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The CORE-10 in screening for current mental health problems and severe mental illness in prisoners

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Abstract

Background: Few mental health screening tools are validated for prisoners. Existing tools do not guide referral into primary or secondary care pathways.

Aims: To assess the CORE-10's performance in screening any current mental health problem and current severe mental illness (SMI) in prisoners.

Method: The CORE-10 was compared against the Mini International Neuropsychiatric Interview version 6.0 (MINI 6.0) and current practice in 150 male prisoners.

Results: ROC analyses against the MINI revealed significant areas under the curve (AUC) for predicting any current mental health problem (AUC .85) and SMI (AUC .76). Sensitivity was .88 and .83 and specificity .64 and .61 for any current mental health problem and SMI, respectively. Re-test reliability was moderate (ICC=.83). The CORE-10 identified many cases that had not been referred for any mental health problem and SMI based on current practice

Conclusions: The CORE-10 has potential for screening severe and mild mental health problems in prisoners.

Keywords: Screening, prisoners, mental illness, CORE-10, MINI 6.0.

Introduction: Untreated mental health problems in prisoners are associated with violence, self-harm, suicide and reoffending (Martin, Colman, Simpson & McKenzie, 2013). Current screening in UK prisons generally takes place on intake and emphasises severe mental illness (SMI) through assessment of historic factors (Grubin, Carson & Parsons, 2002). It does not assess current distress and mild problems. Psychometric tools validated in UK prisons do not have established utility for distinguishing mild and severe mental health as required by the separate primary/secondary care treatment pathways for these conditions. To fill this gap, this study assessed the performance of the CORE-10 (Connell, & Barkham, 2007) in predicting any current mental health problem and SMI in prisoners.

Method: Ethical approvals were from [*anonymized*] University and the National Offender Management Service. Participants were 150 volunteer prisoners from male remand and a resettlement prisons in Wales. This was an opt-in sample so it is not known how many declined to participate. Inclusion criteria were; aged 18 years and entered custody in the previous six months. Exclusion criteria were non-English speakers, 'unsafe to see' or lacking consent capacity.

The CORE-10 was compared against referral to mental health services at any stage since admission. The MINI 6.0 (Sheehan, Lecrubier, Harnett-Sheehan, Janavas, Weiller, Bonara, *et al, 1997)* diagnostic interview was the benchmark. Eighty-one participants completed the CORE-10 again after two weeks for re-test reliability.

SMI was recorded if the MINI showed the following within the last month: current major depressive disorder, bipolar (i), bipolar (ii), bipolar disorder not otherwise specified, mood disorder with psychosis or psychotic disorder. Identification of 'any current mental health disorder'[i] required a positive screen in the last month for: any of the above disorders plus suicidality, manic

[i] All prisoners who screened positive for an SMI, also screened positive for one or more milder mental health problem.

episode, panic disorder (with and without agoraphobia), agoraphobia, social phobia, obsessive compulsive disorder, post traumatic distress disorder and generalised anxiety disorder. Data were also collected about referral since admission to primary and secondary mental health services.

Results: Participants were 18 to 81 years (M = 31.7, SD = 10.8), 92% were white. Fifty-five per cent were sentenced, 29% on remand. CORE-10 scores ranged 0 - 36, M 12.4, SD 8.7, 95% CI 11.0 - 13.8. The MINI identified 27.3% positive for current SMI and 61.3% for any current mental health disorder. Notes showed 61.3% had not been referred, 34.7% had been referred to primary care mental health and 3.3% referred to secondary care at any time since admission.

Against the MINI 'any current mental health', the CORE-10 ROC area under the curve (AUC) = .85. At cut-off >6, sensitivity = .88, specificity = .64, positive predictive value = .79, negative predictive value = .77. For MINI current mental health disorder, 52.7% had been referred to mental health but 47.3% were not. The sensitivity of referral decisions (53%) was poor. The CORE-10 AUC for SMI = .76. At cut-off >10 sensitivity = .83, specificity = .61, positive predictive value = .44, negative predictive value = .90. Of those with a MINI current SMI, 5% had been referred to secondary mental health but 95% had not.

Test re-test reliability (Interclass Correlation) for the CORE-10 was .83.

Discussion: Prevalence of current mental health disorder over the first six months (61.3%) exceeded previous estimates of 54% to 56% in the UK and US (Offender Health Research Network, 2010; Ford, Trestman, Weisbrock & Zhang, 2007). Twenty-seven percent screened positively for current SMI and previous UK results ranged from 28% to 41% (Grubin, Carson & Parsons, 2002; Ford, Trestman, Weisbrock & Zhang, 2007). The CORE-10 demonstrated moderate accuracy[7] (AUC .70 - .90) in distinguishing no mental health needs, any current and severe mental health needs. Its accuracy greatly exceeded current referral practice. It was more sensitive for identifying

all levels of mental health need than the CMHS-M (Ford, Trestman, Weisbrock, & Zhang, 2007) (sensitivity 64 - .75, specificity .70) and GHQ-28 (Andersen, Sestoft, Lillebaek, Gabrielsen, & Hemmingsen, 2002) (sensitivity .65, specificity .69). For the key screening parameter of sensitivity, the CORE-10 exceeded most other tools validated for screening SMI in prisoners including RDS (Teplin & Swartz, 1989) (.79), BJMHS (.34 - .66) (Steadman, Scott, Osher, Agnese & Robbins, 2005) and K6 (Louden, Skeem, & Blevins, 2013) . But was less sensitive than the Grubin (.97) (Grubin, Carson & Parsons, 2002). For specificity, the CORE-10 was less specific than RDS (.98), Grubin (.84) and BJMHS (.74 - .86), but more specific than K6 (.36). Specificity is however less crucial in screening. The CORE-10 demonstrated moderate retest stability despite the significant and variable stressors in custody.

Conclusion: The CORE-10 is brief, simple, considers risk to self, and has minimal training requirements and is freely available. It has potential as a screen for mild and severe mental health problems in the first six months of custody and to identify cases that currently go undetected by current screening practice.

Limitations: Findings were limited by the non-random selection of the sample and measurement at up to six months as opposed to on reception. The sample size did not permit separate analyses for specific conditions. The screening and MINI assessment were not performed blind.

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