Systematic review of screening instruments for adults at risk of PTSD

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CRD summary
This review assessed the performance of general screening instruments for post-traumatic stress disorder in civilian trauma populations. The author concluded that instruments using a small number of symptoms appear effective, while simpler shorter instruments perform at least as well as longer more complex measures. However, given the limitations in the review methodology and included data, these findings could be misleading.

Authors’ objectives
To determine the performance and applicability of general screening instruments for post-traumatic stress disorder (PTSD) in civilian trauma populations. The author also examined whether the length of the instruments or the simplicity of response and scoring methods is related to performance.

Searching
MEDLINE, ISI Web of Science, and PILOTS (a specialist trauma database managed by the National Center for PTSD in White River Junction, Vermont) were searched up to December 2003; the search terms were reported. Additional manual searches of books on trauma assessment, reference lists of included articles and back issues of the Journal of Traumatic Stress were also carried out. Only studies published in peer-reviewed English language journals were included.

Study selection
Study designs of evaluations included in the review
Although inclusion criteria for the study design were not explicitly reported, it was clear that the review focused on diagnostic accuracy studies.

Specific interventions included in the review
Studies evaluating any screening instrument with 30 items or fewer and with the potential to detect current PTSD were eligible for inclusion. The instruments had to have been used for adults and be relevant to any trauma population (i.e. not worded in any way or reliant upon information specific to individual traumas, such as combat, injury or earthquake). Those instruments with more than 30 items were omitted as being likely to be too time-consuming to be of value in a screening context. In total, 13 different instruments with between 4 and 30 items per instrument (details of all instruments were reported) were included in the review.

Reference standard test against which the new test was compared
Studies that compared instruments against structured clinical interviews for PTSD, including the Structured Clinical Interview for DSM-IV (SCID) and the Clinician Administered PTSD Scale (CAPS), were eligible for inclusion.

Participants included in the review
Studies of adult trauma populations were included in the review. Studies that were limited to current members of the armed services and specific clinical populations such as the brain-injured or substance abusers were excluded. The populations included in the review were varied and included mixed trauma populations, crime victims, breast cancer sufferers and their relatives, psychiatric out-patients or in-patients, aeroplane crash survivors, survivors of motor vehicle accidents, college students, trauma clinic referrals, train crash survivors, earthquake victims and older adults.

Outcomes assessed in the review
Studies that assessed outcomes relating to the validity of the instruments were eligible for inclusion. The outcome measures used in the review were the sensitivity, specificity, positive and negative predictive power (PPP and NPP, respectively), and overall efficiency.
How were decisions on the relevance of primary studies made?
The author did not state how the studies were selected for the review, or how many reviewers performed the selection.

Assessment of study quality
The author did not state that they assessed validity.

Data extraction
The author did not state how the data were extracted for the review, or how many reviewers performed the data extraction.

The following data were extracted from the included studies: how the presence of PTSD was determined by the instrument, including any cut-off score, employed and whether this was determined post hoc; the number of items; sample composition, including gender information, size and prevalence of PTSD; and outcome data. When performance data were not all reported, the author calculated them from the information provided.

Methods of synthesis
How were the studies combined?
The studies were grouped by instrument used and combined in a narrative. In addition, the overall mean sensitivity, specificity, PPP, NPP and overall efficiency were calculated, together with the range of values for individual studies.

How were differences between studies investigated?
Differences between the screening instruments and the studies in which they were validated were reported in the data tables and discussed in the text of the review.

Results of the review
Twenty-two studies (n=2,755) that described the validation of 13 different screening instruments were identified.

The prevalence of PTSD in the various studies ranged from 3 to 74%. The mean sensitivity was 0.83 (range: 0.60 to 1.00) and the mean specificity 0.85 (range: 0.60 to 0.97). The mean PPP was 0.70 (range: 0.30 to 0.92, with one outlier 0.07) and the mean NPP 0.90 (range: 0.66 to 1.00). The mean overall diagnostic efficiency was 0.86 (range: 0.77 to 0.97). The vast majority of the scales were symptom based. The performance of several of the screening instruments approached the level of agreement between the SCID and CAPS, although most of the instruments that achieved high performance did so by changing the cut-off scores post hoc and/or having a very low prevalence rate.

The most studied instrument was the PTSD Checklist-Civilian Version, which was evaluated in 4 studies with different populations; the prevalence rates for PTSD ranged from 6 to 45%. The sensitivity ranged from 1 (corresponding specificity 0.92) to 0.60 (corresponding specificity 0.99). Other instruments were evaluated in two or fewer studies.

Only two instruments had been validated on independent samples and had been tested within one year of a traumatic event. Both of these instruments performed well. Two studies using the Impact of Event Scale with a cut-off of 35 reported a sensitivity of 0.89, a specificity of 0.88, a PPP of 0.89, an NPP of 0.88 and an overall efficiency of 0.98 in a mixed trauma population with a 51% prevalence rate of PTSD. In a population of crime victims with a 13% prevalence rate of PTSD, the same study reported a sensitivity of 0.89, a specificity of 0.94, a PPP of 0.67, an NPP of 0.99 and an overall efficiency of 0.94. One study using the Trauma Screening Questionnaire with a cut-off of 6 reported a sensitivity of 0.86, a specificity of 0.93, a PPP of 0.86, an NPP of 0.93 and an overall efficiency of 0.90 in a population of train crash survivors with a 34% prevalence rate of PTSD. The same study reported a sensitivity of 0.76, a specificity of 0.97, a PPP of 0.91, an NPP of 0.92 and an overall efficiency of 0.92 in a population of crime victims with a 27% prevalence rate of PTSD.

The number of studies conducted with any one instrument was small.

On average, the overall efficiency of instruments based on 17 DSM-IV symptoms was 0.85 and the most studied...
instrument was the PTSD Checklist-Civilian Version. Other promising instruments in this group were the Posttraumatic Stress Symptom Scale (Self-Report Version) and the Posttraumatic Stress Diagnostic Scale. In contrast, the overall efficiency of the five briefer instruments was around 89%. Instruments in this group were the Impact of Event Scale, the Startle, Physiological Arousal, Anger, and Numbness items from the Davidson Trauma Scale, the Brief Traumatic Stress Disorder 6-item Scale, the Trauma Screening Questionnaire and the Disaster-Related Psychological Screening Test.

Authors' conclusions
Screening for PTSD using a small number of core symptoms appeared effective, and instruments with fewer items, simpler response scales and simpler scoring methods performed as well as, if not better than, longer and more complex measures.

CRD commentary
This single-author review was poorly reported but addressed a reasonably clear question, defined in terms of the participants, intervention and outcomes. Although specialist databases and journals were searched, it is unclear whether any attempts were made to limit publication bias; language bias is likely since only publications in English were included. The author did not describe how studies were selected, their validity assessed and the data extracted. In addition, study quality was not formally assessed and it was unclear what types of study designs were included in the review (i.e. cohort or case-control studies). The author rightly did not carry out a meta-analysis due to the heterogeneity between studies. However, the findings and conclusions referred to the mean and range of the outcome data across all studies. Given the differences in the instruments, disease prevalence, populations and study designs, these findings could be misleading.

Implications of the review for practice and research
Practice: The author did not state any implications for practice.

Research: The author stated that DSM-IV-based instruments (other than the PTSD Checklist-Civilian Version, Posttraumatic Stress Symptom Scale (Self-Report Version) and the Posttraumatic Stress Diagnostic Scale) require replication using recommended cut-off scores.

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This is a critical abstract of a systematic review that meets the criteria for inclusion on DARE. Each critical abstract contains a brief summary of the review methods, results and conclusions followed by a detailed critical assessment on the reliability of the review and the conclusions drawn.