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# Which symptoms of post-traumatic stress disorder are associated with suicide attempts?



Zeynep M.H. Selaman<sup>a</sup>, Hayley K. Chartrand<sup>b</sup>, James M. Bolton<sup>a,b,c</sup>, Jitender Sareen<sup>a,b,c,\*</sup>

- a Department of Psychiatry, Faculty of Medicine, University of Manitoba, PZ430-771 Bannatyne Avenue, Winnipeg, MB R3E 3N4, Canada
- b Department of Psychology, University of Manitoba, P404 Duff Roblin Building, 190 Dysart Road, Winnipeg, MB R3T 2N2, Canada
- <sup>c</sup> Department of Community Health Sciences, University of Manitoba, S113 Medical Services Building, 750 Bannatyne Avenue, Winnipeg, MB R3E 0W3, Canada

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#### ABSTRACT

Individuals with post-traumatic stress disorder are at increased risk for suicide attempts. The present study aimed to determine which of the specific DSM-IV symptoms of post-traumatic stress disorder (PTSD) are independently associated with suicide attempts. Data came from Wave 2 of the National Epidemiologic Survey on Alcohol and Related Conditions (NESARC). The NESARC has a sample size of  $N=34\,653$ . The full sample size included in analyses was 2322 individuals with PTSD. Among individuals with lifetime PTSD, after adjusting for sociodemographic factors, as well as any mood, substance, personality, or anxiety disorder (excluding PTSD), increasing numbers of re-experiencing and avoidance symptoms were significantly correlated with suicide attempts. Of the specific symptoms, having physical reactions by reminders of the trauma, being unable to recall some part of it, and having the sense of a foreshortened future, were all associated with suicide attempts. These findings will help extend our understanding of the elevated risk for suicide attempts in individuals with PTSD.

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#### 1. Introduction

There has been an increasing interest in the relationship between post-traumatic stress disorder (PTSD) and suicide. Several studies have consistently shown that PTSD is associated with increased likelihood of suicidal behavior (Cougle, Keough, Riccardi, & Sachs-Ericsson, 2009; Davidson, Hughes, & Blazer, 1991; Ferrada-Noli, Asberg, Ormstad, Lundin, & Sunbdom, 1998; Helzer, Robins, & McEvoy, 1987; Kessler, Sonnega, Bromet, & Nelson, 1995; Kotler, Iancu, Efroni, & Amir, 2001; Nepon, Belik, Bolton, & Sareen, 2010; Sareen, Houlahan, Cox, & Asmundson, 2005; Tarrier & Gregg, 2004; Wilcox, Storr, & Breslau, 2009; Wunderlich, Bronisch, & Wittchen, 1998). In a study by Sareen et al. (2005), which examined the relationship of individual anxiety disorders with both suicidal ideation and suicide attempts in a nationally representative sample, it was found that PTSD was the only anxiety disorder that was independently associated with both suicidal ideation and suicide attempts. A study by Nepon et al. (2010) which adjusted for all 10 DSM-IV

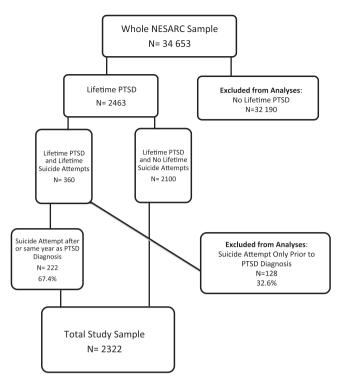
personality disorders, as well as Axis I disorders, found that both PTSD and panic disorder were significantly associated with lifetime suicide attempts.

There is a small body of literature that has examined the relationship between the three symptom clusters of PTSD (reexperiencing, avoidance, and hyperarousal) and suicidal behavior. However, there is no clear evidence as to which of these clusters are more or less associated with suicide attempts. A study by Bell and Nye (2007) which examined a sample of 50 Vietnam combat veterans found that the re-experiencing symptom cluster was more strongly associated with suicidal ideation, whereas the hyperarousal and avoidance symptoms were not. This study, however, did not examine suicide attempts as an outcome. One other study by Ben-Ya'acov and Amir (2004) examined the relationship between PTSD symptoms and suicide risk, finding that in a community sample of 103 men with no known psychopathology, high levels of arousal symptoms may increase suicide risk.

Both of the studies were limited by small sample sizes and the use of community or veteran samples and therefore may have been influenced by selection bias. Suicide attempts have been consistently identified as one of the strongest risk factors for eventual suicide (Tidemalm, Langstrom, Lichtenstein, & Runeson, 2008), and therefore it is important to examine their relationship with PTSD symptoms. To the best of our knowledge, our study will be the first to examine PTSD symptom clusters as well as individual PTSD symptoms in relation to suicide attempts.

<sup>\*</sup> Corresponding author at: Community Health Sciences and Psychology, Department of Psychiatry, Faculty of Medicine, University of Manitoba, PZ430 – 771 Bannatyne Avenue, Winnipeg, MB R3E 3N4, Canada. Tel.: +1 204 787 7078; fax: +1 204 787 4879.

*E-mail addresses*: umseyida@cc.umanitoba.ca (Z.M.H. Selaman), HChartrand@marymound.com (H.K. Chartrand), jbolton@exchange.hsc.mb.ca (J.M. Bolton), sareen@cc.umanitoba.ca (J. Sareen).



**Fig. 1.** Flowchart of sample studied (N= 2322). Those with a suicide attempt after or in the same year as the diagnosis of PTSD (n = 222) were compared to those with a diagnosis of PTSD and no suicide attempt (n = 2100).

The aim of our study was to address these limitations using data from the National Epidemiologic Survey of Alcohol and Related Conditions (NESARC) to determine the relationship between suicide attempts and the three DSM-IV symptom clusters of PTSD (re-experiencing, avoidance, and hyperarousal). Secondary objectives were to determine whether any of the individual symptoms listed under each symptom cluster was independently associated with suicide attempts.

Based on previous literature, we hypothesized that the hyperarousal and re-experiencing symptoms would be more strongly associated with suicide attempts than would avoidance symptoms (Bell & Nye, 2007; Ben-Ya'acov & Amir, 2004). Investigating the relationship between specific symptoms and suicide attempts will help refine and extend our understanding of the elevated risk of suicidal behavior observed with PTSD.

#### 2. Methods

#### 2.1. Sample

Data were obtained from Wave 2 (2004–2005) of the National Epidemiologic Survey of Alcohol and Related Conditions (NESARC). The NESARC is a nationally representative survey of noninstitutionalized US civilians aged 20 and over. All variables used in this study came from the Wave 2 assessment. Interviews were administered in person, and the overall response rate was 70.2%. The sample size is  $N=34\,653$ . As demonstrated in Fig. 1, of the 34 653 participants, 2463 met criteria for lifetime PTSD and 360 had both lifetime PTSD and SA. Of the 360 that met criteria for PTSD and answered 'yes' to suicide attempts, 128 were excluded from the sample because the suicide attempt preceded the diagnosis of PTSD. Our analyses included the n=2100 participants with PTSD and no suicide attempts and the n=222 participants who attempted suicide after the diagnosis of PTSD.

#### 2.2. Mental disorders

Lay interviewers used the Alcohol Use Disorders and Associated Disabilities Interview Schedule IV (AUDADIS-IV) to make *Diagnostic* and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV) diagnoses, including PTSD. Other Axis 1 disorders were also assessed using the AUDADIS-IV. These included any mood disorders (depression, dysthymia, mania, and hypomania), any anxiety disorders (generalized anxiety disorder, social anxiety disorder, specific phobia, and panic disorder), any personality disorders, and any substance use or alcohol use disorders.

#### 2.3. PTSD symptoms

PTSD symptoms were assessed by matching the DSM-IV criteria for the individual symptoms under each of the three symptom clusters with the questions asked in the NESARC questionnaire. Responses were coded as either 'yes' or 'no'.

For example, the 5 DSM-IV symptoms categorized under the re-experiencing symptom cluster were assessed with 6 different NESARC survey questions. The symptoms described in the DSM-IV as 'acting or feeling as if the traumatic event were recurring' and 'intense psychological distress at exposure to internal or external cues' were assessed by asking respondents three different questions: After that worst event happened did you (1) Feel that you were reliving (that/that worst) event or that it was happening all over again?; (2) Find yourself acting as if (that/that worst) event was happening again, for example, reacting to sights or sounds like the ones you heard when it happened?; and (3) Get very upset when you were reminded of (that/that worst) event?

The seven DSM-IV symptoms that comprised the avoidance cluster were assessed with 8 different NESARC questions. The symptom described in the DSM-IV as 'efforts to avoid thoughts, feelings, or conversations associated with the trauma' were assessed with the following two questions: After that worst event happened did you (1) Try to stop thinking about or feeling anything about (that/that worst) event?; and (2) Try to avoid conversations that had anything to do with it?

The 5 DSM-IV symptoms that comprised the hyperarousal symptom cluster were assessed with 5 different NESARC questions. For example, sleep problems were assessed by asking 'After (that/that worst) event happened did you have trouble falling asleep or staying asleep?'

The PTSD symptom clusters (re-experiencing, avoidance, and hyperarousal) were included in analyses as continuous variables based on the number of symptoms endorsed for each cluster.

#### 2.4. Suicide attempts

Suicide attempts were assessed in Wave 2 of the NESARC by asking participants the following question: 'In your entire life did you ever attempt suicide?' Responses were coded as either 'yes' or 'no'.

#### 2.5. Sociodemographic factors

The sociodemographic variables included in the analyses were age (20–29, 30–44, 45–64, and  $\geq$ 65 years), income (\$0–\$19 999, \$20 000–\$34 999, \$35 000–\$59 999, and  $\geq$ \$60 000), region (Northeast, Midwest, South, and West), marital status (married or cohabiting, divorced/separated/widowed, and never married), and racial/ethnic identity (White, Black, American Indian or Alaskan, Asian or Hawaiian, and Hispanic).

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