

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

Anat Golos, Ph.D. - School of Occupational Therapy of Hadassah and the Hebrew University, Jerusalem, Israel.



Gary Bedell, Ph.D – Tufts University, Department of Occupational Therapy, Medford, MA, USA.



Introduction

- ❖ Participation of children and adolescents with TBI has been found to be restricted in comparison to their typically-developing peers.¹
- ❖ Follow-up beyond the acute period of recovery is required to assess the impact of TBI over time.²
- ❖ The CASP³ assesses participation of children and adolescents with TBI in home, school and community settings.
- ❖ Studies report on the properties of the CASP⁴⁻⁶ including discriminant validity evidence⁴⁻⁵, however responsiveness of the CASP over time has never been assessed.

Objectives

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).

Methods

- ❖ Longitudinal prospective cohort study⁷
- ❖ 10 hospitals
- ❖ 515 children ages 0-18 years
- TBI: n = 401 (77.9%): mild (69.1%), moderate (7.4%), severe TBI (1.4%)
- Arm injuries: n = 114 (22.1%)

Majority: Male (69.5%), White (73.4%), English speakers (95.5%)

- ❖ Pre-injury functioning - 3 – 12 - 24 - 36 months post – injury.

Parents Version

Child and Adolescent Scale of Participation (CASP)³

Participation of children and adolescents with TBI and other acquired brain injuries in home, school and community settings

Repeated measures analysis of variance ("within-between" model) - Scheffé post-hoc tests.

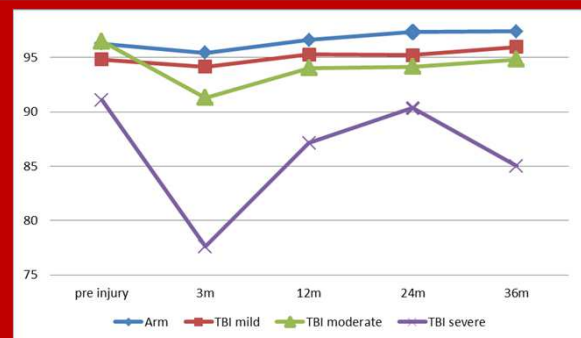
References

- ¹Anaby et al. (2012). Predictors of change in participation rates following acquired brain injury: Results of a longitudinal study. *Developmental Medicine and Child Neurology*, 54, 339-346;
- ²Polinder et al., (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.
- ³Bedell (2004). Developing a follow-up survey focused on participation of children and youth with acquired brain injuries after inpatient rehabilitation. *NeuroRehabilitation*, 19, 191-205; ⁴Bedell (2009). Further validation of the child and adolescent scale of participation. *Developmental Neurorehabilitation*, 12(5), 342-351; ⁵McDougall et al., (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; ⁶Golos & Bedell (2016). Psychometric properties of the Child and Adolescent Scale of Participation (CASP) across a 3- years period for children and youth with traumatic brain injury. *NeuroRehabilitation* (Accepted); ⁷Rivara, et al., (2012). Persistence of disability 24 to 36 months after pediatric traumatic brain injury: A cohort study. *Journal of Neurotrauma*, 29, 1-6.

Acknowledgement: F. P. Rivara, MD., Dept. of Pediatrics, U of Washington, USA.

Results

CASP scores of Arm, TBI mild, TBI moderate, TBI severe groups over time periods.



- ✓ A decrease in scores: pre-injury → 3m post- injury in all groups.
- ✓ A gradual increase in scores: 3m post- injury → 36m post- injury in all groups*

*TBI severe group – A decrease in scores:

24m post- injury → 36m post- injury

- ✓ Arm & TBI Mild groups - 36m post-injury scores higher than pre-injury.
- ✓ TBI Moderate & Severe groups - 36m post-injury scores lower than pre-injury.

- A significant time effect between groups ($F = 13.066, p < 0.001$)
- A significant interaction effect between time and type of group ($F = 2.306, p = 0.014$).

TBI severe – significantly lower than all other groups
Medium-Large effect sizes ($d = 0.473 - 1.133$)

Conclusions

Evidence of the CASP's responsiveness to change over time particularly for the severe TBI group.

- ✓ A pattern of gradual increase in the CASP scores over time for the majority of groups.
- ✓ Majority of Arm & Mild TBI returned to pre-injury and/or higher scores at 36m post-injury.
- ✓ Majority of Moderate & Severe TBI did not return to pre-injury at 36m post-injury.

- ❖ Consistent with prior discriminant validity evidence.⁴⁻⁵

The CASP is able to differentiate children with more severe injuries from those with milder injuries.

- ❖ Support the use of the CASP for assessing participation of children with TBI across levels of severity and time.
- ❖ **Limitations:** different factors might have affected the results (disproportionate sample size, differences associated with each hospital, reporter, using both English and Spanish version).
- ❖ **Future research** necessary with larger samples of moderate-severe TBI.

anat.golos@mail.huji.ac.il; gary.bedell@tufts.edu