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Research report

Post-traumatic stress disorder in DSM-5: Estimates of prevalence and criteria comparison versus DSM-IV-TR in a non-clinical sample of earthquake survivors

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ABSTRACT

Background: The latest edition of DSM (DSM-5) introduced important revisions to PTSD symptomatological criteria, such as a four-factor model and the inclusion of new symptoms. To date, only a few studies have investigated the impact that the proposed DSM-5 criteria will have on prevalence rates of PTSD.

Methods: An overall sample of 512 adolescents who survived the L'Aquila 2009 earthquake and were previously investigated for the presence of full and partial PTSD, using DSM-IV-TR criteria, were reassessed according to DSM-5 criteria. All subjects completed the Trauma and Loss Spectrum-Self Report (TALS-SR).

Results: A DSM-5 PTSD diagnosis emerged in 39.8% of subjects, with a significant difference between the two sexes ($p < 0.001$), and an overall 87.1% consistency with DSM-IV-TR. Most of the inconsistent diagnoses that fulfilled DSM-IV-TR criteria but not DSM-5 criteria can be attributed to the subjects not fulfilling the new criterion C (active avoidance). Each DSM-5 symptom was more highly correlated with its corresponding symptom cluster than with other symptom clusters, but two of the new symptoms showed moderate to weak item-cluster correlations. Among DSM-5 PTSD cases: 7 (3.4%) endorsed symptom D3; 151 (74%) D4; 28 (13.7%) both D3 and D4; 75 (36.8%) E2.

Limitations: The use of a self-report instrument; no information on comorbidity; homogeneity of study sample; lack of assessment on functional impairment; the rates of DSM-IV-TR qualified PTSD in the sample was only 37.5%.

Conclusions: This study provides an inside look at the empirical performance of the DSM-5 PTSD criteria in a population exposed to a natural disaster, which suggests the need for replication in larger epidemiological samples.

1. Introduction

The diagnostic criteria for post-traumatic stress disorder (PTSD) have undergone several modifications since the disorder's first appearance in the third edition of the American Psychiatric Association's (APA) Diagnostic and Statistical Manual of Mental Disorders (DSM). Although questions remain over the distinctiveness of the disorder as a unique clinical syndrome (Spitzer et al., 2007), new revisions of the PTSD criteria have been proposed in the latest edition of DSM (DSM-5) (APA, 2013; Forbes et al., 2011; Friedman et al., 2011). The first relevant change in the DSM-5 made by the work group for Anxiety, Obsessive–Compulsive Spectrum, Post-traumatic and Dissociative Disorders is the exclusion of PTSD from the section of anxiety disorders and its inclusion in the new section "Trauma- and Stressor-Related Disorders", that accounts for specific syndromes related to the exposure to trauma or stressful events. Furthermore, changes have been added to the diagnostic criteria both to the stressor criterion and to the symptomatological criteria. The revised stressor criterion (DSM-IV-TR PTSD criterion A1 and A2) restricts the range of traumatic events encoded in criterion A1 and deletes criterion A2 (subjective reactions of intense fear, helplessness or horror to the stressor event). The revised symptomatological criteria include the addition of three new symptoms as well as the replacement of the three-factor model of PTSD (i.e., Cluster B re-experiencing, Cluster C avoidance/numbing, and Cluster D hyper-arousal) with the new four-factor model (consisting of: Cluster B intrusion symptoms,

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Cluster C persistent avoidance of stimuli, Cluster D negative alterations in cognitions and mood, and Cluster E hyper-arousal and reactivity).

The DSM-5 adopts a more restrictive approach to the definition of the trauma in the new criterion A, requiring direct exposure to the traumatic event; indirect exposure through witnessing in person a stressor event; learning loved one's (close family member or friend) traumatic experiences that, in case of actual or threatened death, must have occurred because of a violent or accidental event; repeated or extreme exposure that may involve persistent or prolonged exposure to aversive details of a gruesome trauma (in this case it must occur in person in order to exclude events witnessed exclusively via electronic media unless the exposure is work related) (APA, 2013). Criterion A2 was deleted on the rationale that in recent studies it does not appear to have a major bearing on improving diagnostic accuracy (Anders et al., 2011; Armour et al., 2011; Calhoun et al., 2012; Friedman et al., 2011; Karam et al., 2010; O'Donnell et al., 2010; Pereda and Forero, 2012; Spitzer et al., 2007).

Considering the DSM-5 symptomatological criteria for PTSD, one of the most prominent proposed changes occurs with DSM-IV-TR PTSD criterion C, which is now split into two separate criteria (C and D, respectively). This change is based on the empirical research demonstrating that avoidance and numbing symptoms are distinct from one another in terms of psychopathology and treatment effects (Asmundson et al., 2003; Calhoun et al., 2012; Forbes et al., 2011; Friedman et al., 2011; Marshall, 2004; McWilliams et al., 2005). Therefore, the new criterion C (DSM-5) consists of two symptoms of active avoidance whereas criterion D includes seven symptoms of "negative alterations in cognition and mood". Hyper-arousal symptoms are instead now included in DSM-5 criterion E. In addition, three PTSD DSM-IV-TR symptoms were significantly revised: B1 (intrusive recollections), C7 (sense of foreshortened future), and D2 (irritability and anger). Thoughts or ruminations about the traumatic event have been expanded in criterion B1 to also having involuntary and intrusive distressing memories of the traumatic event. The DSM-IV-TR symptom C7, included in DSM-5 as criterion D2, is now expanded to include persistent negative expectations concerning many aspects of life. The DSM-IV-TR symptom D2 has been modified to focus on irritable, angry or aggressive behavior and is now included as DSM-5 symptom E1.

Finally three new symptoms are proposed including (1) persistent distorted blame of self or others about the cause or consequences of the trauma (DSM-5 symptom D3), (2) persistent negative emotional states (DSM-5 symptom D4), and (3) reckless or self-destructive behavior (DSM-5 symptom E2).

There is great interest in the effect that proposed DSM-5 criteria will have on the prevalence rates of the disorder. To date only a few studies investigated the impact that the proposed DSM-5 criteria will have on PTSD rates among civilian or veteran samples (Calhoun et al., 2012; Elhai et al., 2012; Forbes et al., 2011). Forbes et al. (2011), investigating the impact of requiring both active avoidance and numbing symptoms separately, showed a decrease in PTSD prevalence of 1–2% points on data collected using existing DSM-IV-TR criteria, in a sample of 835 traumatic injury survivors 3- and 12-months post-injury. However, in a more recent study, Elhai et al. (2012) found that changes associated with DSM-5 resulted in a slight increase in the observed prevalence rates of the disorder in a non-clinical sample of 585 college students. Calhoun et al. (2012) investigated the concordance of proposed DSM-5 PTSD criteria with DSM-IV classification rules in a sample of 185 participants who were recruited for studies focused on trauma and health, and examined the optimal number of symptoms required for PTSD DSM-5 Criterion D and E. The authors found a stronger concordance to DSM-IV-TR and a better sensitivity and specificity with only 2 symptoms required for Clusters D and E instead of the three that had previously been proposed for DSM-5 (Friedman et al., 2011).

In a previous study (Dell'Osso et al., 2011b), some of us explored the rates of full-blown or partial PTSD in a sample of 512 senior high-school students in the town of L'Aquila, approximately 10 months after the earthquake on April 6, 2009. In line with literature data (Armenian et al., 2000; Bödvarsdóttir and Elklit, 2004; Cairo et al., 2010; Kun et al., 2009; Wang et al., 2009), we reported rates as high as 37.5% of PTSD, with significantly higher rates among females (51.7%) than males (25.7%), by means of the scores on the Trauma and Loss Spectrum Self-Report (TALS-SR) (Dell'Osso et al., 2009). More recently, in the same sample (Dell'Osso et al., 2011a), we reported survivors who lost a close friend or a relative in the framework of the earthquake to report significantly higher rates of PTSD with respect to those who did not report such losses.

The aim of the present study was to examine the concordance between DSM-IV-TR and DSM-5 PTSD criteria and the impact of the proposed DSM-5 criteria on the PTSD rates in this same sample.

2. Methods

2.1. Study participants

An overall sample of 512 adolescents, 232 females and 280 males, was recruited for a previous study aimed at investigating full and partial PTSD, according to DSM-IV-TR criteria. The sample consisted of survivors of the L'Aquila 2009 earthquake (Dell'Osso et al., 2011b). The target population included residents attending their last year of high school in L'Aquila, which experienced one of the country's deadliest earthquakes (5.8 on the Richter scale) 10 months earlier (Dell'Osso et al., 2011a, 2011b).

In accordance to the aims of the present study, data from the Trauma and Loss Spectrum-Self Report (TALS-SR) (Dell'Osso et al., 2009) were analyzed to assess the presence of DSM-5 PTSD diagnosis related to the April 2009 earthquake exposure.

The Ethics Committee of the University of L'Aquila approved all recruitment and assessment procedures. Eligible subjects provided written informed consent after receiving a complete description of the study and having an opportunity to ask questions.

2.2. Instruments and assessments

The TALS-SR was developed by the authors, who comprise the Italian–American team of researchers belonging to the *Spectrum Project*. The Spectrum Collaborative Project is an international collaboration research project between researchers of the Universities of Pisa (Italy), Pittsburgh, Columbia (New York) and California at San Diego (USA), established to develop and test assessment instruments for assessment of the spectrum of clinical features associated with the current version of the DSM psychiatric disorders. The spectrum model proposed highlights the significance of isolated symptoms and subthreshold symptom clusters that accompany each disorder classified in the Diagnostic and Statistical Manual of Mental Disorders (DSM), and may follow, or be manifested in concurrence with the main disorder (Cassano et al., 1999; Frank et al., 1998). Originally developed in English, the interview on trauma and loss spectrum was then translated into Italian, back translated, and then revised for inconsistencies between the two languages (Dell'Osso et al., 2008). In the present study, we used the final Italian version of the self-report. The TALS-SR includes 116 items exploring the lifetime experience of a