



# Responsiveness and discriminant validity of the Child and Adolescent Scale of Participation (CASP) in a US sample of children and youth with Traumatic Brain Injury (TBI) across a 3-year period

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## Introduction

- ❖ Participation of children and adolescents with TBI has been found to be restricted in comparison to typically-developing peers.<sup>1</sup>
- ❖ Follow-up beyond the acute period of recovery is required to assess the impact of TBI over time.<sup>2</sup>
- ❖ The CASP<sup>3</sup> assesses participation of children and adolescents with TBI in home, school and community settings.
- ❖ The CASP has prior reported evidence of reliability and validity evidence.<sup>3-6</sup>
- ❖ Responsiveness of the CASP over time has never been assessed.

### Research Aims

1. To examine the responsiveness of CASP scores among children and youth with TBI and a comparison group with arm injuries across a 3-year period.
2. To examine the differences in CASP scores among children and youth with TBI mild, moderate, severe and arm injuries across a 3-year period (*discriminant validity*).

## Sample & Methods

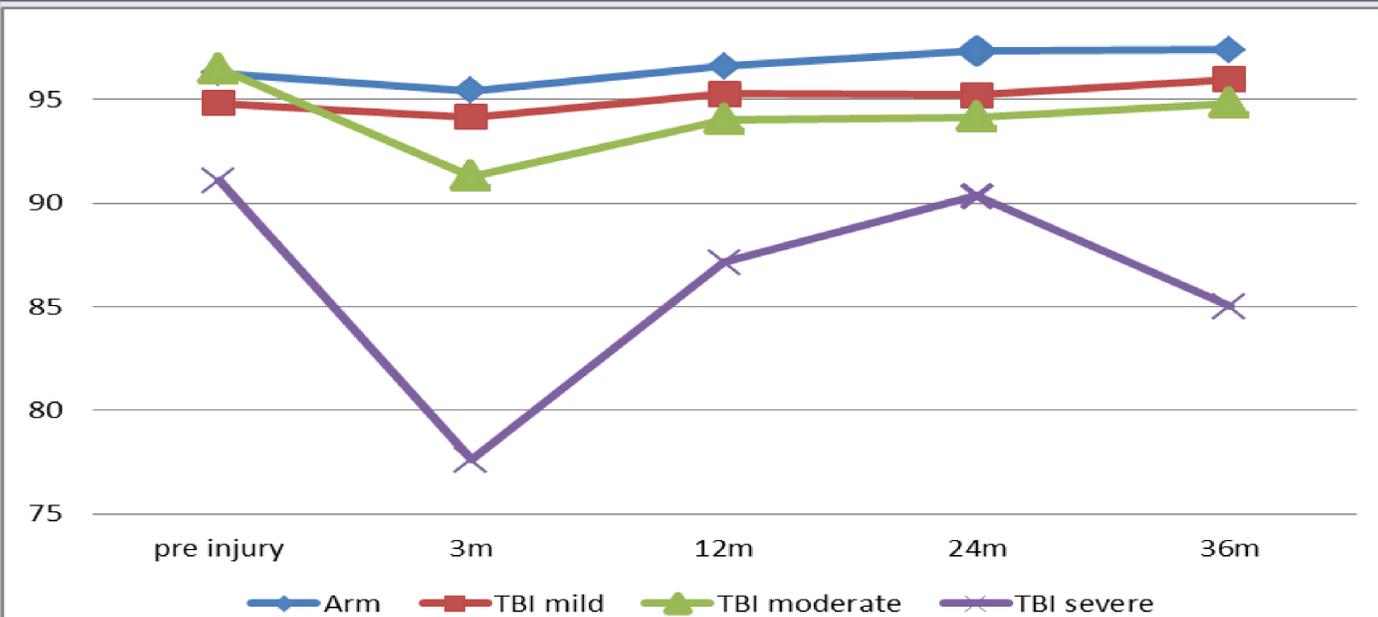
- De-identified data from longitudinal prospective cohort study (10 hospitals in the USA)<sup>7</sup>
- 515 children ages 0-18 years (M = 12.12 years, SD = 3.88): 0-4 (1%), 5-9 (31%), 10-14 (38%), 15-18 years (30%)
- TBI: n=401 (77.9%): *Mild* (69.1%), *Moderate* (7.4%), *Severe* (1.4%); Arm injuries: n=114 (22.1%)
- Male (69.5%), English speakers (95.5%)
- Race/ethnicity: White (73.4%), Hispanic/Latino (6.4%), Black/African American (2.5%); Asian (1.7%); Other (16%)
- ❖ Examined CASP scores (parent-report) at baseline (pre-injury) and 3, 12, 24, and 36 months post-injury
- ❖ Repeated measures analysis of variance ("within-between" model) and Scheffé post-hoc tests

## References

- <sup>1</sup>Anaby, D., Law, M., Hanna, S., & Dematteo, C. (2012). Predictors of change in participation rates following acquired brain injury: Results of a longitudinal study. *Developmental Medicine and Child Neurology*, 54, 339-346.
- <sup>2</sup>Polinder, S., Haagsma, J. A., Van Klaveren, D., Steyerberg, E. W., & Van Beeck, E. F. (2015). Health-related quality of life after TBI: A systematic review of study design, instruments, measurement properties, and outcome. *Population Health Metrics*, 13(4), 3-12.
- <sup>3</sup>Bedell, G. (2004). Developing a follow-up survey focused on participation of children and youth with acquired brain injuries after inpatient rehabilitation. *NeuroRehabilitation*, 19, 191-205.
- <sup>4</sup>Bedell, G. (2009). Further validation of the child and adolescent scale of participation. *Developmental Neurorehabilitation*, 12(5), 342-351.
- <sup>5</sup>McDougall, J., Bedell, G., & Wright, V. (2013). The youth report version of the child and adolescence scale of participation (CASP): assessment of psychometric properties and comparison with parent report. *Child: care, health and development*, 39, 4, 512-522.
- <sup>6</sup>Golos, A., & Bedell, G. (2016). Psychometric properties of the Child and Adolescent Scale of Participation (CASP) across a 3-year period for children and youth with traumatic brain injury. *NeuroRehabilitation* (accepted).
- <sup>7</sup>Rivara, F. P., Vavilala, M. S., Durbin, D., ... & Jaffe, K. M. (2012). Persistence of disability 24 to 36 months after pediatric traumatic brain injury: A cohort study. *Journal of Neurotrauma*, 29, 1-6.

## Results

### Mean CASP scores of TBI and Arm Injury groups over time



- A significant time effect among groups (F = 13.066, p < 0.001)
- A significant interaction effect between time and type of group (F = 2.306, p = 0.014)
- Severe TBI scores significantly (p < 0.001) lower than other groups at all time periods; Medium to large effect sizes (d = 0.473 - 1.133)

## Summary & Conclusions

- CASP was responsiveness to change over time particularly for Severe TBI group (Aim 1):**
- ❖ A pattern of gradual increase in CASP scores over (time except for Severe TBI group).
  - ❖ On average, Arm Injury & Mild TBI returned to pre-injury scores at 36m post-injury.
  - ❖ On average, Moderate & Severe TBI did not return to pre-injury at 36m post-injury.

- CASP differentiated children with more severe from those with milder injury (Aim 2):**
- ❖ Consistent with prior discriminant validity evidence.<sup>4-5</sup>

### Conclusions:

- ❖ Results provide support for use of CASP to assess participation of children and youth with TBI across levels of severity and time.
- ❖ **Limitations:** different factors might have affected the results (unequal representation of sample characteristics, child's age, different hospitals, use of both English and Spanish versions).
- ❖ **Future research** needed with larger sample of children and youth with moderate-severe TBI.

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