SHORT REPORT

A comparison between clinicians' assessment and the Manchester Self-Harm Rule: a cohort study

Jayne Cooper, Navneet Kapur, Kevin Mackway-Jones

....

As identifying patients at risk of subsequent suicidal behaviour is a key goal of assessment, a cohort study of presentations to five emergency departments following episodes of self-harm was carried out. We compared the accuracy of the prediction of subsequent self-harm within 6 months between global clinical assessments and the Manchester Self-harm Rule. Sensitivity, specificity, and positive and negative predictive values with 95% confidence intervals (CI) were calculated. Global clinical assessments and the rule had a sensitivity of 85% (CI 83 to 87) versus 94% (CI 92% to 95%), specificity of 38% (CI 37% to 39%) versus 26% (CI 24% to 27%), a positive predictive value of 22% (CI 21% to 23%) versus 21% (CI 19% to 21%) and a negative predictive value of 92% (CI 91% to 93%) versus 96% (CI 94% to 96%). The accuracy of predicting short-term repetition of self-harm by clinicians could be improved by incorporating this simple rule into their assessment.

Official recommendations in the United Kingdom state that all patients who present to the emergency department following an episode of self-harm should receive a psycho-social assessment before discharge.[1][2] Identifying those at risk is a key goal of assessment. Controversy has existed as to whether non-specialist staff can carry out these assessments,[3–5] and although key skills can be taught to non-mental health professionals,[6] it is recognised that junior medical staff do not always receive sufficient training.[1] The development of a risk assessment tool was the subject of our previous paper.[7] The aim of the current paper was to compare the accuracy of global assessments of risk by health professionals with the risk predictions of the Manchester Self-Harm Rule.

METHODS

The Manchester and Salford Self-Harm (MASSH) project is a multicentre self-harm monitoring study that is described in full elsewhere.[7] Data were collected from proformae completed by emergency department clinicians and mental health specialists, following presentation of self-harm at one of the study hospitals, as part of normal clinical practice. The forms included a question requiring the clinician to give a clinical assessment of risk. All junior medical staff were provided with training in risk assessment. The clinicians' assessments of risk in cases of self-harm that presented from 1st September 1997 to 28th February 2001 were divided into two categories: perceived low risk and perceived moderate/high risk (the latter referred to as higher risk in the rest of this paper). Our main outcome was the repetition of self-harm within 6 months of an episode as recorded on the MASSH database ascertained by checking for subsequent presentations with the same name and date of birth. A comprehensive matching process was also used to identify deaths by suicide (International Classification of Diseases, Ninth Revision, code E950–E959) and undetermined cause (E980–E989) during the study period, from hereon

referred to as "suicides", from the National Confidential Inquiry into Suicide and Homicide by People with Mental Illness,[8] obtained from the Office of National Statistics. Non-repeaters were defined as patients with no subsequent self-harm or suicide within 6 months.[7]

We determined the sensitivity and specificity, and positive and negative predictive values of global risk assessments of further self-harm. We compared these global assessments with the performance of a simple screening tool, the Manchester Self-Harm Rule (see box 1), developed from our empirical data.[7]

A sub = analysis was undertaken to assess the clinical utility of specialist mental health staff and emergency department staff assessments.

RESULTS

Data on 9086 of 11 819 episodes were collected over a 3.5-year study period. The median age of patients was 30 years (interquartile range 22–39 years, range 10–98 years) and most episodes of self-harm were carried out by females (5111, 56%). The repetition rate (based on episodes) was 16.9% within 6 months. A global assessment of risk of further self-harm was completed on 8722 of 9086 (96%) episodes during the study period by either emergency department clinicians or mental health specialists. A total of 5736 (66%) episodes were categorised as higher risk and 2986 (34%) as low risk. The false negative rate (those assessed as low risk but who went on to repeat self-harm within 6 months) was 15.3% (226/1481), which included one suicide. This patient died 15 days after the index episode and had been assessed on the previous occasion (by a mental health specialist) as low risk. The Manchester Self-Harm Rule identified 6869 (78%) episodes as higher risk and 1956 (22%) episodes as low risk. The error rate for the Manchester Self-Harm Rule (those assigned to the low risk category who went on to repeat self-harm within 6 months) was 5.6% (84/1506), none of which were suicides. Global assessments by clinicians correctly identified 39 (46%) of these 84 episodes; 180 (80%) of the 226 episodes which clinicians did not correctly identify would have been picked up by the rule (table 1).

Subset analysis showed global assessment by mental health specialists to be 82% (95% confidence interval (CI) 79 to 84%)

Box 1: Manchester Self-Harm Rule

A "yes" to any of the following puts patients in a "high" risk category:

- History of self-harm?
- Previous psychiatric treatment?
- Current psychiatric treatment?
- Benzodiazepine taken as overdose?

Table 1 Global assessment of risk by mental health specialists and emergency department clinicians compared to the Manchester Self-Harm Rule

	Clinicians' performance			Manchester Rule		
	Actual repeater	Actual non-repeater	Total	Actual repeater	Actual non-repeater	Total
Higher risk	1255	4481	5736	1422	5447	6869
Low risk	226	2760	2986	84	1872	1956
Total cases	1481	7241	8722	1506	7319	8825
Sensitivity (95% CI)	85% (83% to 87%)			94% (92% to 95%)		
Specificity (95% CI)	38% (37% to 39%)			26% (24% to 27%)		
Positive predictive value (95% CI)	22% (21% to 23%)			21% (19% to 21%)		
Negative predictive value (95% CI)	92% (91% to 93%)			96% (94% to 96%)		
Proportion high/moderate risk	66%			78%		

Missing data: clinicians did not make an assessment of risk in 364 episodes (4%); there were insufficient data in 261 episodes (3%) to delineate a Manchester Rule category. The data set included 59 suicides (22 within 6 months).
95% CI, 95% confidence interval.

sensitive and 41% (CI 40 to 43%) specific while emergency physicians were 88% (86–90%) sensitive and 31% (29–32%) specific. The Manchester Self-Harm Rule was more sensitive than either.

CONCLUSION

The Manchester Self-Harm Rule performs better than the global clinical assessment of emergency department clinicians or mental health specialists. The rule missed no suicides occurring within 6 months. However, our data do not include subsequent episodes of self-harm by individuals who attend non-participating emergency departments, although data from within the Manchester district suggest that repeated episodes result in presentation to the same emergency departments as the index episodes in 80–90% of cases.[7] The rule sacrifices specificity for the sake of sensitivity and identifies repetition over a relatively short period of time. However, this may be suited to the emergency department environment where the aim is refer on those deemed at higher risk, and safely identify those at low risk for community follow-up.

We suggest that the Manchester Self-Harm Rule improves the accuracy of risk assessment and can be used as an adjunct to inform clinical management. Patients at low risk still need specialist assessment but may be safely discharged with community psychiatric follow-up. The rule was derived from empirical data from a predominantly urban area. We aim to validate the rule elsewhere.

ACKNOWLEDGEMENTS

. . . .

Authors' affiliations
Jayne Cooper, Navneet Kapur, Centre for Suicide Prevention, University of Manchester, Manchester, UK

Kevin Mackway-Jones, Emergency Medicine Research Group, Emergency Department, Manchester Royal Infirmary, Manchester, UK

Correspondence to: Dr Jayne Cooper, Centre for Suicide Prevention, University of Manchester, 7th Floor, Williamson Building, Oxford Road, Manchester M13 9PL, UK; jayne.cooper@manchester.ac.uk

REFERENCES

1 **Royal College of Psychiatrists**. *Assessment following self-harm in adults*, Council Report CR122, October 2004. London: Royal College of Psychiatrists, 2004.
2 **National Collaborating Centre for Mental Health**. *Self-harm: the short-term physical and psychological management and secondary prevention of self-harm in primary and secondary care (full guideline)*, National Clinical Guideline 16. Leicester and London: British Psychological Society and Royal College of Psychiatrists, 2004.
3 **Black D**, Pond D. Management of patients after self-poisoning. *BMJ* 1980;**281**:1141.
4 **Gardner R**, Hanka R, Roberts SJ, et al. Psychological and social evaluation in cases of deliberate self-poisoning seen in an accident department. *BMJ* 1982;**284**:491–3.
5 **Black D**, Creed F. Assessment of self-poisoning patients by psychiatrists and junior medical staff. *J R Soc Med* 1988;**81**:97–9.
6 **Appleby L**, Morriss R, Gask L, et al. An educational intervention for front-line health professionals in the assessment and management of suicidal patients (The STORM Project). *Psychol Med* 2000;**30**:805–12.
7 **Cooper J**, Kapur N, Dunning J, et al. A clinical tool for assessing risk after self-harm. *Ann Emerg Med* 2006;**48**:459–66.
8 **Appleby L**, Shaw J, Sherratt J, et al. Safety first: National Confidential Inquiry into Suicide and Homicide by People with Mental Illness. London: Department of Health, 2001.