.1%. Although still lower than the proportion of CSA survivors who met DSM-5 PTSD caseness according to the HTQ-IV (60.6%), the difference between the two systems was no longer statistically significant ($z = .76$, $p = .22$).

3.2. Co-occurrence of DSM-5 and ICD-11 PTSD symptom profiles with nine psychiatric disorders

Differences in the proportion of co-occurrence between the DSM-5 and ICD-11 symptom profiles of PTSD and nine psychiatric disorders were investigated using self-report data from the MCMI-III. The MCMI-III is advantageous as the scale includes three threshold points for disorder severity; "subclinical" (BR score of 65 and above), "clinical" (BR score of 75 and above), and "severe" (BR score of 85 and above) (Grove & Vrieze, 2009). Table 2 presents the co-occurrence rates for the two symptom profiles and the nine disorders when the "subclinical" threshold of the MCMI-III was employed. There was a general trend in favour of higher co-occurrence based on the DSM-5 algorithm, and co-occurrence estimates for anxiety and thought disorder reached the level of statistical significance.

Table 3 includes the co-occurrence estimates based on the application of the "clinical" threshold. As with the "sub-clinical" threshold, there was an overall trend suggesting that the DSM-5 profile produced higher co-occurrence estimates, however, only in the case of anxiety did the DSM-5 taxonomy display significantly higher estimates.

Finally, Table 4 displays the co-occurrence estimates based on the "severe" threshold of the MCMI-III. At this level of disorder

Table 2
Co-occurrence of nine psychiatric disorders with ICD-11 PTSD and DSM-5 PTSD symptom profiles at the subclinical threshold.

Disorders	Co-occurrence with ICD-11 PTSD (%)	Co-occurrence with DSM-5 PTSD (%)	*z*	*p*
Anxiety	**45.2**	**53.9**	**2.58**	**.01**
Somatoform	31.3	32.7	.44	.33
Bipolar	18.9	22.1	1.18	.12
Dysthymia	33.9	38.7	1.48	.07
Alcohol dependence	6.2	8.1	1.05	.15
Drug dependence	6.5	6.5	0	.50
Thought disorder	**34.1**	**39.6**	**1.69**	**.05**
Major depression	32.7	35.7	.93	.18
Delusional disorder	19.8	21.4	.59	.28

Note: *z*—*z* test to compare the comorbidity percentages between ICD-11 and DSM-5; *p*—statistical significance; *p*—two-tailed significance level; statistically significant odds ratios in bold.

Table 3
Co-occurrence of nine psychiatric disorders with ICD-11 PTSD and DSM-5 PTSD symptom profiles at the clinical threshold.

Disorder	Co-occurrence with ICD-11 PTSD (%)	Co-occurrence with DSM-5 PTSD (%)	*z*	*p*
Anxiety	**42.6**	**50.0**	**2.18**	**.02**
Somatoform	15.2	15.0	.09	.46
Bipolar	7.1	8.5	.76	.22
Dysthymia	24.4	26.5	.70	.24
Alcohol dependence	2.5	2.8	.21	.42
Drug dependence	1.8	2.5	.70	.24
Thought disorder	11.3	10.8	.21	.41
Major depression	25.8	27.0	.39	.35
Delusional disorder	5.8	6.7	.56	.29

Note: *z*—*z* test to compare the comorbidity percentages between ICD-11 and DSM-5; *p*—statistical significance; *p*—two-tailed significance level; statistically significant odds ratios in bold.

Table 4
Co-occurrence of nine psychiatric disorders with ICD-11 PTSD and DSM-5 PTSD symptom profiles at the severe threshold.

Disorder	Co-occurrence with ICD-11 PTSD (%)	Co-occurrence with DSM-5 PTSD (%)	*z*	*p*
Anxiety	28.3	29.5	.37	.35
Somatoform	7.4	7.1	.13	.45
Bipolar	4.4	4.1	.17	.43
Dysthymia	7.8	7.6	.13	.45
Alcohol dependence	.9	1.2	.33	.37
Drug dependence	1.6	1.8	.26	.40
Thought disorder	5.5	5.1	.30	.38
Major depression	19.1	18.4	.26	.40
Delusional disorder	3.7	4.1	.35	.36

Note: *z*—*z* test to compare the comorbidity percentages between ICD-11 and DSM-5; *p*—statistical significance; *p*—two-tailed significance level.

severity the symptom profiles of DSM-5 and ICD-11 produced near identical co-occurrence estimates.

4. Discussion

The primary aim of the current study was to assess if there was a meaningful difference between adult-survivors of childhood sexual abuse who exhibited caseness for PTSD based on the symptom profile of the DSM-5 (APA, 2013) and those who exhibited PTSD caseness based on the symptom profile of the ICD-11 (Maercker et al., 2013). Given that the two diagnostic systems differ markedly in the number of symptoms included in each description of the disorder (DSM-5 with twenty and ICD-11 with six), it is critical that both researchers and clinicians understand the implications of taxonomy selection/preference in relation to; (i) the likely proportion of participants who will display symptom profiles for alternative PTSD taxonomies; (ii) the processes that may underlie differences between the two systems; and (iii) the rates of co-occurrence with a variety of psychiatric disorders based on both systems.

4.1. Main findings

Initial assessments indicated that a large proportion of the current treatment-seeking sample of CSA survivors displayed symptom profiles that were consistent with the diagnostic requirements of one of the two systems, indicating a highly distressed group of trauma-survivors. Consistent with the results of Hansen et al. (2015) and O'Donnell et al. (2014), a significantly larger proportion of the current sample met caseness for DSM-5 PTSD, based on the HTQ-IV, as compared to ICD-11 PTSD. In fact, an additional 11.5% of the sample satisfied the DSM-5 symptom criteria compared to the ICD-11 criteria. As such, current findings add to a growing literature, drawn from a variety of distinct trauma samples, suggesting that significantly more trauma-exposed individuals display symptom endorsement consistent with a DSM-5 PTSD diagnosis than an ICD-11 PTSD diagnosis. These recurrent findings merit attention as one of two possibilities could exist; either the DSM-5 is diagnosing too many individuals and is thus capturing a group of trauma-survivors who are not experiencing clinically meaningful levels of distress, or, the ICD-11 is failing to identify a meaningful group of people who are experiencing clinically meaningful levels of distress.

O'Donnell et al.'s (2014) findings suggested that the ICD-11's re-experiencing symptom category was too restrictive, demonstrating that the introduction of a third re-experiencing symptom ('intrusive memories/thoughts') increased the rate of ICD-11 PTSD to a level similar to that observed for the DSM-5. Consistent with the findings of O'Donnell et al., when we examined the proportion of CSA survivors who satisfied the DSM-5 and ICD-11 re-experiencing criteria, there were substantially fewer individuals satisfying the ICD-11 re-experiencing symptom requirements. By expanding the re-experiencing symptom set in the same manner as O'Donnell et al., we found a large increase in the proportion of individuals meeting the re-experiencing criteria. The expansion of the re-experiencing symptom set however was considered undesirable, as such a change would be inconsistent with the objectives of the proposed ICD-11 model (i.e. to use a limited number of indicators for each symptom category so as to improve clinical utility and reduce the possibility of disorder comorbidity) (Maercker et al., 2013). We therefore proposed that simply replacing the 'recurrent nightmares' symptom with the 'recurrent thoughts/memories' symptom would yield similar effects as expanding the symptom set. It was suspected that the threshold for meeting the 'recurrent dreams' symptom would be greater than that for 'recurrent thoughts/memories', thus the decision to replace this symptom. With the replacement of this symptom we found no significant change in the proportion of the sample meeting the re-experiencing symptom criteria. Moreover, following this change to the re-experiencing category, the overall proportion of the CSA sample who met caseness for ICD-11 PTSD, according to the HTQ-IV, was no longer significantly different from DSM-5 PTSD.

This observation has potential implications for the ongoing development of the proposed ICD-11 model of PTSD. While O'Donnell et al.'s (2014) findings suggested the need to expand the ICD-11's re-experiencing symptom category (in order to match the overall proportion of trauma-exposed individuals who meet caseness for PTSD to the rates observed for DSM-5), the current results demonstrate that such expansion may not be necessary. Rather, through the correct selection of symptom indicators of re-experiencing, the narrow symptom profile proposed for ICD-11 is capable of identifying the same proportion of trauma-exposed individuals who meet caseness for PTSD as the broader DSM-5 model.

4.2. Co-occurrence with other psychiatric disorders

One of the primary objectives of the narrower symptom profile of PTSD proposed in ICD-11 is to reduce levels of comorbidity with other psychiatric disorders by exclusively measuring symptoms only found in PTSD (Maercker et al., 2013). The nature of the MCMI-III used in the current study afforded a unique opportunity to assess levels of co-occurrence between a variety of psychiatric disorders and the two symptom profiles at various levels of disorder severity. It should be noted at this point that in estimating disorder co-occurrence for ICD-11 PTSD, the currently proposed model was maintained (use of the 'recurrent nightmares' symptom was included). At both the subclinical and clinical severity thresholds outlined by the MCMI-III, there was a trend for the DSM-5 PTSD symptom profile to yield higher levels of co-occurrence with the nine disorders. However, only in the case of anxiety and thought disorder did these differences reach the level of statistical significance (thought disorder was not significant at the clinical threshold). However, when the severe threshold was applied, co-occurrence with all disorders was extremely similar between the two symptom profiles. Although derived from self-report measures, the current findings are generally supportive of the objectives of the ICD-11 model of PTSD to reduce comorbidity with related psychiatric disorders and are thus in-line with existing findings (O'Donnell et al., 2014; Stein et al., 2014).

The observation of a significantly higher co-occurrence rate with thought disorder for the DSM-5 symptom profile was unexpected given that thought disorder is normally defined as a psychosis-based disorder. However, a recent assessment of the validity of the MCMI-III found that the thought disorder diagnosis was actually a measure of general psychopathology rather than a specific measure of psychotic thinking (Hesse, Guldager, & Linneberg, 2012). That higher rates of co-occurrence for DSM-5 PTSD were observed primarily at lower levels of disorder severity is suggestive that the DSM-5's broad symptom profile may include a number of non-specific symptoms that overlap with anxiety and general psychological distress. It is possible that the DSM-5's broader symptom profile is tapping aspects of general psychopathology and thus inflating co-occurrence rates, however, it is interesting to note that in both the current study and in the study from O'Donnell et al. (2014), co-occurrence rates were significantly lower for the proposed ICD-11 model when there was evidence of an overly restrictive re-experiencing requirement. Whether such differences in co-occurrence would persist were the re-experiencing symptom category to be expanded/re-defined as suggested by O'Donnell et al. and current findings, respectively, remains to be investigated.

It was interesting to note however that both the DSM-5 and ICD-11 symptom profiles overlapped substantially with other internalising disorders such as major depression, dysthymia, and anxiety. Such results highlighted that while PTSD may be described as an independent disorder with clear diagnostic boundaries in both the DSM-5 and ICD-11, the psychological response to extreme traumatic exposure may be wide and varied.

4.3. Implications

The findings of the current study have a number of important implications for researchers and clinicians. As previously indicated, the ongoing development of the ICD-11 model of PTSD should carefully consider which items to include within each symptom category, as this may have important implications for the proportion of trauma-exposed individuals who will satisfy symptom criteria for diagnosis. The change in rates of trauma-exposed individuals who met caseness for PTSD based on the selection of one symptom highlights the need for targeted research that aims to identify the appropriate symptom indicators for each symptom category. For clinicians and researchers the discrepant phenotypic expression of PTSD presented by the two classification systems makes it challenging to identify agreed aetiological factors for the onset of PTSD. The discrepant symptom profiles of the same disorder makes it very likely that there are unique risk profiles for PTSD depending upon which classification system is selected. For example, there is considerable longitudinal data indicating that negative cognitions of the self are an important predictor in the development of subsequent PTSD symptomology (Hansen, Armour, Wittmann, Elklit, & Shevlin, 2014). However, in the DSM-5 negative cognitions of the self are defined as a symptom of the disorder, not as an aetiological factor. The difficulty in identifying agreed aetiological factors due to the alternative descriptions of the same disorder means that clinical interventions aimed at alleviating existing PTSD symptomology, as well as early interventions that aim to prevent the development of PTSD in those at risk for the disorder, is made extremely difficult.

4.4. Limitations

A number of limitations were associated with this study. First, the use of non-diagnostic self-report measures of ICD-11 and DSM-5 PTSD, as well as the nine psychiatric disorders, was a significant limitation of the study. Accurately determining diagnostic prevalence and comorbidity was undermined and replication with diagnostic tools is warranted. Moreover, the HTQ-IV did not allow for a fully-formed DSM-5 symptom profile of PTSD to be achieved as indicators of two symptoms were not present nor were methods of assessing the F (duration), G (functional impairment), and H (distress not due to a medical illness or substance abuse) Criteria. Replication with measures specifically designed to capture the DSM-5 and ICD-11 models of PTSD is thus required. Secondly, definitions of what constitutes "subclinical", "clinical", and "severe" levels of a psychiatric disorder were based on guidelines set out in the MCMI-III and therefore limited in their generalizability and interpretability. Thirdly, the generalisability of the results are unknown given the current sample of treatment-seeking CSA survivors.

4.5. Conclusion

Based on the use of a self-report measure of PTSD, significantly fewer CSA survivors in the current sample met caseness for PTSD according to the currently proposed ICD-11 model of PTSD as compared to the DSM-5 model of PTSD. Our results suggested that the lower level of ICD-11 PTSD caseness was influenced by the selection of re-experiencing symptom indicators. As currently proposed, it appears that the selection of the ICD-11 or DSM-5 models of PTSD will have significant influence on the proportion of trauma-survivors who meet caseness for PTSD and the level of co-occurrence with other psychiatric disorders. Future research with regards to the proposed ICD-11 model of PTSD will need to determine the appropriate number and selection of symptom indicators to measure the re-experiencing category, the effect such selection will have on the proportion of trauma-exposed individual who will reach diagnostic criteria, the observed comorbidity rates with other psychiatric disorders, and the effect such symptom selection will have on the overall validity of the proposed model.

Conflicts of interest

None.

References

American Psychiatric Association. (1994). *Diagnostic and statistical manual of mental disorders* (4th ed.). Washington DC: American Psychiatric Association.

American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). Washington DC: American Psychiatric Association.

Armour, C., Contractor, A. A., Palmieri, P. A., & Elhai, J. (2014). Assessing latent level associations between PTSD and dissociative factors: is depersonalization and derealization related to PTSD factors more so than alternative dissociative factors? *Psychological Injury and Law*, *7*, 131–142. http://dx.doi.org/10.1007/s12207-014-9196-9

Bach, M. (2003). En empirisk belysning og analyse af emotionel numbing som eventuel selvstændig faktor i PTSD: an empirical illumination and analysis of emotional numbing as an independent factor in PTSD. *Psykologisk Studieskriftserie*, *6*, 1–199.

Biehn, T. L., Elhai, J. D., Seligman, L. D., Tamburrino, M., Armour, C., & Forbes, D. (2013). Underlying dimensions of DSM-5 posttraumatic stress disorder and major depressive disorder symptoms. *Psychological Injury and Law*, *6*, 290–298. http://dx.doi.org/10.1007/s12207-013-9177-4

Elhai, J. D., & Palmieri, P. A. (2011). Posttraumatic stress disorder symptom instruments and factor structure: an update on the current literature and advancing a research agenda. *Journal of Anxiety Disorders*, *25*, 849–854. http://dx.doi.org/10.1016/j.janxdis.2011.04.007

Elklit, A. (2004). En afprøvning af MCMI-III på et dansk patientmateriale. In: A. Elklit, & E. Simonsen (Eds.), *En introduktion til millon clinical multiaxial inventory* (2nd ed., pp. 73–110). København: Dansk Psykologisk Forlag.

Elklit, A., & Shevlin, M. (2007). The structure of PTSD symptoms: a test of alternative models using confirmatory factor analysis. *British Journal of Clinical Psychology*, *46*, 299–313.

Forbes, D., Lockwood, E., Creamer, M., Bryant, R. A., McFarlane, A. C., & O'Donnell, M. (2015). Latent structure of the proposed ICD-11 post-traumatic stress disorder symptoms: implications for the diagnostic algorithm. *British Journal of Clinical Psychiatry*, *206*, 245–251. http://dx.doi.org/10.1192/bjp.bp.114.150078

Grove, W. M., & Vrieze, S. I. (2009). An exploration of the base rate scores of the millon clinical multiaxial inventory-III. *Psychological Assessment*, *21*, 57–67.

Hansen, M., Armour, C., Wittmann, L., Elklit, A., & Shevlin, M. (2014). Is there a common pathway to developing ASD and PTSD symptoms? *Journal of Anxiety Disorders*, *28*, 865–872. http://dx.doi.org/10.1016/j.janxdis.2014.09.019

Hansen, M., Hyland, P., Armour, C., Elklit, A., & Shevlin, M. (2015). Less is more? Assessing the validity of the ICD-11 model of PTSD across multiple trauma samples. *European Journal of Psychotraumatology*, *6*, 28766. http://dx.doi.org/10.3402/ejpt.v6.28766

Hesse, M., Guldager, S., & Linneberg, I. H. (2012). Convergent validity of MCMI-III clinical syndrome scales. *British Journal of Clinical Psychology*, *51*, 178–184. http://dx.doi.org/10.1111/j.2044-8260.2011.02019.x

Maercker, A., Brewin, C. R., Bryant, R. A., Cloitre, M., Reed, G. M., van Ommeren, M., & Saxena, S. (2013). Proposals for mental disorders specifically associated with stress in the ICD-11. *Lancet*, *381*, 1683–1685. http://dx.doi.org/10.1016/S0140-6736

Mollica, R. F., Caspi-Yavin, Y., Bollini, P., Truong, T., Tor, S., & Lavelle, J. (1992). Harvard trauma questionnaire. *Journal of Nervous and Mental Disease*, *180*, 111–116. http://dx.doi.org/10.1177/0020764007078362

Millon, T., Millon, C., Davis, R., & Grossman, S. (2009). *MCMI-III manual* (4th ed.). Minneapolis, MN: Pearson Education.

O'Donnell, M. L., Alkemade, N., Nickerson, A., Creamer, M., McFarlane, A. C., Silove, D., & Forbes, D. (2014). Impact of the diagnostic changes to post-traumatic stress disorder for DSM-5 and the proposed changes to ICD-11. *British Journal of Psychiatry*, *205*, 230–235. http://dx.doi.org/10.1192/bjp.bp.113.135285

Reed, G. M. (2010). Toward ICD-11: improving the clinical utility of WHO's international classification of mental disorders. *Professional Psychology: Research and Practice*, *41*, 457–464.

Stein, D. J., McLaughlin, K. A., Koenen, K. C., Atwoli, L. A., Friedman, M. J., Hill, E. D., & Kessler, R. C. (2014). DSM-5 and ICD-11 definitions of posttraumatic stress disorder: investigating narrow and broad approaches. *Depression and Anxiety*, *31*, 494–505. http://dx.doi.org/10.1002/da.22279

Tay, A. K., Rees, S., Chen, J., Kareth, M., & Silove, D. (2015). The structure of post-traumatic stress disorder and complex post-traumatic stress disorder amongst West Papuan refugees. *BMC Psychiatry*, *15*(1), 11. http://dx.doi.org/10.1186/s12888-015-0480-3