OXFORD
UNIVERSITY PRESS

Archives of Clinical Neuropsychology 35 (2020) 785

Archives of CLINICAL NEUROPSYCHOLOGY

Abstract

Paper Sessions

Neurological and Neuropsychiatric Disorders: Traumatic Brain Injury & Other

A - 12

The Dimensionality of Symptoms Before and After Sport-Related Concussion

J Karr, G Iverson

Objective: Multiple factor analyses have examined the dimensionality of physical, emotional, and cognitive symptoms both before and after a sport-related concussion. The current study compared model fit and measurement invariance of five candidate factor models, including a one-factor model, original four-factor model (cognitive-sensory, vestibular-somatic, sleep-arousal, and affective), alternative four-factor model (cognitive, physical, sleep-arousal, and affective), five-factor model (cognitive-sensory separated), and bifactor model. Method: Student athletes (N = 1,554; 56.7% boys; age: M = 16.1 ± 1.2) completed the Post-Concussion Symptoms Scale (PCSS) at preseason baseline and after a suspected concussion. Confirmatory factor analyses were conducted at both time points, with pre-injury to post-injury measurement invariance models (configural, weak, strong, and strict) also examined. Model results were assessed via fit indices (CFI ≥ .90/RMSEA≤.08) and change-in-fit indices (ΔCFI ≤ -.01). Results: All models other than the one-factor model showed excellent fit before and after concussion (CFIs>.95/RMSEAs < .06). Based on pre-injury to post-injury invariance analyses, full weak invariance was established for both four-factor and the bifactor models, and partial strict invariance was established for each of these models following modifications. Conclusions: Support for partial strict invariance indicates that meaningful comparisons can be made between factor means before and after concussion for the four-factor and bifactor models, evidencing the validity of a total symptom score and specific symptom subscales before and after concussion. The alternative four-factor model may offer an improved conceptual framework compared to the original four-factor model, which included a non-intuitive cognitive-sensory factor. These findings could support the development of normative scores for PCSS subscales for use in research and clinical practice.

doi:10.1093/arclin/acaa067.12