

than the control group, results reveal several symptom domains in which the level of dysfunction meets clinical significance for the LD group participants only. As such, this study highlights the continued need for the scientific study of risk factors for vulnerable populations to aid in assessment and prevention efforts, especially for youths with LD.

**Categories:** Concussion/Mild TBI (Child)

**Keyword 1:** concussion/ mild traumatic brain injury

**Keyword 2:** learning disabilities

**Keyword 3:** neuropsychological assessment

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## 67 Extending Evidence of Validity for Symptom Severity Classification of the PostConcussion Symptom Inventory (PCSI)

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**Objective:** External validation of symptom severity classification levels for the PostConcussion Symptom Inventory (PCSI).

**Participants and Methods:** Two distinct samples of parents and children, ages 8-18, participated from a: (1) prospective multicenter cohort study (Predicting Persistent Post-concussive Problems in Pediatrics, 5P) (Zemek et al., 2016), including parents (n=2,852), adolescents (n=1,087; mean age=15.13; 54% male), and children (n=1,271; mean age=10.70; 65% male) and (2) published clinic sample at Children's National Hospital (CN) including parents (n=1,197; adolescents, n=835; children, n=326) (Gioia et al., 2019). Participants completed the age-specific Post-Concussion Symptom Inventory (PCSI): Mean time post-injury = 8 hours (5P), 6 days (PCSI2), generating a post-pre-injury difference (RAPID) score. The distribution of the RAPID scores for the Total Symptom and 4 subscales (physical, emotional, cognitive, sleep/fatigue) were

examined to define 4 symptom severity classification levels (minimal – within the CI for recovered, low <20th %tile, moderate 21-79th %tile, high >80th %tile) for the respective samples. These severity distributions were compared between the two distinct datasets.

**Results:** ANOVAs were performed to examine group differences in the mean scores for each of the 4 classification levels. No significant differences were found for all the RAPID score distributions with minimal effect sizes (<.1% variance) for the parents, adolescents and children. PCSI RAPID Total Score ranges for the severity classifications were as follows: Minimal-Parent and adolescent groups 5P<=5, Clinic <=5; Children: 5P<=3, Clinic<=3; Low- Parents 5P 6-15, Clinic 6-13; Adolescents 5P 6-19, Clinic 6-16; Children: 5P 4-7, Clinic: 4-7; Moderate-Parents 5P 16-49, Clinic 14-47; Adolescents 5P 20-56, Clinic 17-51; Children 5P 8-17, Clinic: 8-18; High- Parents: 5P>=50, Clinic >=48; Adolescents 5P >=57, Clinic >=52; Children 5P >=18, Clinic >=19).

**Conclusions:** Our findings reveal a parallel distribution of RAPID scores in the two distinct 5P and Clinic patient populations, yielding nearly identical severity classification level parameters across all five PCSI symptom domains (total score, physical, cognitive, emotional, and sleep/fatigue). The present investigation provides evidence of validity for the use of these severity classification levels across the ED and specialty clinic settings.

**Categories:** Concussion/Mild TBI (Child)

**Keyword 1:** concussion/ mild traumatic brain injury

**Keyword 2:** pediatric neuropsychology

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## 68 The Impact of Pain Catastrophizing on Neuropsychological Performance in Youth with Persistent Post Concussive Symptoms

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**Objective:** Patients with persistent post-concussion symptoms (PPCS) experience prolonged recovery (e.g., headache, fatigue, or dizziness) lasting >2 months post injury. These symptoms are thought to be maintained by several biopsychosocial factors including dysregulated stress responses, such as pain catastrophizing, that may drive behavioral avoidance and contribute to mood symptoms and cognitive difficulties. Conditions with similar symptomatology to PPCS (e.g., anxiety disorders, somatosensory disorders, chronic pain, etc.) also exhibit maladaptive thought patterns like pain catastrophizing as well as decrements in certain aspects of cognitive performance; however little is known about how pain catastrophizing might relate to neuropsychological performance in youth with PPCS. Therefore, the purpose of this study was to examine the relationship between pain catastrophizing and neuropsychological performance in youth participants with PPCS.

**Participants and Methods:** A prospective case-control study design was used to examine 29 participants between the ages of 13 to 23. Participants were divided into two groups: 1) patients with PPCS (2-16 months post-injury; n = 15) and 2) age-matched, non-injured controls (n = 14). Participants completed the Pain Catastrophizing Scale (PCS) to determine degree of catastrophic thinking related to pain experience and the Beck Depression Inventory (BDI). Neuropsychological performance was assessed using the Repeatable Battery for the Assessment of Neuropsychological Status (RBANS) and a modified version of the Paced Auditory Serial Addition Test (PASAT) where performance was evaluated by total correct and error type (i.e., commission and omission) across 5 trials. ANCOVA was used to compare group differences in pain catastrophizing and neuropsychological tests scores while controlling for age and linear regressions examined the relationship between PCS total score and each neuropsychological test score while controlling for level of depression.

**Results:** Overall, the PPCS group reported significantly higher levels of pain catastrophizing on the PCS compared to the control group ( $p < 0.01$ ). For neuropsychological performance, the PPCS group scored significantly lower than the control group on List Learning ( $p < 0.01$ ), Semantic Fluency ( $p < 0.05$ ), and List Recall ( $p < 0.01$ ) on the RBANS and made significantly higher omission errors (but not commission) on the PASAT ( $p < 0.01$ ). Higher pain catastrophizing

was also associated with poorer neuropsychological performance on the exact same tasks the PPCS group performed worse than controls. There was no significant interaction by group in the impact of PCS scores on neurocognitive performance.

**Conclusions:** Compared to controls, youth PPCS patients reported higher levels of pain catastrophizing. Additionally, pain catastrophizing was associated with poorer neuropsychological performance. These findings suggest that increased pain catastrophizing after head injury could contribute to poorer cognitive performance in youth. As such, interventions that target maladaptive cognitive coping styles like pain catastrophizing may be especially helpful for patients with PPCS.

**Categories:** Concussion/Mild TBI (Child)

**Keyword 1:** neuropsychological assessment

**Keyword 2:** pediatric neuropsychology

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## 69 Reducing the Economic Burden of Concussion: A Remote Model of Neuropsychological Care in Rural America

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**Objective:** When neuropsychologists serve as consultants to schools, concussion management programs are associated with fewer referrals, faster cognitive recovery, and reduced incidence of protracted recovery compared to programs with physician consultants. However, accessing neuropsychological services can be challenging due to geographical and financial barriers. Particularly in rural areas, travel associated with post-concussion management can represent as a significant financial and time burden. Increasing accessibility to neuropsychologists has the potential to address these concerns, while also providing quality care to more