Online supplement DS1

Risk scales tested in the predicting risk of repeat self-harm cohort study

Scales	Scale details		Assessment method	Items and cut-off points
Manchester Self-Harm Rule[17]	4 items • History of self-harm • Prior psychiatric treatment • Benzodiazepines • Current psychiatric treatment		Taken from clinical interview and notes post assessment	Score of any one indicates moderate/high risk
The ReACT Self-Harm Rule[19]	4 items • Recent self-harm (last year) • Cutting as method • Lives alone or homeless • Current psychiatric treatment		Taken from clinical interview and notes post assessment	Score of any one indicates moderate/high risk
The SAD PERSONS scale[15,42]	10 items • Male gender • Older age • Depression • Previous suicide attempt	• Excess alcohol or substance use • Rational thinking loss • Social supports lacking • Organised plan • No spouse • Sickness	Taken from clinical interview and assessment notes	3 categories of risk: 0–4, 5–6, 7–10 for low, moderate, and high respectively
The Modified SAD PERSONS scale[15,22]	10 items • Male gender • >19<45 • Depression or hopelessness • Previous suicidal attempts or psychiatric care	• Rational thinking loss • Single, widowed or divorced • Organised or serious attempt • No social support	Taken from clinical interview and assessment notes	3 categories of risk, 0–5, 6–8, 9–14, for low, moderate, and high respectively

	• Excessive ethanol or drug use	• Stated future intent	
	•		
The Barratt Impulsiveness Scale[20,23]	30-items based on personality. Responses scored on 4-point likert scale.	Patient completed	30 item self-report. Higher scores indicate greater impulsivity. A cut-off of 97 was used to denote high risk based on Randall et al (2012)[20]
Patient global estimation of risk scale	1–10 likert scale evaluating likelihood of risk of repeat self-harm in the next six months	Patient completed	1–10 scale, mid-point (0–5, 6+) used as the cut-off
Clinician global estimation of risk scale	1- 10 likert scale evaluating likelihood of risk of repeat self-harm in the next six months	Clinicians completed as part of the clinical assessment	1–10 scale, mid-point (0–5, 6+) used as the cut-off

Definitions[13,27,63]

Sensitivity (Sens) – the proportion of people who repeat self-harm and are correctly identified by the scale as high risk

Specificity (Spec) – the proportion of people who do not repeat self-harm and are correctly identified by the scale as low risk

Positive predictive value (PPV) –The probability that the person identified as high risk by the scale actually went on to repeat self-harm

Negative predictive value (NPV) –The probability that the person identified as low risk by the scale actually did not repeat self-harm

Positive Likelihood ratio (LR+) –The increased likelihood of a high-risk scale result in a patient who repeats self-harm versus one who does not

Negative likelihood ratio (LR-) –The decreased likelihood of a low-risk scale result in a patient who repeats self-harm versus one who does not

Diagnostic odds ratio (DOR) –The odds of a high-risk result in a patient who repeats self-harm versus one who does not (interpreted the same as an odds ratio).

Receiver operating characteristic curve (ROC): Graphically shows the overall discrimination ability of a scale to identify patients who repeat self-harm compared with those who do not at various cut-off points (plotted as sensitivity versus 1-specifcity). The performance of the scale is indicated by the calculation of the area under the curve (AUC). Higher AUC indicate greater discriminatory power.

Youden´s J index (J): The difference between true positive rate and false positive rate. It provides the maximum point on the curve for both sensitivity and specificity

Additional reference

63 Schisterman EF, Perkins NJ, Liu A, Bondell H. Optimal cut-point and its corresponding Youden Index to discriminate individuals using pooled blood samples. *Epidemiology* 2005:7 3–81.