

Outcome Measure	Child and Adolescent Scale of Participation (CASP)
Sensitivity to Change	Yes
Population	Paediatrics
Domain	Social Role Participation and Social Competence
Type of Measure	Parent-report measure
ICF-Code/s	d1, d6, d9
Description	<p>The Child and Adolescent Scale of Participation (CASP), which is Section 2 of the Child and Family Follow-up Survey, measures participation in home, school and community at an age-appropriate level in children and adolescents with acquired brain injury.</p> <p>The CASP consists of 20 ordinal-scaled items and four subsections:</p> <ol style="list-style-type: none"> 1) Home Participation (6 items), 2) Community Participation (4 items), 3) School Participation (5 items), and 4) Home and Community Living Activities (5 items). <p>The 20 items are rated on a four-point scale: “Age Expected (Full participation),” “Somewhat Restricted,” “Very Restricted,” “Unable.” A “Not Applicable” response is selected when the item reflects an activity in which the child would not be expected to participate due to age (e.g., work). Most items are applicable to children who are five and older and thus it is suggested that the CASP is used for school-aged children (5 years and older) so that most items and subsections can be completed.</p> <p>Each CASP item examines a broad type of activity or life situation. Most items include examples of activities that fall within the broad life situation. Item, subsection, and total summary scores can be examined for use in research and practice. Higher scores reflect greater age-expected participation. The CASP also includes open-ended questions that ask about effective strategies and supports and barriers that affect participation.</p> <p>The CASP can be used for individualised intervention planning, program evaluation, and multi-site and population-based research. The CASP does not include a demographic section, so additional demographic information (e.g., age, gender, type of disability, facility, geographic location, time since diagnosis) will need to be asked or data from the CASP will need to be linked to databases that include demographic information that is relevant to the clinical, research and/or policy questions being asked.</p>

Properties	<p>OVERVIEW</p> <p>The Child and Adolescent Scale of Participation (CASP) measures the extent to which children participate in home, school, and community activities compared to children of the same age as reported by family caregivers (Bedell, 2004, 2009). It was designed as part of the Child and Family Follow-up Survey (CFFS, Bedell, 2004; Bedell & Dumas, 2004, Galvin, 2010, Wells, 2009) to monitor outcomes and needs of children with traumatic and other acquired brain injuries (ABI). The content and methods used in the CASP and CFFS were informed by the International Classification of Functioning (ICF, WHO, 2001), research addressing participation of children / youth with a range of disabilities and factors related to the child, family and physical and social environment that support and or hinder participation. As well, feedback was obtained by parents of children/youth with ABI and clinical and measurement experts to develop and refine the CASP and CFFS (Bedell, 2004; Bedell, Cohn, & Dumas, 2005; Dumas, Bedell, & Hamill, 2004).</p> <p>ADMINISTRATION</p> <p>The CASP takes about 10 minutes to administer when done separately from the larger follow-up survey (CFFS). There is no specific training to administer the CASP or the CFFS. Those using the CASP or larger CFFS for their specific purposes should be knowledgeable about the content and rating scales used in the CASP, the key concepts being measured (particularly, “participation” and “environmental factors”) as defined in the International Classification of Functioning (WHO, 2001; 2007) and the conceptual and methodological background information and psychometric findings reported in two published articles briefly summarized in the introduction (Bedell, 2004; 2009).</p> <p>There are two ways to administer the parent/guardian - report version of the CASP. Consistency between the two modes of administration has not been examined.</p> <p>Self-Administered (in person or mail survey):</p> <p>The parent or guardian is provided with the CASP in person or via postal mail (or e-mail attachment), asked to complete it on his or her own and then return it to the specific contact person responsible for data coordination (in person or via postal mail). Parents/guardians should be provided with a description of the specific purposes of the project or research being conducted in person or via a cover letter if the CASP or CFFS is sent via postal mail or e-mail. Each institution is responsible for adhering to guidelines for research ethics with human participants (e.g., informed consent procedures) if the CASP or CFFS is used for research purposes.</p>
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Interviewer administered (in-person or by telephone):

The parent or guardian would be administered the CASP in person or by phone using the same version used for self-administration. The interviewer essentially asks the same questions along with the examples provided as they are described in the order in which they are asked on the CASP protocol. Respondents and interviewers are allowed to ask for and provide clarification or further explanation, if needed.

SCORING

There are a number of ways to score the CASP depending on the purpose of the project or research being conducted:

CASP Total Summary Scores: This score is the sum of all “Applicable” items divided by the maximum possible score of applicable items. The maximum possible score if all items were applicable would be: 20 items X 4 = 80. This score then should be multiplied by 100 to conform to a 100-point scale. For example, let’s say the sum of all 20 items was 66. This sum (66) would be divided by 80 (which would equal 0.825) and then multiplied by 100 to obtain a total summary score of 82.5.

CASP Subsection Summary Scores: Subsection summary scores can be used for all four or selected subsections depending on the specific aims of the research or project. Computation of subsection summary scores is essentially the same as for computation of the total summary score. This score is the sum of all “Applicable” items in each subsection divided by the maximum possible score of applicable items in each subsection. The maximum possible score if all items in each subsection were applicable would be: 1) Home Participation, 6 items X 4 = 24; 2) Community Participation, 4 items X 4 = 16; 3) School Participation, 5 items X 4 = 20; and 4) Home and Community Living, 5 items X 4 = 20. This score then should be multiplied by 100 to conform to a 100-point scale. For example, let’s say the sum of all six Home Participation items was 18. This sum (18) would be divided by 24 (which would equal 0.75) and then multiplied by 100 to obtain a Home participation subsection summary score of 75.

CASP Item-level Scores: Item-level scores can be used if interested in responses to or change in specific items (i.e., specific types of life situations or activities) or for comparing item-level responses or change among all or selected CASP items. This score is the rating provided for each item (e.g., 1=Unable to participate, 2=Very limited, 3=Somewhat limited, 4=Age expected / Full participation).

How to address “Not Applicable” responses in the computation of CASP scores is still in development and will be further explored as the next wave of data have been received and analysed. Currently, there are two ways to

address "Not Applicable" responses in the scoring. Most investigators have used the aforementioned guidelines, i.e., they do not include the not applicable item in the scoring. Another option is to first take the average of all items and/or specific subsections and use this as the score for the non applicable item, and then use the aforementioned guidelines for computation of total summary and subsection summary scores. Item and or subsection scores should be the primary scores used when there are many non-applicable items responses, i.e., when the CASP is used with younger children.

The open-ended questions at the end of the CASP can provide useful information to understand factors that might support or hinder the child's participation and elaborate on information that was not obtained from the ordinal-scaled items. This information along with the responses to the ordinal-level responses specific to each child/youth is useful for individualised family-centered planning. As well, information provided to from open-ended questions from a larger group of participants involved in programs or research projects can be content analysed and summarised to inform program, research or policy-related decisions. Responses from each ordinal-scaled item can be aggregated using descriptive statistics to inform similar decisions.

PSYCHOMETRIC PROPERTIES

The CASP has reported evidence of test re-test reliability (Intraclass Correlation Coefficient = 0.94), internal consistency ($\alpha \geq 0.96$) and construct and discriminant validity. Moderate correlations were found between the CASP scores and scores from measures of functional activity performance ($r=0.51$ to 0.75 ; Paediatric Evaluation of Disability Index [PEDI], Haley, Coster, Ludlow, Haltiwanger, & Andrellos, 1998), extent of child impairment ($r=-0.58$ to -0.66 ; Child and Adolescent Factors Inventory [CAFI], Bedell, 2004; 2009) and problems in the physical and social environment ($r= -0.43$ to -0.57 ; Child and Adolescent Scale of Environment [CASE], Bedell, 2004; 2009).

Significant differences in CASP scores were found related to type of disability (Bedell, 2009). As expected, children without disabilities, on average, had significantly higher CASP scores than children with disabilities. No significant differences were found related to age category. Recent results from factor analyses showed three factors contributing 63% of the variance explained: 1) Participation in social, leisure, communication items (50%); 2) Participation in advanced daily living items (7%); 3) Participation in basic daily living and mobility items (6%) (Bedell, 2009). Recent results from Rasch analyses demonstrated that the CASP appears to

	<p>be measuring essentially a uni-dimensional construct. An expected pattern of life situations for which children would find more or less challenging to participate was found. Greater limitations were found in school and community activities requiring more complex cognitive and social skills and lesser limitations were found in more basic and routine home and school activities such as mobility, communication and personal-care. Two of the 20 CASP items (Shopping / Managing Money; Using Transportation) showed minor misfit to the Rasch measurement model (i.e., the actual responses for these two items deviated somewhat from the expected pattern of responses predicted). Thus, further examination of these items is a future area of inquiry.</p> <p>It is important to note, that additional psychometric testing of the CASP with a larger and more diverse sample is currently underway. Additional and more detailed findings will be reported once data have been obtained and analysed from colleagues. Also, the responsiveness of the CASP in detecting change over time or due to intervention has not been examined and will be a focus of future inquiry.</p> <p>The CASP has been translated in Spanish, French, German, Hebrew, and Mandarin. An English and Spanish youth-report version was also designed for a large population-based longitudinal study of children and youth with Traumatic Brain Injury in the USA. Psychometric testing has yet to be conducted for these versions and will be a focus of future inquiry.</p> <p>See Tate (2010) for full details. <i>Internal consistency</i>: $\alpha = .95$ <i>Inter-rater reliability</i> (ICC): no information available <i>Test-retest reliability</i> (ICC): ICC = .94</p> <p>Cronbach's alpha $\alpha=0.96$ (Bedell, 2009) CASP total summary scores significantly correlated with scores from other scales in the directions and with the magnitudes expected (e.g. PEDI, CAFI, CASE- BEDELL, 2009)</p> <p>Children with disabilities as a group had significantly higher CASP scores than children without disabilities (Bedell, 2009)</p>
Advantages	<ol style="list-style-type: none"> 1) Ease of administration 2) Free to download 3) have had some significant findings in our VNI social outcome study
Disadvantages	<ol style="list-style-type: none"> 1) long time for completion 2) not always sensitive to TBI, if in the acute stage is confounded by clinician restrictions in moderate-severe cases 3) no self-report 4) psychometric properties may be problematic

Additional Information	The CASP is a Supplemental measure in the Social Role Participation and Social Competence Domain in McCauley et al. (2012).
Reviewers	Vicki Anderson Cathy Catroppa

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