*i*CAHE JC Critical Appraisal Summary

Journal Club Details

Journal Club location	Hampstead Rehabilitation Centre
JC Facilitator	Michael Snigg
JC Discipline	Occupational Therapy: Brain Injury Rehab

Question

Requested Studies based on previous PICO below:

Review Question/PICO/PACO

P *TBI/ABI – subacute/ community*

I Measure fatigue – (including cognitive, mental and physical)

Client accurately rate fatigue

C *I have used the BNI fatigue scale or just a non standardised1-5 scale (1= no fatigue, 2 = some fatigue, 3 = fatigue, 4=quite fatigued and 5 = very fatigued). Because our clients have difficulty sometimes getting their heads around numbers we have this drawn on line with simple happy to unhappy faces.*

O *To have an accurate measure of fatigue that can be used with brain injured clients that may have cognitive and expressive/receptive language difficulties*

Article/Paper

Wäljas M, Iverson GL, Hartikainen KM, Liimatainen S, Dastidar P, Soimakallio S, Jehkonen M, Ohman J, 2012. **Reliability, validity and clinical usefulness of the BNI fatigue scale in mild traumatic brain injury.**' Brain Inj, 26(7-8):972-8. doi: 10.3109/02699052.2012.660511.

Please note: due to copyright regulations CAHE is unable to supply a copy of the critically appraised paper/article. If you are an employee of the South Australian government you can obtain a copy of articles from the DOHSA librarian.

Article Methodology: Diagnostic

Click here to access critical appraisal tool

International Centre for Allied Health Evidence (iCAHE)

CONTACTS
www.unisa.edu.au/cahe
iCAHE@unisa.edu.au
Telephone: +61 8 830 22099
Fax: +61 8 830 22853

University of South Australia
GPO Box 2471
Adelaide SA 5001
Australia

CRICOS Provider Number 00121B

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Ques No.	Yes	Can't Tell	No	Comments
1	✓			**Was there a clear question for the study to address?** The purpose of this study was to examine the reliability, validity and clinical usefulness of the Barrow Neurological Institute Fatigue Scale (BNI-FS) in patients with mild traumatic brain injuries (MTBI)
2	✓			**Was there a comparison with an appropriate reference standard?** BNI-FD was compared with the Fatigue Impact Scale (FIS), Rivermead Post-Concussion Symptom Questionnaire (RPSQ), EuroQol Five Dimension Visual Analogue Scale (EQ-5D), and Beck Depression Inventory (BDI-II). There is not a set reference standard (e.g. an objective test) due to the fact that fatigue is a self-reported issue. **Is it worth continuing?** **YES**
3	✓			**Did all patients get the diagnostic test and reference standard?** Both the control group and the group with MTBI received both the diagnostic test and the reference standards.
4		✓		**Could the results of the test have been influenced by the results of the reference standard?** As there was no set reference standard, but rather comparing to other validated tests which were not specific to MTBI, we cannot tell if the results of the BNI-FD could be influenced by other tests. It appears unlikely, but cannot be confirmed.
5	✓			**Is the disease status of the tested population clearly described?** Patients were expected to fulfil criteria for an MTBI according to the Mild Traumatic Brain Injury Committee of the Head Injury Interdisciplinary Special Interest Group of the American Congress of Rehabilitation Medicine and the World Health Organization (WHO) Collaborating Center Task Force on Mild Traumatic Brain Injury Inclusion Criteria was as follows: (i) biomechanical force applied to the head, (ii) loss of consciousness, if present, for less than 30 minutes, (iii) Glasgow Coma Scale score between 13–15 after 30 minutes following injury and (iv) post-traumatic amnesia, if present, of less than 24 hours. This sample included patients (n = 17; 13.5%) who had an intracranial abnormality on day-of-injury CT or follow-up MRI (i.e. a complicated MTBI).

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6	✓			**Were the methods for performing the test described in detail?** The BNI Fatigue Scale is an 11-item self-report Reliability of the BNI fatigue scale questionnaire designed to assess fatigue during the early stages of recovery after TBI. Subjects are asked to rate the extent to which each of the 10 primary items has been a problem for them since the injury on a 7-point scale. Response options are as follows: 0–1 = rarely a problem; 2–3 = occasional problem, but not frequent; 4–5 = frequent problem; 6–7 = a problem most of the time. The final item (item 11) asks subjects to provide an overall rating of their level of fatigue on a scale from 0 (no problem) to 10 (severe problem). In this study the total BNIFS score is used which is the sum of all 10 scores (min = 0, max = 70). All the MTBI patients in this study were recruited from the ED of Tampere University Hospital. CT brain scans were performed in all patients within 24 hours of admission. Self-reported fatigue assessments were conducted as part of a more comprehensive neuropsychological evaluation. The average number of days from injury to the interview and questionnaires was 24.1 (SD = 5.4, range = 8–38).
7	✓			**What are the results?** The MTBI group had significantly greater total scores on the BNI-FS than the control group ($p < 0.005$, Cohen's $d = 0.40$). The internal consistency reliability for the BNI-FS, as measured by Cronbach's alpha, was 0.96 for the MTBI group and 0.87 for the control group. The 10 items were submitted to an exploratory principal components factor analysis with varimax rotation in the MTBI group. A one-factor solution, accounting for 73.3% of the total variance, appropriately summarized the data. The correlation between the BNI-FS and other measures was $rs = 0.68$ ($p < 0.001$) for the BDI-II, $rs = 0.68$ ($p < 0.001$) for the RPSQ, $rs = 0.39$ ($p < 0.001$) for the EQ-5D VAS and $rs = 0.84$ ($p < 0.001$) for the FIS. Fatigue ratings correlated positively with number of days post-injury before returning to work ($rs = 0.27$, $p < 0.006$).
8		✓		**How sure are we about the results? (consequences and cost of alternatives performed?)** No consequences or cost of alternatives were performed. The authors do thoroughly address limitations of the study in the discussion.
9	Journal Club to discuss			**Do you believe the results?**

10		**Can the results be applied to the local population?** **CONTEXT ASSESSMENT (please refer to attached document)** – *Infrastructure* – *Available workforce (? Need for substitute workforce?)* – *Patient characteristics* – *Training and upskilling, accreditation, recognition* – *Ready access to information sources* – *Legislative, financial & systems support* – *Health service system, referral processes and decision-makers* – *Communication* – *Best ways of presenting information to different end-users* – *Availability of relevant equipment* – *Cultural acceptability of recommendations* – *Others*
11		**Were all outcomes important to the individual or population considered?** **What would be the impact of using this test on your patients/population?**
12		**Are the benefits worth the harms and costs?**
13		**What do the study findings mean to practice (i.e. clinical practice, systems or processes)?**
14		**What are your next steps?** ***ADOPT, CONTEXTUALISE, ADAPT*** **And then (e.g. evaluate clinical practice against evidence-based recommendations; organise the next four journal club meetings around this topic to build the evidence base; organize training for staff, etc.)**
15		**What is required to implement these next steps?**

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