

Predicting the risk of repetition after self harm: cohort study

Navneet Kapur, Jayne Cooper, Cathryn Rodway, Joanne Kelly, Else Guthrie, Kevin Mackway-Jones

About one in six people repeat self harm within a year of an episode.¹ Identifying people who are at risk of repetition is a key objective of assessment.² We investigated the predictive value of risk assessments after an episode of self harm and compared assessments made by emergency department staff with those made by psychiatric staff.

Participants, methods, and results

Four hospitals provide emergency care in the cities of Manchester and Salford. As part of the Manchester and Salford self harm project (MASSH) we collected data on all people aged at least 16 who presented with self harm in 1997-2001.³ Doctors in the emergency department and, for those patients who received a psychiatric assessment, mental health staff completed comprehensive assessment forms (which included demographic items as well as details of the self harm episode, past history, and current mental state). The assessor was also asked for a global clinical assessment of the risk of repetition of self harm (low, moderate, or high). We used the MASSH database to determine whether people repeated self harm within 12 months of their first presentation. We calculated sensitivity, specificity, and positive predictive value for emergency department and specialist mental health risk assessments.

Overall, 7612 individuals presented with self harm (10 173 episodes). Emergency department staff were more likely than psychiatric staff to assess the risk of repetition as high (proportion of individuals rated as high risk 19.9% (971/4879) *v* 9.6% (369/3828)). The higher the assessed risk, the greater the likelihood of repetition (table). For both groups, however, most repetitions were among people assessed as at low or moderate risk. Psychiatric assessments had a lower sensitivity but higher specificity and positive predictive value. Repeating the analyses on the 1402 people who received both assessments made little

difference to these results. The agreement between assessments done by the two groups was modest ($\kappa=0.17$). The sensitivity and positive predictive value of assessments by both staff groups was higher for subjects with previous episodes compared with first time presenters (for example, for emergency department assessments sensitivity 37.8% *v* 14.2%).

Comment

The predictive value of risk assessments after self harm was low. Emergency department staff were more cautious in their assessment of risk, rating more people as at high risk of repetition. Consequently, they identified a greater proportion of people who repeated (higher sensitivity), but fewer of those assessed as at high risk actually went on to repeat (lower positive predictive value). This may reflect different processes of assessment but could also be due to the consequences of making a high risk assessment. For emergency department staff such an assessment may necessitate a referral to psychiatric services. For psychiatric staff it generally means attempting to access relatively scarce interventions (such as psychiatric admission).

Risk assessments may have influenced subsequent management. This is unlikely to have had a serious effect on our findings because only a few people receive specialist follow up or admission after self harm,⁴ and the effect of even quite intensive interventions on repetition is small.⁵ Although case ascertainment for the database is good (about 80%), men and those who did not wait for treatment were under-represented in our sample. This study investigated clinical assessment but actuarial risk assessment tools are unlikely to be much better at identifying those who go on to repeat self harm.²

Exclusively high risk approaches to management after self harm are unlikely to be worth while. Restricting intervention to people identified as at high risk, even assuming a completely

Risk assessment and repetition of self harm within 12 months in 7612 patients in Manchester and Salford, 1997-2001

	Emergency department staff assessments		Mental health staff assessments	
Risk of repetition of self harm (repeats/total (%))				
Low	113/1624 (7.0)	χ^2 for trend 113.0, P<0.001	165/1721 (9.6)	χ^2 for trend 77.5, P<0.001
Moderate	326/2284 (14.3)		289/1738 (16.6)	
High	207/971 (21.3)		95/369(25.7)	
Total	646/4879 (13.2)*		549/3828 (14.3)†	
Predictive value of assessments (% (95% confidence interval))				
Sensitivity‡	32.0 (28.4 to 35.6)		17.3 (14.1 to 20.5)	
Specificity§	82.0 (80.8 to 83.1)		91.6 (90.7 to 92.6)	
Positive predictive value¶	21.3 (18.7 to 23.9)		25.7 (21.3 to 30.2)	

*Includes 28 cases of suicide (number in each category: low=6, moderate=12, high=10).

†Includes 18 cases of suicide (number in each category: low=3, moderate=13, high=2).

‡Sensitivity—if someone repeats self harm within 12 months, how likely are they to have been identified as at "high risk" at the initial assessment?

§Specificity—if someone does not repeat self harm within 12 months, how likely are they to have been identified as at "low" or "moderate risk" at the initial assessment?

¶Positive predictive value—what proportion of those identified as at "high risk" at the initial assessment actually go on to harm themselves again within the next 12 months?

What is already known on this topic

Identification of those who are at risk of repetition is considered a key objective of assessment after self harm, but it is unclear how good emergency department and mental health staff are at predicting risk

What this study adds

Emergency department staff may be more cautious in their assessment than specialist staff, rating more people as at high risk of repetition

Exclusively high risk approaches to intervention are unlikely to succeed because of the large numbers of repeaters in the low and moderate risk groups

effective intervention, would prevent fewer than one fifth of repeat episodes. Also, we need further work to improve our understanding of the factors (both individual and organisational) that influence the assessment of risk after self harm.

We thank the staff from the MASSH project for data collection and the clinicians at the participating hospitals for completing the assessment forms. We would also like to thank Roger Webb for statistical advice and Paul Corcoran and Tim Cole for their comments on the manuscript.

Contributors: The initial idea for the study arose from discussions between NK, JC, EG, and KM-J. NK designed the study with input from all authors. JC supervised data collection. CR, JK, and NK did the final data preparation

and analyses. NK produced the initial draft of the paper, and all authors commented on drafts. NK is guarantor.

Funding: Manchester Mental Health and Social Care Trust.

Competing interests: None declared.

Ethical approval: Not needed.

- Owens D, Horrocks J, House A. Fatal and non-fatal repetition of self-harm. Systematic review. *Br J Psychiatry* 2002;181:193-9.
- 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 Practice Guideline 16*. Leicester and London: British Psychological Society and Royal College of Psychiatrists, 2004.
- Taylor C, Cooper J, Appleby L. Is suicide risk taken seriously in heavy drinkers who harm themselves? *Acta Psychiatr Scand* 1999;100:309-11.
- Hawton K, Townsend E, Arensman E, Gunnell D, Hazell P, House A, et al. Psychosocial and pharmacological treatments for deliberate self harm. *Cochrane Database Syst Rev* 1999;(4):CD001764.
- Kapur N, House A, May C, Creed F. Service provision and outcome for deliberate self-poisoning in adults: results from a six centre descriptive study. *Soc Psychiatry Psychiatr Epidemiol* 2003;38:390-5.
(Accepted 14 December 2004)

doi 10.1136/bmj.38337.584225.82

Centre for Suicide Prevention, Department of Psychiatry and Behavioural Sciences, University of Manchester, Manchester M13 9PL

Navneet Kapur *senior lecturer*

Jayne Cooper *research fellow*

Cathryn Rodway *research assistant*

Joanne Kelly *research assistant*

Department of Psychiatry and Behavioural Sciences, Manchester Royal Infirmary, Manchester M13 9WL

Else Guthrie *professor*

Department of Emergency Medicine, Manchester Royal Infirmary

Kevin Mackway-Jones *professor*

Correspondence to: N Kapur nav.kapur@manchester.ac.uk