

Screening for depression after mild traumatic brain injury

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Objective: To examine the diagnostic utility of depression screening questionnaires after mild traumatic brain injury.

Design: Participants completed questionnaires and underwent a structured psychodiagnostic interview by a blinded assessor in a single session at 3.4 (SD = 1.1) weeks post-injury.

Setting: Concussion clinic in a tertiary rehabilitation center.

Participants: Thirty patients who were highly symptomatic following uncomplicated mild traumatic brain injury.

Interventions: Not applicable.

Main Outcome Measure(s): MINI Neuropsychiatric Interview; Hospital Anxiety and Depression Scale – Depression Subscale (HADS-D); Patient Health Questionnaire – 9 (PHQ-9); Rivermead Post Concussion Symptoms Questionnaire.

Results: Major Depressive Disorder (diagnosed in 48% of the sample) was the true state variable against which questionnaire scores were compared. Area Under the Curve values were .843 (95% CI = 0.699 to 0.987) for the PHQ-9 and 0.945 (95% CI = 0.863 to 1.0) for the HADS-D. The difference between these values was not significant (chi-square(1) = 2.45, $p = 0.12$). The PHQ-9 correlated more strongly with post-concussion symptom severity ($r = .61$, $p < .001$) than did the HADS-D ($r = .39$, $p = .032$). Removing items from the PHQ-9 with post-concussion symptom content overlap improved its discriminant validity ($r = .49$) while maintaining its convergent validity with the HADS-D ($r = .67$), but did not achieve higher diagnostic accuracy. Optimal cut-off scores were consistent with published recommendations for patients with moderate-to-severe traumatic brain injury (12+ for PHQ-9 and 10+ for HADS-D).

Conclusions: Both the PHQ-9 and HADS-D are effective at screening for Major Depressive Disorder after mild traumatic brain injury. Either could be readily incorporated into concussion clinic or primary care triaging assessments.