A systematic review of psychometric assessment of self-harm risk in the emergency department

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CRD summary
This review concluded that many tools to assess the potential for suicide or self harm, in patients in the emergency department, had strong psychometric properties, but there was little evidence to support their use. There was a lack of good quality evidence and large variation across studies, so this cautious conclusion appears to be reliable.

Authors' objectives
To examine the evidence on tools for the assessment of the risk of self harm, in the emergency department, and to evaluate how useful they were for predicting future self harm or hospitalisation.

Searching
MEDLINE, EMBASE, PsycINFO, Scopus, Web of Science, and The Cochrane Library were searched for relevant articles, up to June 2010. Search terms were reported. Grey literature was searched. There were no restrictions by language and publication status.

Study selection
Prospective cohort studies that mainly classified adult patients, treated in the emergency department, into risk groups, based on either clinical or actuarial assessment, were eligible for inclusion. Patients had to be considered to be at-risk of self harm. Relevant outcome variables were the recurrence of self harm or suicidal ideation (prediction of self harm), or the sensitivity and specificity of the prediction of admission.

The studies selected for the review were conducted in the UK, USA, Canada, France, Ireland, or Switzerland. Half of them included paediatric patients. Fifteen different assessment tools were evaluated, across the studies. The cut-off values varied for the prediction of admission; most studies of the prediction of self harm did not report the value.

Two authors independently selected studies for inclusion.

Assessment of study quality
Study quality was assessed using the 14-point QUADAS tool. It was not clear how many researchers extracted the data.

Data extraction
Where reported, sensitivity and specificity were extracted. It seems that odds ratios or hazard ratios, with a measure of variance, were extracted from most studies of repeated self harm. Positive and negative likelihood ratios were extracted from some studies.

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Methods of synthesis
Studies were combined in a narrative synthesis. The synthesis was organised by outcome, with differences between studies discussed in the text. The study details and results were summarised in tables.

Results of the review
Twelve studies were included in the review; the number of participants was not reported. Where reported, follow-up ranged from three weeks to four years (median six months; IQR six months to one year). QUADAS scores ranged from 9 to the maximum possible score of 14.

Prediction of self harm: Ten studies assessed 12 tools. Five of the tools, with sufficient follow-up data, showed significant results. The Manchester Self Harm Rule had a sensitivity of 94% and a specificity of 26%. It detected all 22 suicides that occurred within six months of the index visit. The Violence and Suicide Assessment form had a significant
correlation of 0.41. The Self-Injury Implicit Associations Test had a sensitivity of 50% and specificity of 81%. The Optional Thinking Test was significantly associated with the recurrence of self harm, for patients presenting with a first incidence of self harm, but only 20% of those considered to be at high risk made a second attempt. The Modified Sad Persons Scale found no completed suicides in the group with a low score. The remaining studies either had poor follow-up data, or found no significant difference between their patient groups.

**Prediction of admission:** Four studies assessed eight tools. Six of the eight tools were found to be significant predictors of admission: the Violence and Suicide Assessment form, the Modified Sad Persons Scale, the High Risk Construct Scale, the Severity of Psychiatric Illness System, the Beck Hopelessness Scale, and the Beck Scale for Suicidal Ideation. In general, the reported sensitivities were high, but the specificities were low.

**Authors’ conclusions**
Many tools to assess the potential for suicide or self harm, in patients in the emergency department, had strong psychometric properties, but there was little evidence to support their use.

**CRD commentary**
This review had a clearly defined question for participants, interventions, setting and outcomes of interest. The authors made efforts to identify all the relevant evidence, and to minimise the potential for bias in study selection. They used appropriate criteria to assess quality, but the results were only presented as a summary score, making it impossible to determine which study was prone to which bias. The decision not to statistically pool the included studies appears to have been justified, but the description of the included studies was limited, and the results for one study were missing from table two.

The authors interpreted the results with reference to study quality and clinical utility, so their cautious conclusions are likely to be reliable.

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

**Research:** The authors stated that research into the use of psychometric tools to triage patients, in the emergency department, for clinical assessment, would be more useful than research with admission as the outcome.

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