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Alternative models of DSM-5 PTSD: Examining diagnostic implications

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ABSTRACT

The factor structure of DSM-5 posttraumatic stress disorder (PTSD) has been extensively debated with evidence supporting the recently proposed seven-factor Hybrid model. However, despite myriad studies examining PTSD symptom structure few have assessed the diagnostic implications of these proposed models. This study aimed to generate PTSD prevalence estimates derived from the 7 alternative factor models and assess whether pre-established risk factors associated with PTSD (e.g., transportation accidents and sexual victimisation) produce consistent risk estimates. Seven alternative models were estimated within a confirmatory factor analytic framework using the PTSD Checklist for DSM-5 (PCL-5). Data were analysed from a Malaysian adolescent community sample (n = 481) of which 61.7% were female, with a mean age of 17.03 years. The results indicated that all models provided satisfactory model fit with statistical superiority for the Externalising Behaviours and seven-factor Hybrid models. The PTSD prevalence estimates varied substantially ranging from 21.8% for the DSM-5 model to 10.0% for the Hybrid model. Estimates of risk associated with PTSD were inconsistent across the alternative models, with substantial variation emerging for sexual victimisation. These findings have important implications for research and practice and highlight that more research attention is needed to examine the diagnostic implications emerging from the alternative models of PTSD.

1. Introduction

The underlying latent structure of posttraumatic stress disorder (PTSD) has been extensively studied and debated (Armour et al., 2016). Most research into PTSD symptoms in the Diagnostic and Statistical Manual for Mental Disorders (American Psychiatric Association, 2013) has supported and demonstrated superior fit of two alternative four factor models over the three factor DSM-IV PTSD model; the Emotional Numbing model (King et al., 1998), and the Dysphoria model (Elhai and Palmieri, 2011; Simms et al., 2002; Yufik and Simms, 2010). More recently, Elhai et al. (2011) proposed a five factor Dysphoric Arousal model which spilt the hyperarousal symptom cluster into dysphoric and anxious arousal symptoms. This separation was based on evidence documenting the difference between general distress/dysphoria (D1-D3) and fear based symptoms (D4-D5) (Watson, 2005, 2009).

The current DSM-5 conceptualisation of PTSD is more closely aligned to the Emotional Numbing model and includes four symptom clusters; re-experiencing, avoidance, negative alterations in cognitions and mood (NACM), and alterations in arousal and reactivity. Notable differences in the DSM-5 criteria are evidenced by the narrowing definition of what constitutes a traumatic event in criterion A; the removal of criterion A2 (i.e., the peri-traumatic fear, helplessness, or horror); the separation of the DSM-IV Criterion C of active avoidance and emotional numbing into two separate clusters; and the addition of three symptoms; blame of self or others, persistent negative emotions, and reckless or self-destructive behaviour (Weathers, 2017).

Following the release of the DSM-5 new evidence emerged suggesting that the factor structure of PTSD is better conceptualised as six factors; namely, the Anhedonia model (Liu et al., 2014) and Externalising Behaviours model (Tsai et al., 2015). The most recent model is a seven-factor Hybrid model (Armour et al., 2015) which has generated superior empirical support across multiple studies (Armour et al., 2016). This hybrid model integrates features of both 6 factor models including the re-experiencing, avoidance, externalising behaviours, anxious arousal and dysphoric arousal factors (from the externalising behaviours model), and the anhedonia and NACM factors (from the anhedonia model). Collectively, evidence suggests an overall tendency for the Dysphoric Arousal model to provide superior support for DSM-IV symptoms and the Hybrid model to be superior for DSM-5 symptoms (Armour et al., 2016).

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Importantly, despite the theoretical and empirical support for each PTSD model there are several questions that emerge in terms of the implications on research and clinical practice. Firstly, there is a lack of knowledge about the impact of these models on diagnostic criteria and PTSD prevalence, as none of these studies have provided a diagnostic algorithm to base the diagnosis on. Considering these concerns, a recent study developed diagnostic algorithms for the seven existing DSM-5 models to examine if PTSD prevalence varied according to the different models in a clinical sample with a history of traumatic exposure (Shevlin et al., 2017). These algorithms were developed under the guidelines outlined in the DSM-5 whereby clusters containing 2–5 symptoms required the presence of at least 1 symptom (Criteria B and C). The same logic followed for Criteria D and E whereby any cluster containing 6 or more symptoms, a minimum of 2 symptoms was required. Notably, the Dysphoria model deviated from these guidelines whereby a minimum of 3 symptoms were required for the dysphoria cluster. Shevlin and colleagues (2017) justified this requirement due to the higher number of symptoms (i.e. 11 symptoms) that fell into this cluster and also to coincide with the 6 symptoms required for the DSM-5 PTSD diagnosis. The results of this study found significant variation in prevalence estimates with the highest estimate generated by the DSM-5 model (83.9%) and the lowest from the Hybrid model (64.5%). Furthermore, Shevlin et al. (2017) also examined whether the relationship between known risk factors associated with PTSD remained consistent irrespective of which diagnostic algorithm was applied. Findings indicated that the odds ratios for an estimated PTSD diagnosis following childhood maltreatment varied between 1.89 and 3.50 for the Hybrid model and the DSM-5 model respectively. Shevlin et al. (2017) concluded that it is unclear which estimate is correct, but the magnitude of variation in child maltreatment as a risk factor for PTSD raises important implications for whether PTSD is being consistently diagnosed across all models.

The current study therefore aims to replicate and expand the findings of Shevlin and colleagues using a community sample of Malaysian adolescents. The first aim was to generate prevalence estimates from the existing seven PTSD models. The fit of these seven models were estimated which included; the 4-factor DSM-5 model, the 4-factor Dysphoria model, the 5-factor Dysphoric Arousal model, the 6-factor Anhedonia model, the 6-factor Externalising Behaviours model, the 6-factor Alternative Dysphoria model and the 7-factor Hybrid model (see Table 1 for model specifications). Based on previous research (Armour et al., 2016), we hypothesised that the 7-factor Hybrid model would provide the best fit to the data. The second aim was to extend the findings of the Shevlin and colleagues study by examining whether a broader range of traumatic exposures were differentially associated with PTSD depending on the model used to derive the diagnosis. Based on literature documenting risk factors for PTSD we examined whether exposure to a natural disaster (e.g., Cao et al., 2003; Galea et al., 2007; Neria et al., 2008), transportation accidents (e.g., Murray et al., 2002), childhood neglect and sexual victimisation (e.g., Fergusson et al., 2013; Jonas et al., 2011) conferred relatively similar estimates of risk irrespective of which model of PTSD is used.

2. Method

2.1. Participants and procedure

The participants included in the present study are part of a wider project designed to examine the association between trauma exposure and physical health problems following a recent natural disaster (flood) in Malaysia (N = 731). The data used in the present study consists of 589 adolescents aged 15–19 years with a mean age of 16.98 (SD = 1.20). The majority of the sample 373 (63.3%) were females and 216 (36.7%) were males. Ethnicity was self-reported as predominantly Malays 455 (77.2%) and the remaining participants were Chinese, Indian, Bidayuh, and Ibans. The majority of the sample were still living with both parents (81.3%) with 44 (7.5%) living with one parent and the remaining participants lived with relatives or attended boarding school. Participants were recruited based on multistage sampling. Participants were contacted through the head of the villages and the school administrations. All participants provided written consent for participation and permission for underage participants was obtained from parents or legal guardians. Ethical approval was endorsed by the Ethic Committees, Faculty of Medicine and Health Sciences, Universiti Malaysia Sarawak. Permission to conduct the study was obtained from the Malaysian Ministry of Education and the Malaysian Ministry of Health.

2.2. Measures

2.2.1. Traumatic exposure

Participants were presented with a list of traumatic and negative life

Table 1
Item mappings of the alternative models of DSM-5 PTSD.

Symptom	DSM-5	Dysphoria	Dysphoric Arousal	Externalising Behaviours	Anhedonia	Alternative Dysphoria	Hybrid
B1. Intrusive thoughts	R	R	R	R	R	R	R
B2. Nightmares	R	R	R	R	R	R	R
B3. Flashbacks	R	R	R	R	R	R	R
B4. Emotional cue reactivity	R	R	R	R	R	R	R
B5. Physiological cue reactivity	R	R	R	R	R	R	R
C1. Avoidance of thoughts	A	A	A	A	A	A	A
C2. Avoidance of reminders	A	A	A	A	A	A	A
D1. Trauma-related amnesia	NACM	D	NACM	NACM	NACM	D	NA
D2. Negative beliefs	NACM	D	NACM	NACM	NACM	D	NA
D3. Blame of self or others	NACM	D	NACM	NACM	NACM	D	NA
D4. Negative trauma related emotions	NACM	D	NACM	NACM	NACM	D	NA
D5. Loss of interest	NACM	D	NACM	NACM	AN	AN	AN
D6. Detachment	NACM	D	NACM	NACM	AN	AN	AN
D7. Restricted affect	NACM	D	NACM	NACM	AN	AN	AN
E1. Irritability/anger	AR	D	DA	EB	DA	EB	EB
E2. Self-destructive/reckless behaviour	AR	AR	DA	EB	DA	EB	EB
E3. Hypervigilance	AR	AR	AA	AA	AA	AA	AA
E4. Exaggerated startle response	AR	AR	AA	AA	AA	AA	AA
E5. Difficulty concentrating	AR	D	DA	DA	DA	D	DA
E6. Sleep disturbance	AR	D	DA	DA	DA	D	DA

Note. R = re-experiencing; A = avoidance; NACM = negative alterations in cognitions and mood; AR = alterations in arousal and reactivity; NA = negative affect; AN = anhedonia; EB = externalising behaviours; DA = dysphoric arousal.