

## Subthreshold Posttraumatic Stress Disorder in the World Health Organization World Mental Health Surveys

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### ABSTRACT

**BACKGROUND:** Although only a few people exposed to a traumatic event (TE) develop posttraumatic stress disorder (PTSD), symptoms that do not meet full PTSD criteria are common and often clinically significant. Individuals with these symptoms sometimes have been characterized as having subthreshold PTSD, but no consensus exists on the optimal definition of this term. Data from a large cross-national epidemiologic survey are used in this study to provide a principled basis for such a definition.

**METHODS:** The World Health Organization World Mental Health Surveys administered fully structured psychiatric diagnostic interviews to community samples in 13 countries containing assessments of PTSD associated with randomly selected TEs. Focusing on the 23,936 respondents reporting lifetime TE exposure, associations of approximated DSM-5 PTSD symptom profiles with six outcomes (distress-impairment, suicidality, comorbid fear-distress disorders, PTSD symptom duration) were examined to investigate implications of different subthreshold definitions.

**RESULTS:** Although consistently highest outcomes for distress-impairment, suicidality, comorbidity, and PTSD symptom duration were observed among the 3.0% of respondents with DSM-5 PTSD rather than other symptom profiles, the additional 3.6% of respondents meeting two or three of DSM-5 criteria B–E also had significantly elevated scores for most outcomes. The proportion of cases with threshold versus subthreshold PTSD varied depending on TE type, with threshold PTSD more common following interpersonal violence and subthreshold PTSD more common following events happening to loved ones.

**CONCLUSIONS:** Subthreshold DSM-5 PTSD is most usefully defined as meeting two or three of DSM-5 criteria B–E. Use of a consistent definition is critical to advance understanding of the prevalence, predictors, and clinical significance of subthreshold PTSD.

**Keywords:** Epidemiology, Nosology, Partial PTSD, Posttraumatic stress disorder, PTSD, Subthreshold PTSD

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Although most adults have been exposed to lifetime traumatic events (TEs), only a few ever meet criteria for PTSD (1,2). However, many others develop PTSD symptoms classified as partial or subthreshold PTSD (3–8). Subthreshold symptoms are often clinically significant, may require intervention, and are treatable (9,10). Considerable research on subthreshold PTSD exists despite concerns about possible overdiagnosis (11) and secondary gain (12). Most, although not all (6,13–15), such studies document intermediate levels of distress, impairment, suicidality, and comorbidity between people with PTSD and people with no PTSD symptoms (13,16–18). However, these studies are inconsistent in definitions of subthreshold PTSD. The most common definitions are 1) at least one symptom of each DSM criterion (3–7,14,17,19,20), 2) all required

symptoms of re-experiencing and one other DSM criterion (5,19–23), 3) all required symptoms of re-experiencing and hyperarousal and at least one avoidance symptom (24,25), and 4) all required symptoms of at least one DSM criterion (26,27). Because the number of symptom criteria required for a diagnosis has increased from three to four in DSM-5, additional definitions of subthreshold PTSD based on DSM-5 are possible.

One consequence of these inconsistent definitions is that lifetime prevalence estimates of subthreshold PTSD vary widely across studies (10,28). The few studies that examined multiple definitions argued for creating a consensus definition (23,29,30). However, only a few studies proposed such a definition (3,23), and even those studies did so based on

comparison of only two definitions. We present more comprehensive data on prevalence and correlates of subthreshold PTSD to produce a consensus definition based on data from the World Health Organization (WHO) World Mental Health (WMH) Surveys.

## METHODS AND MATERIALS

### Samples

Data are from the 13 surveys in the WMH surveys that assessed PTSD associated with randomly selected TEs (31). The 23,936 respondents in these surveys reporting lifetime TE exposure are the focus of analysis. The 13 countries include 8 countries classified by the World Bank (32) as high income (Belgium, Germany, Italy, Japan, Netherlands, New Zealand, Spain, United States), four upper-middle income (São Paulo in Brazil, Bulgaria, Mexico, Romania), and one lower-middle income (Colombia). Most surveys were based on nationally representative household samples, the exceptions being surveys of all urbanized areas in Colombia and Mexico and of specific metropolitan areas in Brazil (São Paulo) and several cities in Japan. Response rates ranged from 55.1% (Japan) to 87.7% (Colombia). The weighted (by sample size) mean response rate across surveys was 70.3%. More detailed sample descriptions are presented elsewhere (33).

Interviews were administered face-to-face in respondent homes after obtaining informed consent using procedures approved by local institutional review boards. The interview schedule was developed in English and translated into other languages using a standardized WHO translation, back-translation, and harmonization protocol (34). Interviews were in two parts. Part I, administered to all respondents, assessed core DSM-IV mental disorders ( $n = 67,652$  respondents across all 13 surveys). Part II assessed additional disorders and correlates. Questions about TEs and PTSD were included in Part II, which was administered to 100% of Part I respondents who met lifetime criteria for any Part I disorder and a probability subsample of other Part I respondents ( $n = 34,321$  across all 13 surveys). Part II respondents with no Part I disorder were up-weighted to adjust for undersampling, resulting in Part II weighted prevalence estimates being identical to Part I estimates. Additional weights adjusted for differential within and between household selection and deviations between sample and population demographic-geographic distributions. More details about WMH sample design and weighting are presented elsewhere (33).

### Measures

**TEs.** The WMH assessed lifetime exposure to 29 TEs, including 7 war-related TEs (e.g., combatant, civilian in war zone), 5 types of physical assault (e.g., beaten by caregiver as a child, mugged), 3 types of sexual assault (e.g., stalked, attempted rape, rape), 6 TEs involving threats to physical integrity excluding violence (e.g., life-threatening accidents, natural disasters), 5 TEs involving threats to loved ones (e.g., life-threatening illness or injury), and traumatic death of a loved one. Two additional open-ended questions asked about TEs not included on the list and TEs respondents did not wish to describe concretely. Respondents were probed about number

of lifetime occurrences and age at first occurrence of each reported TE.

**PTSD.** Mental disorders were assessed with the Composite International Diagnostic Interview (CIDI) (35), a fully structured, lay-administered interview yielding DSM-IV diagnoses. Assessment of PTSD was done in relation to one randomly selected lifetime TE for each respondent to produce a population-level representative sample of TEs (35). Each random TE was weighted by its probability of selection for the respondent, producing a weighted data set representative of all lifetime TEs occurring to all respondents. The possibility of some TEs being part of linked trauma clusters (e.g., a motor vehicle accident resulting in life-threatening injury to the respondent and death of a loved one) was addressed by probing for such clusters after selecting random TEs and adjusting weights when trauma clusters were reported.

Of Part II respondents, 23,936 (67.1%) reported one or more TEs. Approximately one fourth (24.6%) of respondents with TEs reported experiencing exactly one TE, and the others reported a mean of 6.0 TEs (range, 2–160; interquartile range, 3–6). Of random TEs, 15% were part of linked trauma clusters. As detailed elsewhere (36), CIDI-Structured Clinical Interview for DSM (SCID) concordance for DSM-IV PTSD was moderate ( $\kappa = .49$ ; area under the curve = .69) (37). However, the proportion of CIDI cases confirmed by the SCID was high (86.1%), meaning that most CIDI cases would independently be judged to have PTSD by trained clinicians.

Based on preliminary analyses comparing DSM-IV and DSM-5 criteria in an independent sample (detailed results available on request), we used the DSM-IV/CIDI PTSD symptoms assessment in the CIDI to approximate DSM-5 criteria (38) by fully operationalizing DSM-5 criteria B (one of five symptoms of intrusive recollection), C (one of two symptoms of avoidance), F (duration >1 month), and G (clinically significant distress or impairment) and conservatively operationalizing criteria D (two of the four symptoms of negative alterations in cognitions and mood assessed in the CIDI, whereas two of seven are required in DSM-5) and E (two of the five symptoms of marked alterations in arousal and reactivity assessed in the CIDI, whereas two of six are required in DSM-5) (Table 1). Our approximation is conservative because it requires the same number of criteria D and E symptoms as DSM-5 but from smaller sets. Preliminary evaluation of this approximation in the independent above-mentioned sample suggests that it captures >90% of DSM-5 PTSD cases. Given this high sensitivity in conjunction with perfect specificity, we thought that a focus on approximate DSM-5 criteria was preferable to a focus on DSM-IV criteria in light of the fact that the practical implications of results in the future would be with regard to DSM-5 criteria.

We created four definitions of subthreshold PTSD to reflect the most commonly used definitions in previous studies and to capture the changes in the number of criteria and required symptoms within each cluster in DSM-5. These include definitions of subthreshold PTSD requiring 1) at least one symptom from each of the four DSM-5 criteria B–E, 2) full symptoms of three of criteria B–E, 3) full symptoms of two of criteria B–E, and 4) full symptoms of one of criteria B–E (Table 1).

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