



NINDS Common Data Element (CDE) Project

Traumatic Brain Injury Version 3.0

Internal Review / Public Review

Psychosocial Modifiers Subgroup Materials

Subgroup Summary

Instruments

- Alcohol Use Disorders Identification Test: Self-Report Version (AUDIT)
- Alcohol, Smoking, and Substance Use Involvement Screening Test (ASSIST)
- Beck Depression Inventory 2 (BDI-2)
- Brief Infant Toddler Social Emotional Assessment (BITSEA)
- Brief Symptom Inventory-18 (BSI-18)
- Center for Epidemiologic Studies-Depression Scale (CES-D)
- Child and Adolescent Scale of Environment (CASE)
- Child and Adolescent Scale of Participation (CASP)
- Child Behavior Checklist (CBCL)
- Child Behavior Checklist (CBCL) for Ages 1.5 to 5 Years
- Child Behavior Checklist (CBCL) Problem Behaviors Subscale
- Child Behavior Checklist (CBCL) Social Competence Scale
- Child Behavior Checklist (CBCL) Teacher Report Form for Ages 6-18
- Children's Affective Liability Scale (CALS)
- Clinician-Administered PTSD Scale (CAPS)
- Comprehensive Test of Phonological Processing (CTOPP)
- Frontal Systems Behavior Scale (FrSBe)
- Gray Oral Reading Test 5th Edition (GORT-5)
- KeyMath-3 Diagnostic Assessment
- Kiddie-Schedule for Affective Disorders and Schizophrenia-Present and Lifetime Version (K-SADS-PL)
- Mullen Scales of Early Learning (MSEL)
- NIH Toolbox Emotion Battery
- Participation Assessment with Recombined Tools-Objective (PART-O)-17
- Patient Health Questionnaire - 9 (PHQ-9) Depression Scale
- Pediatric Evaluation of Disability Inventory (PEDI) Social Functioning Scale
- Pediatric Quality of Life Inventory (PedsQL) Social Subscale
- PTSD Checklist for DSM-5 (PCL-5)
- Screen for Child Anxiety Related Emotional Disorders (SCARED) Child Version
- Screen for Child Anxiety Related Emotional Disorders (SCARED) Parent Version
- Strengths and Difficulties Questionnaire (SDQ) Combined Full and Follow-up Versions
- Strengths and Difficulties Questionnaire (SDQ) Follow-up Version
- Strengths and Difficulties Questionnaire (SDQ) Full Version
- Strengths and Difficulties Questionnaire (SDQ) Single Version
- Test of Word Reading Efficiency 2nd Edition (TOWRE-2)

Instruments Pending Review

- Social Skills Improvement System (SSIS) Social-Emotional Learning Edition (SEL)



NINDS CDE Project Traumatic Brain Injury Version 3.0 Psychosocial Modifiers Subgroup Summary

The NINDS TBI v3.0 Common Data Element (CDE) Psychosocial Modifiers Subgroup reviewed and updated CDEs based on advancements in neuroscientific clinical research.

The Psychosocial Modifiers Subgroup focused on identifying and categorizing psychosocial factors influencing TBI outcomes, recovery trajectories, and rehabilitation effectiveness. This includes social/non-medical determinants of health, mental health conditions, family and caregiver support, socioeconomic status, access to healthcare, and patient-reported psychosocial stressors. These factors may be premorbid or posttraumatic, and either contribute to outcomes or serve to modify the course of the injury. Moreover, the impact of these factors on individual well-being is dynamic and may affect the individual across the lifespan.

The subgroup reassessed both validated instruments and clinical data collection tools for capturing psychosocial variables in TBI populations that contribute to recovery and well-being. This review included patient-reported outcome measures (PROs), self-report questionnaires, and clinician-administered assessments. Special attention was given to tools that measure social and environmental supports and participation restrictions, psychiatric comorbidities (e.g., depression, PTSD, anxiety, substance use disorders), resilience, and barriers to rehabilitation. Additionally, the subgroup expanded its review to include tools evaluating psychosocial risk factors for pediatric and adult TBI populations, considering both acute and long-term recovery phases.

Overlap addressed with other subgroups includes shared psychosocial variables with the Participant Characteristics Subgroup. Specifically, instruments were cross reviewed to avoid redundancy and ensure harmonization across CDEs. The Psychosocial Modifiers Subgroup coordinated with this group to delineate primary and secondary reviewer roles, ensuring a comprehensive and non-duplicative approach to data collection tool recommendations.



Summary of Recommendations

Subdomain	Instrument Name	Classification
Academics	Child Behavior Checklist (CBCL)	Pending Classification
	Comprehensive Test of Phonological Processing (CTOPP)	Pending Classification
	Gray Oral Reading Test 5th Edition (GORT-5)	Pending Classification
	KeyMath-3 Diagnostic Assessment	Pending Classification
	Test of Word Reading Efficiency 2nd Edition (TOWRE-2)	Supplemental
Behavioral Function	Frontal Systems Behavior Scale (FrSBe)	Pending Classification
Family and Environment	Child and Adolescent Scale of Environment (CASE)	Pending Classification
Infant and Toddler Measures	Brief Infant Toddler Social Emotional Assessment (BITSEA)	Pending Classification
	Child Behavior Checklist (CBCL) for Ages 1.5 to 5 Years	Supplemental – Highly Recommended
	Mullen Scales of Early Learning (MSEL)	Pending Classification
Psychiatric and Psychological Status	Alcohol Use Disorders Identification Test: Self-Report Version (AUDIT)	Supplemental
	Alcohol, Smoking, and Substance Use Involvement Screening Test (ASSIST)	Supplemental
	Beck Depression Inventory 2 (BDI-2)	Pending Classification
	Brief Symptom Inventory-18 (BSI-18)	Pending Classification
	Center for Epidemiologic Studies-Depression Scale (CES-D)	Supplemental
	Child Behavior Checklist (CBCL) Problem Behaviors Subscale	Supplemental – Highly Recommended
	Child Behavior Checklist (CBCL) Teacher Report Form for Ages 6-18	Supplemental – Highly Recommended
	Children's Affective Lability Scale (CALS)	Pending Classification
	Clinician-Administered PTSD Scale (CAPS)	Supplemental
	Kiddie-Schedule for Affective Disorders and Schizophrenia-Present and Lifetime Version (K-SADS-PL)	Pending Classification
	NIH Toolbox Emotion Battery	Supplemental
	Patient Health Questionnaire - 9 (PHQ-9) Depression Scale	Supplemental – Highly Recommended
	PTSD Checklist for DSM-5 (PCL-5)	Supplemental
	Screen for Child Anxiety Related Emotional Disorders (SCARED) Child Version	Pending Classification
	Screen for Child Anxiety Related Emotional Disorders (SCARED) Parent Version	Pending Classification
	Strengths and Difficulties Questionnaire (SDQ) Combined Full and Follow-up Versions	Pending Classification



Subdomain	Instrument Name	Classification
	Strengths and Difficulties Questionnaire (SDQ) Follow-up Version	Pending Classification
	Strengths and Difficulties Questionnaire (SDQ) Full Version	Pending Classification
	Strengths and Difficulties Questionnaire (SDQ) Single Version	Pending Classification
Social Role Participation and Social Competence	Child and Adolescent Scale of Participation (CASP)	Pending Classification
	Child Behavior Checklist (CBCL) Social Competence Scale	Supplemental – Highly Recommended
	Participation Assessment with Recombined Tools-Objective (PART-O)-17	Pending Classification
	Pediatric Evaluation of Disability Inventory (PEDI) Social Functioning Scale	Pending Classification
	Pediatric Quality of Life Inventory (PedsQL) Social Subscale	Pending Classification

Instruments Reviewed and Not Recommended for v3.0

Instrument Name	TBI v2.0 Classification	Instrument Selection Criteria Not Met
Children's Motivation Scale (CMS)	Supplemental	Well-established, broadly applicable to the intended population (e.g., adult and/or pediatric), and generally accepted by the scientific community? Crosscutting relevance for population groups as well as diseases and conditions? International harmonization (International applicability)?
Conflict Behavior Questionnaire/Interaction Behavior Questionnaire Report	Supplemental	Standard measurement protocols exist? Rural vs. Urban (Feasibility of Acquisition)?
Craig Handicap and Assessment Reporting Technique (CHART-SF) - Interview version	Basic; Supplemental	Well-established, broadly applicable to the intended population (e.g., adult and/or pediatric), and generally accepted by the scientific community? Rural vs. Urban (Feasibility of Acquisition)? International harmonization (International applicability)?
Craig Handicap and Assessment Reporting Technique (CHART-SF) - Paper version	Basic; Supplemental	Well-established, broadly applicable to the intended population (e.g., adult and/or pediatric), and generally accepted by the scientific community? Rural vs. Urban (Feasibility of Acquisition)? International harmonization (International applicability)?
Family Assessment Device (FAD)	Supplemental	Standard measurement protocols exist? Rural vs. Urban (Feasibility of Acquisition)?
Family Burden of Injury Interview (FBII)	Supplemental	Well-established, broadly applicable to the intended population (e.g., adult and/or pediatric), and generally accepted by the scientific community? Crosscutting relevance for population groups as well as diseases and conditions?



Instrument Name	TBI v2.0 Classification	Instrument Selection Criteria Not Met
Family History Research Diagnostic Criteria (FH-RDC)	Supplemental	Well-established, broadly applicable to the intended population (e.g., adult and/or pediatric), and generally accepted by the scientific community? Broadly validated with demonstrated utility? Specific? Reliable? Standard measurement protocols exist? Low burden to participants and investigators? Crosscutting relevance for population groups as well as diseases and conditions? Rural vs. Urban (Feasibility of Acquisition)? International harmonization (International applicability)?
Family History Research Diagnostic Criteria (FH-RDC) Summary Data Sheet for First Degree Relatives	Supplemental	Clearly Defined? Well-established, broadly applicable to the intended population (e.g., adult and/or pediatric), and generally accepted by the scientific community? Broadly validated with demonstrated utility? Specific? Reliable? Standard measurement protocols exist? Low burden to participants and investigators? Crosscutting relevance for population groups as well as diseases and conditions? Rural vs. Urban (Feasibility of Acquisition)? International harmonization (International applicability)?
Family History Research Diagnostic Criteria Summary Data Sheet for Second Degree Relatives	Supplemental	Clearly Defined? Well-established, broadly applicable to the intended population (e.g., adult and/or pediatric), and generally accepted by the scientific community? Broadly validated with demonstrated utility? Specific? Reliable? Standard measurement protocols exist? Low burden to participants and investigators? Crosscutting relevance for population groups as well as diseases and conditions? Rural vs. Urban (Feasibility of Acquisition)? International harmonization (International applicability)?



Instrument Name	TBI v2.0 Classification	Instrument Selection Criteria Not Met
Interpersonal Negotiations Strategies (INS)	Supplemental	Standard measurement protocols exist? Crosscutting relevance for population groups as well as diseases and conditions? International harmonization (International applicability)?
Minnesota Multiphasic Personality Inventory-2-Restructured Form (MMPI-2-RF) Minnesota Multiphasic Personality Inventory-3-Restructured Form (MMPI-3-RF)	Supplemental	Standard measurement protocols exist? Low burden to participants and investigators?
Modified Overt Aggression Scale (MOAS)	Supplemental	Specific?
Neuropsychiatric Rating Schedule (NRS)	Supplemental	Broadly validated with demonstrated utility? Specific? Low burden to participants and investigators? Crosscutting relevance for population groups as well as diseases and conditions? Rural vs. Urban (Feasibility of Acquisition)? International harmonization (International applicability)?
PTSD Checklist - Civilian (PCL-C)	Supplemental	N/A – replaced by PTSD Checklist for DSM-5 (PCL-5)
PTSD Checklist - Military (PCL-M)	Supplemental	N/A – replaced by PTSD Checklist for DSM-5 (PCL-5)
PTSD Checklist - Stressor Specific (PCL-S)	Supplemental	N/A – replaced by PTSD Checklist for DSM-5 (PCL-5)
Reading the Mind in the Eyes Test-Child Version	Supplemental	Broadly validated with demonstrated utility?
Short Mood and Feelings Questionnaire (SMFQ), Adult version	Supplemental	Well-established, broadly applicable to the intended population (e.g., adult and/or pediatric), and generally accepted by the scientific community?
Short Mood and Feelings Questionnaire (SMFQ), Child version	Supplemental	Well-established, broadly applicable to the intended population (e.g., adult and/or pediatric), and generally accepted by the scientific community?
Short Mood and Feelings Questionnaire (SMFQ), Parent version	Supplemental	Well-established, broadly applicable to the intended population (e.g., adult and/or pediatric), and generally accepted by the scientific community?
Strengths and Difficulties Questionnaire (SDQ) Peer Relations and Pro-social Behavior Subscales	Supplemental	Reliable?
Substance Abuse Questions from the TBI Model Systems Database	Supplemental	Broadly validated with demonstrated utility? Reliable? Crosscutting relevance for population groups as well as diseases and conditions? International harmonization (International applicability)?



Instrument Name	TBI v2.0 Classification	Instrument Selection Criteria Not Met
The UCLA PTSD Index for the DSM-IV UCLA Child/Adolescent PTSD Reaction Index for DSM-5 (PTSD-RI)	Supplemental	Clearly Defined? Well-established, broadly applicable to the intended population (e.g., adult and/or pediatric), and generally accepted by the scientific community? Broadly validated with demonstrated utility? Specific? Reliable? Standard measurement protocols exist? Low burden to participants and investigators? Crosscutting relevance for population groups as well as diseases and conditions? Rural vs. Urban (Feasibility of Acquisition)? International harmonization (International applicability)?
Video Social Inference Test (VSIT)	Supplemental	Well-established, broadly applicable to the intended population (e.g., adult and/or pediatric), and generally accepted by the scientific community? Broadly validated with demonstrated utility? Reliable? Low burden to participants and investigators? Crosscutting relevance for population groups as well as diseases and conditions? Rural vs. Urban (Feasibility of Acquisition)? International harmonization (International applicability)?
Vineland-II Socialization Scale Vineland-III Socialization Scale	Supplemental	Broadly validated with demonstrated utility? Standard measurement protocols exist? Low burden to participants and investigators? Rural vs. Urban (Feasibility of Acquisition)? International harmonization (International applicability)?
Woodcock-Johnson III Test of Cognitive Abilities Woodcock-Johnson IV Test of Cognitive Abilities	Supplemental	Standard measurement protocols exist? Low burden to participants and investigators? Crosscutting relevance for population groups as well as diseases and conditions? International harmonization (International applicability)?

Instruments Pending Review for v3.0

Instrument Name	TBI v2.0 Classification
Social Skills Improvement System (SSIS) Social-Emotional Learning Edition (SEL)	N/A

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Alcohol Use Disorders Identification Test: Self-Report Version (AUDIT)

Availability	Please visit this website for more information about the instrument: Alcohol Use Disorders Identification Test Self Report Version
Classification	<p>NeuroRehab Supplemental – Highly Recommended Recommendations for use: Indicated for studies requiring a measure of behavioral function.</p> <p>Supplemental: Spinal Cord Injury (SCI), SCI-Pediatric (for ages 14 and older), Sport-Related Concussion (SRC) Subacute (after 72 hours to 3 months) and Persistent/Chronic (3 months and greater post-concussion), and Traumatic Brain Injury (TBI)</p>
Short Description of Instrument	<p>The Alcohol Use Disorders Identification Test (AUDIT) consists of 10 items assessing the extent of excessive drinking, signs of dependence and harmful use in the past year.</p> <p>The AUDIT is a self-report measure that can be administered via interview or paper/pencil. Administration time is generally 2-4 minutes.</p>
Comments/Special Instructions	<p>NeuroRehab-Specific: Validated in multiple groups: https://auditscreen.org/publications/validation-in-different-populations</p>
Scoring and Psychometric Properties	<p>Scoring: Scores range from 0 to 40. A total score of 8 or more suggests the possibility of harmful use. Higher scores indicate greater risk for alcohol-related problems.</p> <p>Psychometric Properties: See Bohn et al., 1995 for psychometric properties information.</p>
Rationale/Justification	<p>Sport-Related Concussion-Specific: Well validated and appropriate for adolescents and college-aged individuals. It is a quick 10 question measure that has been validated in women and minorities. High scores correlate with alcohol-related problem behaviors. Good for screening but not diagnostic. It is highly recommended for studies of outcome/prognosis/recovery trajectory. It is simple and efficient assessment. Age Range: Adolescents and young adults.</p> <p>Strengths: Brief, easily administered, and validated assessment of alcohol use.</p> <p>Weaknesses: Limited to alcohol use and does account for co-occurring substance use. Focuses on use within the past year – does not include lifetime use and is not diagnostic.</p>
References	<p>Key Reference(s): Saunders JB, Aasland OG, Babor TF, de la Fuente JR, Grant M. Development of the Alcohol Use Disorders Identification Test (AUDIT): WHO Collaborative Project on Early Detection of Persons with Harmful Alcohol Consumption--II. <i>Addiction</i>. 1993;88(6):791-804.</p>

Additional References:

Allen JP, Litten RZ, Fertig JB, Babor T. A review of research on the Alcohol Use Disorders Identification Test (AUDIT). Alcohol Clin Exp Res. 1997;21(4):613-619.

Bohn MJ, Babor TF, Kranzler HR. The Alcohol Use Disorders Identification Test (AUDIT): validation of a screening instrument for use in medical settings. J Stud Alcohol. 1995;56(4):423-432.

Daeppen JB, Yersin B, Landry U, Pécoud A, Decrey H. Reliability and validity of the Alcohol Use Disorders Identification Test (AUDIT) imbedded within a general health risk screening questionnaire: results of a survey in 332 primary care patients. Alcohol Clin Exp Res. 2000;24(5):659-665.

Kitchens JM. Does this patient have an alcohol problem? JAMA. 1994;272(22):1782-1787.

Knight JR, Sherritt L, Harris SK, Gates EC, Chang G. Validity of brief alcohol screening tests among adolescents: a comparison of the AUDIT, POSIT, CAGE, and CRAFFT. Alcohol Clin Exp Res. 2003;27(1):67-73.

TBI-Specific Reference(s):

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Alcohol, Smoking, and Substance Use Involvement Screening Test (ASSIST)

Availability	Please visit this website for more information about the instrument: Alcohol, Smoking, and Substance Use Involvement Screening Test
Classification	<p>NeuroRehab Supplemental – Highly Recommended Recommendations for use: Indicated for studies requiring a measure of psychiatric/psychological status</p> <p>Supplemental: Sport-Related Concussion (SRC) Persistent/Chronic (3 months and greater post concussion) and Traumatic Brain Injury (TBI)</p> <p>Exploratory: Sport-Related Concussion (SRC) Subacute (after 72 hours to 3 months)</p>
Short Description of Instrument	The Alcohol, Smoking, and Substance Use Involvement Screening Test (ASSIST) consists of eight questions that query use of tobacco, alcohol, cannabis, cocaine, amphetamine-type stimulants, inhalants, sedatives, hallucinogens, opioids and other drugs. For most participants, the measure can be completed within 10 minutes.
Comments/Special Instructions	
Scoring and Psychometric Properties	<p>Scoring: The following scores can be derived: Lifetime Substance Use (with alcohol and tobacco max score=10, without alcohol and tobacco max score=8); Global Continuum of Substance Risk (with alcohol and tobacco max=208, without alcohol/tobacco max=170); Specific Substance Involvement Score (tobacco max score=16, all others max=20); Current Frequency of Substance Use (including alcohol, excluding tobacco and unclassified drugs max score=32, frequency of illicit drug use, excluding alcohol, tobacco and unclassified drugs max score=28, frequency of each individual drug max score=4); Dependence (all substances max score =130, illicit drugs only max=104); and Abuse (all substances max=146, illicit drugs only max=120).</p> <p>Psychometric Properties: The ASSIST provides a structured methodology for evaluating the level of risky use of the full range of substances. It has been validated in health care settings across the world and translated into multiple languages. The ASSIST has been shown to be sensitive to change associated with a brief intervention. The ASSIST risk scores are linked to feedback that may be given to the client and to recommendations regarding level of intervention.</p>
Rational/Justification	<p>Sport-Related Concussion-Specific: Useful for substances other than alcohol. Issues of denial, legal ramifications in certain populations. Highly recommended for studies of outcome/prognosis/recovery trajectory. Assesses impact, not simply exposure. It may be more than needed as a screen.</p> <p>Strengths: Easily administered and provides an evidence-based, validated assessment of substance use.</p>

	Weaknesses: Has not been validated for self-administration and is not diagnostic.
References	Key Reference(s): WHO ASSIST Working Group. The Alcohol, Smoking and Substance Involvement Screening Test (ASSIST): development, reliability and feasibility. <i>Addiction</i> . 2002;97(9):1183-1194. Additional Reference(s): TBI-Specific Reference(s): <i>Document last updated January 2022 December 2025</i>

NINDS CDE Notice of Copyright Beck Depression Inventory 2 (BDI-2)

Availability	Please visit this website for more information about the instrument: Beck Depression Inventory 2
Classification TBI v3.0 Classification Pending	<p>NeuroRehab Supplemental – Highly Recommended Recommendations for use: Indicated for studies requiring a measure of emotional impairment.</p> <p>Supplemental – Highly Recommended: Epilepsy, Myalgic encephalomyelitis/Chronic fatigue syndrome (ME/CFS)</p> <p>Supplemental: Amyotrophic Lateral Sclerosis (ALS), Epilepsy, Headache, Huntington’s Disease (HD), Multiple Sclerosis (MS), Parkinson’s Disease (PD), Sport-Related Concussion (SRC) Subacute (after 72 hours to 3 months) and Persistent/Chronic (3 months and greater post concussion), and Stroke, and Traumatic Brain Injury (TBI)</p> <p>Exploratory: Unruptured Cerebral Aneurysms and Subarachnoid Hemorrhage (SAH)</p>
Short Description of Instrument	The Beck Depression Inventory 2 (BDI-2) is a widely used 21-item self-report inventory measuring the severity of depression in adolescents and adults. The BDI-2 was revised in 1996 to be more consistent with DSM-IV criteria for depression. The BDI-2 differs from the BDI in that individuals are asked to respond to each question based on a two-week time period rather than a one-week timeframe. The BDI-2 also has improved clinical sensitivity with a coefficient alpha equal to .92 (Beck et al., 1996a,b).
Comments/Special Instructions	<p>The BDI-2 is widely used as an indicator of the severity of depression and can be used to support the early identification of depression and diagnosis but should not solely be used as a diagnostic tool. It may be self-administered or given verbally by a trained administrator. A number of studies provide evidence for its reliability and validity across different populations and cultural groups and it has been used in numerous treatment outcome studies and in numerous studies with trauma-exposed individuals (Beck et al., 1996c). The scale administration time is 5 minutes and takes about 1 minute to score. This is a proprietary scale and requires purchase to use. The scale is also available in Spanish.</p> <p>NeuroRehab-Specific: Applicable to the following populations: multiple sclerosis; TBI; ALS; chronic fatigue syndrome; stroke. The BDI-2 has evidence of validity compared to a diagnostic interview in multiple sclerosis. As a proprietary measure, it may require different scoring in some cohorts.</p>
Scoring and Psychometric Properties	<p>Scoring: Each of the 21 items corresponding to a symptom of depression is summed to give a single score for the BDI-2. There is a four-point scale for each item ranging from 0 to 3. On two items (16 and 18) there are seven options to indicate either an increase or decrease in appetite and sleep. Cut-off score guidelines for the BDI-2 are given with the recommendation that thresholds be adjusted based on the characteristics of the sample, and the purpose for use of the BDI-2. Total score of 0-13 is considered minimal range, 14-19 is mild, 20-28 is moderate, and 29-63 is severe. This scale can be scored either manually or using the Pearson proprietary software Q-global.</p> <p>Psychometric Properties: <i>Feasibility:</i> Easy to complete, relatively short compared to interview-based assessments.</p>

	<p>Reliability: 1 week test-retest stability is high (.93). Internal consistency (coefficient alpha) is .92 - .94 depending on the sample.</p> <p>Validity: Construct validity was high when compared to the BDI (.93).</p>
Rationale/Justification	<p>ALS-Specific:</p> <p>Strengths: Easy to use, widely known, results easy to interpret. Item content improved over BDI to increase its correspondence with DSM-IV.</p> <p>Weaknesses: Includes several items assessing physical symptoms which may be elevated in ALS patients due to motor neuron degeneration and not depression. However non-ALS clinical studies have provided evidence of the presence of at least two factors, a cognitive-affective factor and a somatic depressive symptom factor, which is more stable than in the BDI. However, this factor structure requires confirmation in ALS.</p> <p>Sensitivity to Change: Designed to assess mood within the most recent 2-week period, so comparison across assessments should reflect change over time.</p> <p>Relationships to other variables: BDI-2 scores were not correlated with functional disability (ALS Functional Rating Scale-Revised (ALSFRS-R) scores) (Rabkin et al., 2005) in late-stage ALS patients, but did correlate with suffering, anger, perceived caregiver burden, weariness, and negative effect. In non-ALS studies, BDI-2 scores correlate with measures of hopelessness, suicidal ideation and anxiety.</p> <p>Huntington's Disease-Specific:</p> <p>Strengths: The International Parkinson and Movement Disorder Society classified the instrument as "recommended" for screening purposes for HD studies (Mestre et al., 2016).</p> <p>Weaknesses: The instrument has many somatic items that are confounded by HD somatic symptoms and can diagnose depression based on HD symptoms. There is a licensing fee for use.</p> <p>ME/CFS-Specific:</p> <p>Strengths: Useful in ME/CFS because of the differentiation between somatic and affective symptoms. The investigator can ferret out whether mood symptoms exist or whether symptoms can be attributed mainly to the somatic symptoms of the disease. The BDI-2 is a valid and reliable tool to evaluate mood in ME/CFS (Brown et al., 2012).</p> <p>Weaknesses: Investigators should be careful not to attribute elevations to affective reasons only as there is a large overlap with somatic symptoms in ME/CFS patients due to the nature of the disease.</p> <p>Parkinson's Disease-Specific:</p> <p>Strengths: Valid and reliable self-report depression screening tool in PD; Two-factor model of Affective and Somatic subscales is supported in PD (Stohlman et al., 2021). Sensitive to change in severity of depressive symptoms in various treatment-outcome studies involving PD patients.</p> <p>Weaknesses: Some PD patients may have difficulty with response format. Proprietary.</p> <p>Sport-Related Concussion-Specific:</p> <p>Strengths: Widely used and accepted instrument. Quantifies depressive symptoms but is not a diagnostic instrument. Some symptoms overlap with "concussive symptoms". Any study looking at factors contributing to persistent symptoms should use this measure.</p> <p>Age Range: age 13 and older</p>

	<p>TBI-Specific: Widely used, valid and reliable self-administered or given by trained administrator instrument. As with sport-related concussion, some symptoms of depression can overlap with post-concussion symptoms.</p> <p>Strengths: Very widely used. Quick to complete: 5 minutes.</p> <p>Weaknesses: Aligned with DSM-IV and not DSM-5.</p>
References	<p>Key References:</p> <p>Beck AT, Steer RA, Brown GK. Manual for The Beck Depression Inventory Second Edition (BDI-2). San Antonio: Psychological Corporation; 1996a.</p> <p>Beck AT, Steer RA, Brown GK. (1996b). Beck Depression Inventory (BDI-2) [Internet] Accessed 09 November 2023. Available from: https://www.pearsonassessments.com/store/usassessments/en/Store/Professional-Assessments/Personality-%26-Biopsychosocial/Beck-Depression-Inventory/p/100000159.html?tab=overview</p> <p>Beck AT, Steer RA, Brown GK. (1996c). Beck Depression Inventory 2 (BDI-2) [Internet] APA PsycNet Direct Accessed 09 November 2023. Available from: https://psycnet.apa.org/doiLanding?doi=10.1037%2F00742-000</p> <p>Additional References:</p> <p>Beck AT, Steer RA, Ball R, Ranieri W. Comparison of Beck Depression Inventories -IA and -II in psychiatric outpatients. J Pers Assess. 1996 Dec;67(3):588-97.</p> <p>Maizels M, Smitherman TA, Penzien DB. A review of screening tools for psychiatric comorbidity in headache patients. Headache. 2006 Oct;46 Suppl 3:S98-109.</p> <p>Steer RA, Ball R, Ranieri WF, Beck AT. Dimensions of the Beck Depression Inventory-II in clinically depressed outpatients. J Clin Psychol. 1999 Jan;55(1):117-28.</p> <p>Storch EA, Roberti JW, Roth DA. Factor structure, concurrent validity, and internal consistency of the Beck Depression Inventory-Second Edition in a sample of college students. Depress Anxiety. 2004;19(3):187-9.</p> <p>Wang YP, Gorenstein C. Psychometric properties of the Beck Depression Inventory-II: a comprehensive review. Braz J Psychiatry. 2013 Oct-Dec;35(4):416-31.</p> <p>ALS-Specific References:</p> <p>Rabkin JG, Albert SM, Del Bene ML, O'Sullivan I, Tider T, Rowland LP, Mitumoto H. Prevalence of depressive disorders and change over time in late-stage ALS. Neurology. 2005 Jul 12;65(1):62-7.</p> <p>Taylor L, Wicks P, Leigh PN, Goldstein LH. Prevalence of depression in amyotrophic lateral sclerosis and other motor disorders. Eur J Neurol. 2010 Aug;17(8):1047-53.</p> <p>Trail M, Nelson ND, Van JN, Appel SH, Lai EC. A study comparing patients with amyotrophic lateral sclerosis and their caregivers on measures of quality of life, depression, and their attitudes toward treatment options. J Neurol Sci. 2003 May 15;209(1-2):79-85.</p> <p>Huntington's Disease-Specific References:</p> <p>De Souza J, Jones LA, Rickards H. Validation of self-report depression rating scales in Huntington's disease. Mov Disord. 2010 Jan 15;25(1):91-6.</p>

Mestre TA, van Duijn E, Davis AM, Bachoud-Lévi AC, Busse M, Anderson KE, Ferreira JJ, Mahlknecht P, Tumas V, Sampaio C, Goetz CG, Cubo E, Stebbins GT, Martinez-Martin P; Members of the MDS Committee on Rating Scales Development. Rating scales for behavioral symptoms in Huntington's disease: Critique and recommendations. *Mov Disord*. 2016 Oct;31(10):1466-1478.

Smith MM, Mills JA, Epping EA, Westervelt HJ, Paulsen JS; PREDICT-HD Investigators of the Huntington Study Group. Depressive symptom severity is related to poorer cognitive performance in prodromal Huntington disease. *Neuropsychology*. 2012 Sep;26(5):664-9.

ME/CFS-Specific Reference:

Brown M, Kaplan C, Jason L. Factor analysis of the Beck Depression Inventory-II with patients with chronic fatigue syndrome. *J Health Psychol*. 2012 Sep;17(6):799-808.

NeuroRehab-Specific Reference:

Homaifar BY, Brenner LA, Gutierrez PM, Harwood JF, Thompson C, Filley CM, Kelly JP, Adler LE. Sensitivity and specificity of the Beck Depression Inventory-II in persons with traumatic brain injury. *Arch Phys Med Rehabil*. 2009 Apr;90(4):652-6.

Parkinson's Disease-Specific References:

Calleo J, Williams JR, Amspoker AB, Swearingen L, Hirsch ES, Anderson K, Goldstein SR, Grill S, Lehmann S, Little JT, Margolis RL, Palanci J, Pontone GM, Weiss H, Rabins P, Marsh L. Application of depression rating scales in patients with Parkinson's disease with and without co-occurring anxiety. *J Parkinsons Dis*. 2013;3(4):603-8.

Stohlman SL, Barrett MJ, Sperling SA. Factor structure of the BDI-II in Parkinson's disease. *Neuropsychology*. 2021 Jul;35(5):540-546.

Williams JR, Hirsch ES, Anderson K, Bush AL, Goldstein SR, Grill S, Lehmann S, Little JT, Margolis RL, Palanci J, Pontone G, Weiss H, Rabins P, Marsh L. A comparison of nine scales to detect depression in Parkinson disease: which scale to use? *Neurology*. 2012 Mar 27;78(13):998-1006.

Stroke-Specific References:

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Haghgoo HA, Pazuki ES, Hosseini AS, Rassafiani M. Depression, activities of daily living and quality of life in patients with stroke. *J Neurol Sci*. 2013 May 15;328(1-2):87-91.

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TBI-Specific Reference(s):

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Brief Infant Toddler Social Emotional Assessment (BITSEA)

Availability	Please visit this website for more information about the instrument: Brief Infant Toddler Social Emotional Assessment
Classification TBI v3.0 Classification Pending	Supplemental – Highly Recommended: Cerebral Palsy (CP) Supplemental: Mitochondrial Disease (Mito) and Traumatic Brain Injury (TBI)
Short Description of Instrument	<p>The Brief Infant Toddler Social Emotional Assessment (BITSEA) is based on the Infant Toddler Social Emotional Assessment (ITSEA). This screening test assesses social or emotional behavior and is appropriate for children ages 12-36 months old. This test consists of a 44-item parent form. 42 items are related to the child's behavior, emotions, relationships, and development. There are 2 items related to the parent's (or childcare provider's) feelings. The test is divided into 2 domains, a 31 item Problem scale and an 11 item Competence scale. The Problem scale addresses Internalizing (8 items), Externalizing (6 items), and Dysregulation (8 items), behaviors that may indicate autism spectrum disorder (17 items), and other psychopathologies (14 items). In addition to the parent form, there is a childcare provider assessment form.</p> <p>The BITSEA Parent Form takes 5 to 7 minutes to complete as a questionnaire and 7 to 10 minutes as an interview.</p>
Comments/Special Instructions	
Scoring and Psychometric Properties	<p>Scoring: The BITSEA yields a Problem Total Score (range 0-62) and a Competence Total Score (range 0-22) (M=100, SD=15). The response categories for 42 items are: 0 = Not true/ Rarely, 1 = Somewhat true/ Sometimes, and 2 = Very true/ Often. The 2 items addressing the parent's or childcare provider's feelings use a 4-point Likert scale from 1 = Not at all worried to 4 = Very worried. There is also a "no opportunity" code, which allows raters to indicate that they have not had an opportunity to observe the behavior; this code should be used instead of a zero.</p> <p>Higher score is equal to a higher risk of emotional behavioral problems; Lower score is equal to a higher risk of competence deficit/ delay.</p> <p>Psychometric Properties: See Briggs-Gowan et al., 2004 and Briggs-Gowan & Carter, 2006 for psychometric properties information.</p>
Rationale/Justification	Strengths: Briggs-Gowan et al., showed in their 2004 study that the BITSEA is a reliable and valid brief screener for assessing infant-toddler social-emotional and behavioral problems. They also found that when used in a socioeconomic and ethnically diverse community-based population there was good test-retest reliability.

	<p>Weaknesses:</p> <p>TBI-Specific:</p> <p>Strengths:</p> <p>Weaknesses:</p>
<p>References</p>	<p>Key References:</p> <p>Briggs-Gowan, MJ.; Carter, AS. Brief Infant-Toddler Social and Emotional Assessment (BITSEA) manual, version 2.0. New Haven, CT: Yale University; 2002</p> <p>Briggs-Gowan MJ, Carter AS, Irwin JR, Wachtel K, Cicchetti DV. The Brief Infant-Toddler Social and Emotional Assessment: screening for social-emotional problems and delays in competence. J Pediatr Psychol. 2004 Mar;29(2):143-55.</p> <p>Additional References:</p> <p>Briggs-Gowan MJ, Carter AS, Bosson-Heenan J, Guyer AE, Horwitz SM. Are infant-toddler social-emotional and behavioral problems transient? J Am Acad Child Adolesc Psychiatry. 2006 Jul;45(7):849-58.</p> <p>Briggs-Gowan MJ, Carter AS, McCarthy K, Augustyn M, Caronna E, Clark R. Clinical validity of a brief measure of early childhood social-emotional/behavioral problems. J Pediatr Psychol. 2013 Jun;38(5):577-87.</p> <p>Karabekiroglu K, Briggs-Gowan MJ, Carter AS, Rodopman-Arman A, Akbas S. The clinical validity and reliability of the Brief Infant-Toddler Social and Emotional Assessment (BITSEA). Infant Behav Dev. 2010 Dec;33(4):503-9.</p> <p>Pontoppidan M, Niss NK, Pejtersen JH, Julian MM, Væver MS. Parent report measures of infant and toddler social-emotional development: a systematic review. Fam Pract. 2017 Apr 1;34(2):127-137.</p> <p>TBI-Specific Reference(s):</p> <p><i>Document last updated March 2024 December 2025</i></p>

NINDS CDE Notice of Copyright Brief Symptom Inventory-18 (BSI-18)

Availability	Please visit this website for more information about the instrument: Brief Symptom Inventory-18
Classification TBI v3.0 Classification Pending	<p>NeuroRehab Supplemental – Highly Recommended Recommendations for Use: Indicated for studies requiring a measure of other clinical data. Recommended for Sport-Related Concussion (SRC) studies.</p> <p>Supplemental – Highly Recommended: Sport-Related Concussion (SRC) Acute (time of injury until 72 hours)</p> <p>Supplemental: Sport-Related Concussion (SRC) Subacute (after 72 hours to 3 months) and Persistent/Chronic (3 months and greater post concussion) and Traumatic Brain Injury (TBI)</p> <p>Exploratory: Unruptured Cerebral Aneurysms and Subarachnoid Hemorrhage (SAH)</p>
Short Description of Instrument	<p>The Brief Symptom Inventory-18 (BSI-18), a shortened version of the Symptom Checklist-90 (SCL-90), is an 18 item scale with 3 clinical scales (Depression, Anxiety, and Somatization) and an overall Global Severity Index.</p> <p>Proper administration requires that the test taker must be able to see, read and comprehend to respond meaningfully to the items. Average reading difficulty is about the 6th-grade level. Suggested age range is 18 years and older. Computer software administration and scoring is available.</p>
Comments/Special Instructions	
Scoring and Psychometric Properties	<p>Scoring: Normalized T-scores for the 3 Symptom Dimensions (Depression, Anxiety, and Somatization) and the Global Severity Index. Normative comparison groups based on community dwelling adults (n = 1,122; 605 males and 517 females).</p> <p>Psychometric Properties: Profile reports present both raw scores and the normalized T scores. Can be readministered multiple times to same participant to follow progress.</p>
Rationale/Justification	<p>Sport-Related Concussion-Specific: Widely used and accepted instrument for assessing psychological health across several domains (depression, anxiety, somatization). Is not a diagnostic instrument but does have domain scores. Widely used as screen for psychological health problems in primary care. It is highly recommended for studies of outcome/prognosis/recovery trajectory.</p> <p>Strengths: Can be readministered over time to follow progress. Quick to complete. Community norms exist for both healthy community individuals and oncology participants.</p> <p>Weaknesses: Not self-administered. Requires an administrator.</p>
References	Key Reference(s):

Derogatis LR (2001). Brief Symptom Inventory 18 (BSI 18): Administration, Scoring and Procedures Manual. Minneapolis, MN : NCS Pearson, Inc.

Additional Reference(s):

TBI-Specific Reference(s):

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Center for Epidemiologic Studies-Depression Scale (CES-D)

Availability	<p>Please visit this website for more information about the instrument: Center for Epidemiologic Studies-Depression Scale</p>
Classification	<p>NeuroRehab Supplemental – Highly Recommended Recommendations for Use: Indicated for studies requiring a measure of psychological status.</p> <p>Supplemental – Highly Recommended: Mitochondrial Disease (Mito)*, Sport-Related Concussion (SRC) Acute (time of injury until 72 hours) *Recommendations for use: Indicated for studies assessing recent/acute symptoms of depression.</p> <p>Supplemental: Myalgic encephalomyelitis/Chronic fatigue syndrome (ME/CFS), Multiple Sclerosis (MS), Sport-Related Concussion (SRC) Subacute (after 72 hours to 3 months) and Persistent/Chronic (3 months and greater post concussion), Stroke, and Traumatic Brain Injury (TBI)</p> <p>Exploratory: Unruptured Cerebral Aneurysms and Subarachnoid Hemorrhage (SAH)</p>
Short Description of Instrument	<p>Purpose: The Center for Epidemiologic Studies Depression Rating Scale (CES-D) is a widely used screening scale for depression and employed in stroke and cardiovascular health studies. It measures depressive feelings and behaviors occurring in the past week of a participant's patient's life.</p> <p>Overview: The CES-D consists of 20 items, which make up six scales reflecting depressive symptomatology: depressed mood, feelings of guilt and worthlessness, feelings of helplessness and hopelessness, psychomotor retardation, loss of appetite, and sleep disturbance.</p> <p>Time: Evaluation is approximately 5 minutes.</p>
Comments/Special Instructions	<p>The CES-D can be self- or interviewer-administered. The CES-D was developed for use in epidemiology of depressive symptomatology studies in the general population. Items were selected from previously validated scales and cover the major components of depressive symptomatology. The scale is not intended for a clinical diagnosis of depression.</p> <p>NeuroRehab-Specific: Applicable to the following populations: stroke, multiple sclerosis, mild TBI.</p>
Scoring and Psychometric Properties	<p>Scoring: Each item is scored on a 4-point scale ranging from 0 (rarely/none of the time) to 3 (most/all of the time). Scores for items 4, 8, 12, and 16 are reversed before summing all items to yield a total score, which can range from 0–60. Higher scores indicate more depressive symptoms.</p> <p>Psychometric Properties: The measure is reliable for assessing</p>

	number, types, and duration of depressive symptoms across racial, gender, and age categories, and has been reported to have high internal consistency, and has been extensively validated.
Rationale/Justification	<p>Strengths: The internal reliability and consistency is good for all groups tested (race, age, education).</p> <p>Weaknesses: The CES-D is not intended as a clinical diagnostic tool and interpretations of individual scores should not be made. Group means should only be used to reference other groups.</p> <p>Sport-Related Concussion-Specific: Strengths: Widely used screen for depressive symptoms. It is not a diagnostic instrument. Some of the depressive symptoms will overlap with post-concussion symptoms. It is self-administered and very brief screen.</p> <p>Age Range: can be used in adults, as well as children and adolescents (6–17). Less reliable in the younger children.</p>
References	<p>Key Reference: Radloff LS. The CES-D scale: a self-report depression scale for research in the general population. Appl Psychol Meas. 1977 Jun;1(3):385-401.</p> <p>Spanish Language References: McCabe BE, Vermeesch AL, Hall RF, Peragallo NP, Mitrani VB. Acculturation and the Center For Epidemiological Studies-Depression Scale for Hispanic women. Nurs Res. 2011 Jul-Aug;60(4):270-5.</p> <p>Ruiz-Grosso P, Loret de Mola C, Vega-Dienstmaier JM, Arevalo JM, Chavez K, Vilela A, Lazo M, Huapaya J. Validation of the Spanish Center for Epidemiological Studies Depression and Zung Self-Rating Depression Scales: a comparative validation study. PLoS One. 2012;7(10):e45413.</p> <p>ME/CFS-Specific Reference: Hill NF, Tiersky LA, Scavalla VR, Laviates M, Natelson BH. Natural history of severe chronic fatigue syndrome. Arch Phys Med Rehabil. 1999 Sep;80(9):1090-4.</p> <p>NeuroRehab-Specific References: Greeke EE, Chua AS, Healy BC, Rintell DJ, Chitnis T, Glanz BI. Depression and fatigue in patients with multiple sclerosis. J Neurol Sci. 2017 Sep 15;380:236-41.</p> <p>Kennedy JE, Reid MW, Lu LH, Cooper DB. Validity of the CES-D for depression screening in military service members with a history of mild traumatic brain injury. Brain Inj. 2019;33(7):932-40.</p> <p>Stroke-Specific References: Haley WE, Roth DL, Kissela B, Perkins M, Howard G. Quality of life after stroke: a prospective longitudinal study. Qual Life Res. 2011 Aug;20(6):799-806.</p> <p>Kim JH, Park EY. The factor structure of the center for</p>

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Child and Adolescent Scale of Environment (CASE)

Availability	<p>Please visit this website for more information about the instrument: Child and Adolescent Scale of Environment</p> <p>Please email the author for information about obtaining the instrument: Dr. Gary Bedell, gary.bedell@tufts.edu</p>
Classification TBI v3.0 Classification Pending	<p>Supplemental: Cerebral Palsy (CP) and Mitochondrial Disease (Mito) and Traumatic Brain Injury (TBI)</p> <p>Exploratory: Sport-Related Concussion (SRC) Subacute (after 72 hours to 3 months) and Persistent/Chronic (3 months and greater post concussion)</p>
Short Description of Instrument	<p>The Child and Adolescent Scale for Environment (CASE) consists of 18 items that measure environmental problems that might hinder a child's participation at home, school, and in the community. These problems may be physical, social, or attitudinal problems in the community, including lack of resources, crime, and negative perceptions of others. Parents/guardians rate the impact of these problems – no problem, little problem, big problem. The scale is an adaptation of the Craig Hospital Inventory of Environment Factors (CHIEF). The CASE is completed by the parent/guardian and can be administered in about 5 minutes.</p>
Comments/Special Instructions	
Scoring and Psychometric Properties	<p>Scoring: Scores range from 0 to 100, with higher scores reflecting more environment problems and/or a greater impact of problems.</p> <p>Psychometric Properties: Test-retest reliability (Intraclass Correlation Coefficient = .75) and internal consistency (alpha = 0.91; Bedell, 2004; alpha =0.84, recent 9 analyses) and construct/discriminant validity (Bedell, 2004).</p>
Rationale/Justification	<p>Strengths: The CASE can be self-administered or interviewer-administered.</p> <p>"The CASE is a developing instrument with evidence of reliability and validity and has been used in a number of studies with children and youth with traumatic and other acquired brain injuries. The CASE was selected over the CHIEF because the CASE has been used in a number of studies specific to children and youth with TBI and acquired brain injury." – McCauley et al. 2012</p> <p>Weaknesses:</p> <p>Sport-Related Concussion-Specific:</p> <p>Weaknesses: CASE has mostly been evaluated in white English-speaking families, more testing is necessary in diverse populations. Only captures the perspectives of parent/guardians. Age Range: 5 to 17</p>
References	Key References:

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Child and Adolescent Scale of Participation (CASP)

Availability	Please visit this website for more information about the instrument: Child and Adolescent Scale of Participation
Classification TBI v3.0 Classification Pending	<p>Supplemental: Mitochondrial Disease (Mito)-and Traumatic Brain Injury (TBI)</p> <p>Exploratory: Cerebral Palsy (CP), Spinal Cord Injury (SCI)-Pediatric, and Sport-Related Concussion (SRC) Subacute (after 72 hours to 3 months) and Persistent/Chronic (3 months and greater post-concussion)</p>
Short Description of Instrument	<p>The Child and Adolescent Scale of Participation (CASP) is a parent/guardian report that was designed to identify factors that influence a child's participation in activities in multiple settings including home, school, and community. The measure has 20 items which address social and leisure activities, school activities, independent and daily living activities.</p> <p>4 Subsections:</p> <ul style="list-style-type: none"> i. Home Participation (6 items) ii. Community Participation (4 items) iii. School Participation (5 items) iv. Home and Community Living Activities (5 items) <p>The instrument is appropriate for use with school-aged children. The CASP is completed by the parent/guardian and takes 10 to 15 minutes.</p>
Comments/Special Instructions	Self-administration and interviewer administration options.
Scoring and Psychometric Properties	<p>Scoring: Twenty items are rated on a 4-point Likert scale (age expected, somewhat limited, very limited, unable). A score on a 100-point scale is generated by summing the scores, dividing the sum by the sum of all applicable items, and multiplying by 100. Higher scores indicate greater age-expected participation. Subsection scores can also be determined.</p> <p>Psychometric Properties: The CASP has reported evidence of test-retest 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; Pediatric 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).</p>
Rationale/Justification	<p>Strengths: "The CASP has been used in studies with children and youth with TBI in the U.S. and worldwide." - McCauley et al., 2012</p> <p>Translation in Spanish, French, German, Hebrew, and Mandarin.</p>

	<p>Weaknesses: The utility of the CASP for sport-related concussion is not clear. The CASP has been used in one study of pediatric concussion (not sport-related concussion-specific) and did not discriminate between youth with concussion and youth with orthopedic injury.</p>
<p>References</p>	<p>Key References: Bedell G. (2011). The Child and Adolescent Scale of Participation (CASP): Administration and scoring guidelines. Retrieved 22Dec2025, from https://sites.tufts.edu/garybedell/measurement-tools/</p> <p>Bedell G. Further validation of the Child and Adolescent Scale of Participation (CASP). Dev Neuro Rehabil. 2009;12(5):342-51.</p> <p>McDougall J, Bedell G, Wright V. The youth report version of the Child and Adolescent Scale of Participation (CASP): Assessment of psychometric properties and comparison with parent report. Child Care Health Dev. 2013 Jul;39(4):512-22.</p> <p>Additional References: Elliott SN, Gresham FM, Freeman T, McCloskey G. Teacher and Observer Ratings of Children's Social Skills: Validation of the Social Skills Rating Scales. J Psychoeduc Assess. 1988 Jun;6(2):152-61.</p> <p>TBI-Specific References: Bedell GM. Developing a follow-up survey focused on participation of children and youth with acquired brain injuries after discharge from inpatient rehabilitation. NeuroRehabilitation. 2004;19(3):191-205.</p> <p>Bedell GM, Dumas HM. Social participation of children and youth with acquired brain injuries discharged from inpatient rehabilitation: a follow-up study. Brain Inj. 2004 Jan;18(1):65-82.</p> <p>Galvin J, Froude EH, McAleer J. Children's participation in home, school and community life after acquired brain injury. Aus Occup Ther J. 2010 Apr;57(2):118-26.</p> <p>McCauley SR, Wilde EA, Anderson VA, Bedell G, Beers SR, Campbell TF, Chapman SB, Ewing-Cobbs L, Gerring JP, Gioia GA, Levin HS, Michaud LJ, Prasad MR, Swaine BR, Turkstra LS, Wade SL, Yeates KO; Pediatric TBI Outcomes Workgroup. Recommendations for the use of common outcome measures in pediatric traumatic brain injury research. J Neurotrauma. 2012 Mar 1;29(4):678-705.</p> <p>Shultz EL, Hoskinson KR, Keim MC, Dennis M, Taylor HG, Bigler ED, Rubin KH, Vannatta K, Gerhardt CA, Stancin T, Yeates KO. Adaptive functioning following pediatric traumatic brain injury: Relationship to executive function and processing speed. Neuropsychology. 2016 Oct;30(7):830-40.</p> <p>Wells R, Minnes P, Phillips M. Predicting social and functional outcomes for individuals sustaining paediatric traumatic brain</p>

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NINDS CDE Notice of Copyright Child Behavior Checklist (CBCL)

Availability	Please visit this website for more information about the instrument: Child Behavior Checklist
Classification TBI v3.0 Classification Pending	<p>Supplemental – Highly Recommended: Mitochondrial Disease (Mito)</p> <p>Supplemental: Epilepsy and Neuromuscular Diseases (NMD), and Traumatic Brain Injury (TBI)</p> <p>Exploratory: Sport-Related Concussion (SRC)</p>
Short Description of Instrument	<p>Child Behavior Checklist (CBCL): Description: The Child Behavior Checklist (CBCL) measures a child's competencies by using their parent's/caregiver's perception of their performance on three scales, which include activities, social and school. There are separate forms for ages 1.5 to 5 years (CBCL/1.5-5) and 6 to 18 years (CBCL/6-18), as well as separate forms to be filled out by the parent/caregiver or teacher. Scores for three competence scales and a total competence score can be computed.</p> <p>Primary Dependent Measures: Three specific competence scales (Activities, Social, and School) and Total Competence.</p> <p>Time Estimates: 15 minutes</p> <p>Vendor: Achenbach System of Empirically Based Assessment</p>
Comments/Special Instructions	<p>CBCL/1.5-5: The CBCL/1.5-5 obtains caregivers' ratings of 99 problem items and can be completed independently by the caregiver or administered by a professional familiar with the CBCL manual. The test can be completed by paper/pencil, online, or on a scannable form. The entire test, which includes the school competence scale, lasts approximately 25-30 minutes. Skills commensurate with at least a master's degree level in psychology, social work, or special education are recommended for interpretation. The measure also includes open-ended problem-related and strengths-based questions to obtain additional qualitative information.</p> <p>CBCL/6-18: The CBCL/6-18 is designed for children between the ages 6-18 and is available in English and multiple other languages Spanish. It is a 118-item plus two open-ended item checklist asking parents, close relatives and/or guardians asking about the child's competencies and behavioral/ emotional problems.</p> <p>The CBCL/6-18 was revised in 2001 to include new national norms that were collected February 1999-January 2000, including new DSM-oriented scales, and to complement the preschool forms. Completed by the parent/caretaker who spends the most time with the child, the CBCL/6-18 provides ratings for 20 competence and 120 problem items paralleling the Youth Self-</p>

	<p>Report (YSR) (Ebesutani et al., 2011) and the Teacher's Report Form (TRF) (Achenbach & Rescorla, 2001). The CBCL/6-18 also includes open-ended items covering physical problems, concerns, and strengths.</p> <p>Parents rate how true each item is now, or was within the past 6 months, using the same 3- point scale utilized on the YSR and TRF. It is one of the most widely used outcome measures.</p> <p>Adults aged 18-59 can complete the Adult Behavior Checklist (ABCL) (Achenbach et al., 2004).</p>
<p>Scoring and Psychometric Properties</p>	<p>Scoring: The items are rated on a scale of 0 to 2, with "0 being not true (as far as you know)", "1 being somewhat true or sometimes true" and "2 being very true or often true".</p> <p>Permissible values: Raw scores, T scores (M=50, SD=10), and percentiles are given based on test results. The value of T scores for each range varies depending on the scale; in some scales higher T scores are associated with normal functioning and on others lower T scores are associated with normal functioning.</p> <p>CBCL/1.5-5: Items are scored on the following syndrome scales: Emotionally Reactive, Anxious/Depressed, Somatic Complaints, Withdrawn, Attention Problems, Aggressive Behavior, and Sleep Problems. Items are also scored on the following DSM-oriented scales: Affective Problems, Anxiety Problems, Pervasive Developmental Problems, Attention Deficit/Hyperactivity Problems, Stress Problems, Autism Spectrum Problems, and Oppositional Defiant Problems.</p> <p>CBCL/6-18: This scale has several sub scores, including Aggressive Behavior, Anxious/Depressed, Attention Problems, Delinquent Rule-Breaking Behavior, Social Problems, Somatic Complaints, Thought Problems, Withdrawn, Externalizing, Internalizing, Total Problems, plus DSM-oriented scales. The CBCL/6-18 yields scores on internalizing, externalizing, and total problems as well as scores on DSM-IV related scales.</p> <p>Psychometric Properties: CBCL/1.5-5: The CBCL/1.5-5 psychometric norms are based on ratings of 1,728 children normed on a national (US) sample of 700 children (National Child Traumatic Stress Network, 2023a). It has good reliability (Achenbach & Rescorla, 2000) and validity (Ha et al., 2011; Ivanova et al., 2010; Pandolfi et al., 2009; Tan et al., 2007). See Achenbach and Rescorla (2000) for test-retest reliability and content validity information.</p> <p>CBCL/6-18: The CBCL/6-18 psychometric norms are based on ratings of 1,753 children from 40 US states. Two age groups were constructed (6-11) and (12-18) and genders were separated. (National Child Traumatic Stress Network, 2023b) It has good reliability and validity (Achenbach & Rescorla, 2001). See Achenbach and Rescorla (2001) for reliability and validity information.</p>
<p>Rationale/Justification</p>	<p>Rationale: "The CBCL School Competence subscale asks</p>

	<p>parents to rate their child's performance in several academic subjects from failing to above average, and children with TBI have been rated as having lower academic performance than typically developing children." - McCauley et al., 2012.</p> <p>Strengths: The scale has several sub scores, including Aggressive Behavior, Anxious/Depressed, Attention Problems, Delinquent Rule-Breaking Behavior, Social Problems, Somatic Complaints, Thought Problems, Withdrawn, Externalizing, Internalizing, Total Problems, plus DSM-oriented scales. Assessments can be completed in multiple environments in home by caregiver and in school by teachers. The assessment is well researched and widely used and is inexpensive to administer and score (National Child Traumatic Stress Network, 2023b).</p> <p>Weaknesses: The CBCL is a long assessment that can be time consuming to complete. There is the potential for self-report bias and there is no assessment of profile validity (National Child Traumatic Stress Network, 2023a,b; Aebi et al., 2010). The CBCL is only available in English and Spanish and has not been specifically utilized in the Spanish population and as such its psychometric properties for this group are therefore unknown.</p> <p>Sport-Related Concussion-Specific: The CBCL is very well studied and has been used in pediatric concussion studies but not specifically in sport-related concussion studies. In more recent studies of mild TBI, it has been used to identify premorbid behavioral or emotional risk factors rather than post-injury effects. The School Competence Scale is part of the Total Competence Score of the CBCL and examines academic functioning with respect to performance in various subjects and implementation any academic interventions. CBCL Total Competence Score has been studied as a predictor of outcome in a pediatric ED concussion population (not specific to sport concussion). Teacher form not used as extensively as the parent measure.</p> <p>Mitochondrial Disease-Specific: Not validated in people with mitochondrial disorders, however children and adults with mitochondrial disorders are at risk for behavioral disturbances, therefore it may be a useful tool. The CBCL has been used as a screening tool for social and emotional problems with similar types of multi-systemic disorders, congenital disorders of glycosylation that have primary neurological involvement.</p>
<p>References</p>	<p>Key References:</p> <p>Achenbach, T. (1991). <i>Manual for Child Behavior Checklist/ 4-18 and 1991 Profile</i>. Burlington, VT: University of Vermont, Dept. of Psychiatry.</p> <p>Achenbach, T.M., & Rescorla, L.A. (2000). <i>Manual for the ASEBA Preschool Forms & Profiles</i>. Burlington, VT: University of Vermont, Research Center for Children, Youth, & Families.</p> <p>Achenbach, T.M., & Rescorla, L.A. (2001). <i>Manual for the ASEBA School-Age Forms & Profiles</i>. Burlington, VT: University of Vermont, Research Center for Children, Youth, & Families.</p>

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National Child Traumatic Stress Network. (2023b) Child Behavior Checklist for ages 6-18. Retrieved 07Dec2023 from <https://www.nctsn.org/measures/child-behavior-checklist-ages-6-18>

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NINDS CDE Notice of Copyright

Child Behavior Checklist (CBCL) for Ages 1.5 to 5 Years

Availability	Please visit this website for more information about the instrument: Child Behavior Checklist for Ages 1.5 to 5 Years
Classification	<p>Supplemental – Highly Recommended: Traumatic Brain Injury (TBI)</p> <p>Exploratory: Sport-Related Concussion (SRC)</p>
Short Description of Instrument	The Child Behavior Checklist (CBCL) measures a child's competencies by using their parent's perception of their performance on three scales, which include activities, social and school. Separate forms for ages 1.5 to 5 years and 6 to 18 years, as well as separate forms to be filled out by the parent/caregiver or teacher, are available. Scores for three competence scales and a total competence score can be computed.
Comments/Special Instructions	The CBCL has two sets of forms, for ages 1.5 to 5 and ages 6 to 18.
Scoring and Psychometric Properties	<p>Scoring: Raw scores, T scores (M=50, SD=10), and percentiles are given based on test results. The value of T scores for each range varies depending on the scale; in some scales higher T scores are associated with normal functioning and on others lower T scores are associated with normal functioning.</p> <p>Psychometric Properties:</p>
Rationale/Justification	<p>"The CBCL School Competence subscale asks parents to rate their child's performance in several academic subjects from failing to above average, and children with TBI have been rated as having lower academic performance than typically developing children" (McCauley et al., 2012).</p> <p>Strengths:</p> <p>Weaknesses:</p>
References	<p>Key Reference(s): Achenbach, T. (1991). Manual for Child Behavior Checklist/ 4-18 and 1991 Profile. University of Vermont, Dept. of Psychiatry: Burlington, VT.</p> <p>Additional Reference(s): Reynolds, CR., Fletcher-Janzen, E. (2007). Encyclopedia of Special Education. John Wiley & Sons: Inc. Hoboken, New Jersey.</p> <p>TBI-Specific References: Ewing-Cobbs L, Barnes M, Fletcher JM, Levin HS, Swank PR, Song J. Modeling of longitudinal academic achievement scores after pediatric traumatic brain injury. Dev Neuropsychol. 2004;25(1-2):107-33.</p>

Fletcher JM, Ewing-Cobbs L, Miner ME, Levin HS, Eisenberg HM. Behavioral changes after closed head injury in children. J Consult Clin Psychol. 1990 Feb;58(1):93-8.

McCauley SR, Wilde EA, Anderson VA, Bedell G, Beers SR, Campbell TF, Chapman SB, Ewing-Cobbs L, Gerring JP, Gioia GA, Levin HS, Michaud LJ, Prasad MR, Swaine BR, Turkstra LS, Wade SL, Yeates KO; Pediatric TBI Outcomes Workgroup. Recommendations for the use of common outcome measures in pediatric traumatic brain injury research. J Neurotrauma. 2012 Mar 1;29(4):678-705.

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Child Behavior Checklist (CBCL) Problem Behaviors Subscale

Availability	Please visit this website for more information about the instrument: Child Behavior Checklist Problem Behaviors Subscale
Classification	<p>Supplemental – Highly Recommended: Traumatic Brain Injury (TBI)</p> <p>Exploratory: Sport-Related Concussion (SRC)</p>
Short Description of Instrument	<p>The Child Behavior Checklist (CBCL) measures a child's competencies by using their parent's perception of their performance on three scales, which include activities, social and school. Separate forms for ages 1.5 to 5 years and 6 to 18 years, as well as separate forms to be filled out by the parent/caregiver or teacher, are available. Scores for three competence scales and a total competence score can be computed.</p> <p>The CBCL can be completed independently by the caregiver or administered by a professional familiar with the CBCL manual. Test can be completed by paper/pencil, online, or on a scannable form. The entire test, which includes the school competence scale, lasts approximately 25-30 minutes. Skills commensurate with at least a Master's degree level in psychology, social work, or special education are recommended for interpretation.</p>
Comments/Special Instructions	
Scoring and Psychometric Properties	<p>Scoring: Raw scores, T scores (M=50, SD=10), and percentiles are given based on test results. The value of T scores for each range varies depending on the scale; in some scales higher T scores are associated with normal functioning and on others lower T scores are associated with normal functioning.</p> <p>Psychometric Properties:</p>
Rationale/Justification	<p>Strengths:</p> <p>Weaknesses:</p>
References	<p>Key Reference(s): Achenbach, T. (1991). Manual for Child Behavior Checklist/ 4-18 and 1991 Profile. University of Vermont, Dept. of Psychiatry: Burlington, VT.</p> <p>Additional Reference(s): Reynolds, CR., Fletcher-Janzen, E. (2007). Encyclopedia of Special Education. John Wiley & Sons: Inc. Hoboken, New Jersey.</p> <p>TBI-Specific References: Ewing-Cobbs L, Barnes M, Fletcher JM, Levin HS, Swank PR, Song J. Modeling of longitudinal academic achievement scores</p>

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Child Behavior Checklist (CBCL) Social Competence Scale

Availability	Please visit this website for more information about the instrument: Child Behavior Checklist Social Competence Scale
Classification	Supplemental – Highly Recommended: Traumatic Brain Injury (TBI)
Short Description of Instrument	<p>The Child Behavior Checklist (CBCL) measures a child's competencies by using their parent's perception of their performance on three scales, which include activities, social and school. Separate forms for ages 1.5 to 5 years and 6 to 18 years, as well as separate forms to be filled out by the parent/caregiver or teacher, are available. Scores for three competence scales and a total competence score can be computed.</p> <p>The CBCL has two sets of forms, for ages 1.5 to 5 and ages 6 to 18.</p> <p>The CBCL can be completed independently by the caregiver or administered by a professional familiar with the CBCL manual. Test can be completed by paper/pencil, online, or on a scannable form. The entire test, which includes the school competence scale, lasts approximately 25-30 minutes. Skills commensurate with at least a Master's degree level in psychology, social work, or special education are recommended for interpretation.</p>
Comments/Special Instructions	
Scoring and Psychometric Properties	<p>Scoring: Raw scores, T scores (M=50, SD=10), and percentiles are given based on test results. The value of T scores for each range varies depending on the scale; in some scales higher T scores are associated with normal functioning and on others lower T scores are associated with normal functioning.</p> <p>Psychometric Properties:</p> <p>Reliability Information on test-retest reliability and Cronbach's alphas are available from the author (Achenbach, 1991).</p> <p>Validity Evidence for content, construct, and criterion-related validity is well documented.</p>
Rationale/Justification	<p>Strengths:</p> <p>Weaknesses:</p>
References	<p>Key Reference(s): Achenbach, T. (1991). Manual for Child Behavior Checklist/ 4-18 and 1991 Profile. University of Vermont, Dept. of Psychiatry: Burlington, VT.</p> <p>Additional Reference(s): Reynolds, CR., Fletcher-Janzen, E. (2007). Encyclopedia of Special Education. John Wiley & Sons: Inc. Hoboken, New Jersey.</p> <p>TBI-Specific References:</p>

Ewing-Cobbs L, Barnes M, Fletcher JM, Levin HS, Swank PR, Song J. Modeling of longitudinal academic achievement scores after pediatric traumatic brain injury. Dev Neuropsychol. 2004;25(1-2):107-33.

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Child Behavior Checklist (CBCL) Teacher Report Form for Ages 6-18

Availability	Please visit this website for more information about the instrument: Child Behavior Checklist Teacher Report Form for Ages 6-18
Classification	Supplemental – Highly Recommended: Traumatic Brain Injury (TBI) Exploratory: Sport-Related Concussion (SRC)
Short Description of Instrument	<p>The Child Behavior Checklist (CBCL) measures a child's competencies by using their parent's perception of their performance on three scales, which include activities, social and school. Separate forms for ages 1.5 to 5 years and 6 to 18 years, as well as separate forms to be filled out by the parent/caregiver or teacher, are available. Scores for three competence scales and a total competence score can be computed.</p> <p>The Teacher's Report Form is completed by the child's teacher and obtains information related to the child's behavior in a classroom setting.</p>
Comments/Special Instructions	
Scoring and Psychometric Properties	<p>Scoring: Raw scores, T scores (M=50, SD=10), and percentiles are given based on test results. The value of T scores for each range varies depending on the scale; in some scales higher T scores are associated with normal functioning and on others lower T scores are associated with normal functioning.</p> <p>Psychometric Properties:</p>
Rationale/Justification	<p>Strengths:</p> <p>Weaknesses:</p>
References	<p>Key Reference(s): Achenbach, T. (1991). Manual for Child Behavior Checklist/ 4-18 and 1991 Profile. University of Vermont, Dept. of Psychiatry: Burlington, VT.</p> <p>Additional Reference(s): Reynolds, CR., Fletcher-Janzen, E. (2007). Encyclopedia of Special Education. John Wiley & Sons: Inc. Hoboken, New Jersey.</p> <p>TBI-Specific References: Ewing-Cobbs L, Barnes M, Fletcher JM, Levin HS, Swank PR, Song J. Modeling of longitudinal academic achievement scores after pediatric traumatic brain injury. Dev Neuropsychol. 2004;25(1-2):107-33.</p> <p>Fletcher JM, Ewing-Cobbs L, Miner ME, Levin HS, Eisenberg HM. Behavioral changes after closed head injury in children. J Consult Clin Psychol. 1990 Feb;58(1):93-8.</p> <p><i>Document last updated March 2018 December 2025</i></p>

NINDS CDE Notice of Copyright Children's Affective Liability Scale (CALS)

Availability	Please visit this website for more information about the instrument: Children's Affective Liability Scale
Classification TBI v3.0 Classification Pending	Supplemental: Traumatic Brain Injury (TBI)
Short Description of Instrument	The Children's Affective Liability Scale (CALS) contains twenty items and assesses affect regulation. It is completed by the child's parent.
Comments/Special Instructions	
Scoring and Psychometric Properties	<p>Scoring: Twenty items are answered on a five-level (0 to 4) scale for a total possible score ranging from 0 to 80. Lower scores indicate less affective liability.</p> <p>Psychometric Properties: See Gerson et al., 1996 for psychometric properties information.</p>
Rationale/Justification	<p>Strengths:</p> <p>Weaknesses:</p>
References	<p>Key Reference(s): Gerson AC, Gerring JP, Freund L, Joshi PT, Capozzoli J, Brady K, Denckla MB. The Children's Affective Liability Scale: a psychometric evaluation of reliability. Psychiatry Res. 1996 Dec 20;65(3):189-198.</p> <p>Additional Reference(s):</p> <p>TBI-Specific Reference(s):</p> <p>Document last updated February 2018 December 2025</p>

NINDS CDE Notice of Copyright Clinician-Administered PTSD Scale (CAPS)

Availability	Please visit this website for more information about the instrument: Clinician-Administered PTSD Scale
Classification	<p>Supplemental: Traumatic Brain Injury (TBI)</p> <p>Exploratory: Unruptured Cerebral Aneurysms and Subarachnoid Hemorrhage (SAH)</p>
Short Description of Instrument	<p>The Clinician-Administered PTSD Scale (CAPS) is a widely used 30-question interview that queries for a current or lifetime diagnosis of PTSD according to the PTSD DSM-IV criteria. The 17-item Life Events Checklist identifies any traumatic events experienced by the participant patient in accordance with criterion A. Symptoms are counted as present if they have a frequency score of at least 1 (scale 0 = "none of the time" to 4 = "most or all of the time") and intensity of at least 2 (scale 0 = "none" to 4 = "extreme"). The CAPS can be administered to combat veterans or other populations that may have experienced traumatic events.</p> <p>The CAPS is widely considered as the gold standard for measuring PTSD in individuals 15 years and older.</p> <p>The CAPS is a structured interview that must be administered by a clinician or trained professional. It takes between 25 minutes and 1 hour to complete.</p>
Comments/Special Instructions	Inclusion of trained clinical personnel needed for training and oversight of use.
Scoring and Psychometric Properties	<p>Scoring: A severity score can be calculated for each symptom by adding the frequency and intensity scores; scores can similarly be calculated for the three symptom clusters and for the 17 symptoms overall. The overall severity score ranges from 0 to 136.</p> <p>Psychometric Properties:</p>
Rationale/Justification	<p>Strengths: Reliable, comprehensive assessment for PTSD with diagnostic accuracy.</p> <p>Weaknesses: Inclusion of a mental health clinician is likely needed to oversee and train on use of the measure, which may not be available across studies; clinician required for diagnostic use of tool. Not valid for use in individuals under 15 years of age.</p>
References	<p>Key References: Blake DD, Weathers FW, Nagy LM, Kaloupek DG, Gusman FD, Charney DS, Keane TM. The development of a Clinician-Administered PTSD Scale. J Trauma Stress. 1995;8(1):75-90.</p> <p>Weathers, F.W., Blake, D.D., Schnurr, P.P., Kaloupek, D.G., Marx, B.P., & Keane, T.M. (2013). The Clinician-Administered PTSD Scale for DSM-5 (CAPS-5). [Assessment] Available from www.ptsd.va.gov.</p>

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TBI-Specific Reference(s):

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NINDS CDE Notice of Copyright Comprehensive Test of Phonological Processing (CTOPP)

Availability	<p>Please visit this website for more information about the instrument: Comprehensive Test of Phonological Processing</p>
Classification TBI v3.0 Classification Pending	<p>Supplemental: Cerebral Palsy (CP) and Neuromuscular Disease (NMD) and Traumatic Brain Injury (TBI)</p>
Short Description of Instrument	<p>The Comprehensive Test of Phonological Processing, Second Edition (CTOPP-2) (Wagner et al., 2013) assesses phonological awareness, phonological memory, and rapid naming as a measure of reading ability. Two levels of the test are available for ages 4-6 and ages 7-24. The test consists of 10 core and two supplemental subtests. Nine core and one supplemental subtest are for ages 4 to 6; seven core and both supplemental subtests are for ages 7 to 24. Four core subtests are timed.</p> <p>The CTOPP-2 is a substantial modification of the first edition (CTOPP), and includes new normative data, items added to eliminate the floor effects, items added to extend the age range, and a phoneme isolation subtest.</p> <p>Administration: Paper-and-pencil, individual, face-to-face, requires examiner training</p> <p>Accessibility: Communication Function Classification System (CFCFS) level II-III. Completion Time: 30 minutes. Ages: 4:0-24:11.</p>
Comments/Special Instructions	<p>The CTOPP-2 is designed to identify individuals who perform significantly below their peers, according to national norms, with the purpose of providing students from kindergarten through college who need instructional activities to increase their phonological skills (Wagner et al., 1999).</p> <p>Five Composites include: Phonological Awareness Component Scores (PACS); Phonological Memory Component Scores (PMCS); The Rapid Symbolic Naming Composite Score (RSNCS); Rapid Non-Symbolic Naming Composite Score (RNNCS) and The Alternate Phonological Awareness Composite Score (APACS)</p> <p>Twelve Subtests include: (Wagner et al., 2013)</p> <ul style="list-style-type: none"> ○ Elision (20 items): measures the ability to remove phonological segments from spoken words to form other words. ○ Blending Words (20 items): measures the ability to synthesize sounds to form words. ○ Sound Matching (20 items): measures the ability to select words with the same initial and final sounds. ○ Phoneme Isolation (18 items): measures the ability to isolate individual sounds within words. ○ Blending Nonwords (18 items): measures the ability to synthesize sounds to form nonwords. ○ Segmenting Nonwords (20 items): measures the ability to segment nonwords into phonemes. ○ Memory for Digits (21 items): measures the ability to repeat

	<p>numbers accurately.</p> <ul style="list-style-type: none"> ○ Nonword Repetition (18 items): measures the ability to repeat nonwords accurately. ○ Rapid Digit Naming (72 items): measures the ability to rapidly name numbers. ○ Rapid Letter Naming (72 items): measures the ability to rapidly name letters. ○ Rapid Color Naming (72 items): measures the ability to rapidly name colors. ○ Rapid Object Naming (72 items): measures the ability to rapidly name objects.
Scoring and Psychometric Properties	<p>The composite standard scores for Phonological Awareness Quotient (PAQ), Phonological Memory Quotient (PMQ), and Rapid Naming Quotient (RNQ) have a mean of 100 and a standard deviation of 15. Subtest standard scores have a mean of 10 and a standard deviation of 3. Percentiles and standard scores as well as age and grade equivalents are provided with the examiner's manual.</p> <p>Both versions are individually administered, with the core subtests taking approximately 30 minutes total. Supplemental tests may also be administered. The test should be administered by trained examiners.</p> <p>Scoring/Interpretation: The CTOPP-2 has 5 composites (M = 100; SD = 15) (Tennant, 2014): Phonological Awareness Composite Score (PACS), Phonological Memory Composite Score (PMCS), Rapid Symbolic Naming Composite Score (RSNCS), that can be calculated for all ages, Rapid Non-Symbolic Naming Composite Score (RNNCS) that is calculated for ages 4 to 6, and the Alternate Phonological Awareness Composite Score (APACS) calculated for ages 7 to 24.</p> <p>Scoring Options: Computerized scoring assistant or manual scoring.</p> <p>Psychometric Properties: The sample used to norm the CTOPP-2 included a standardized sample of 1,900 individuals ranging in age from 6 through 24 years. The demographic characteristics of the sample are representative of the US population as those reported in the Statistical Abstract of the United States.</p> <p>CTOPP-2 subtests and composites reliability was demonstrated by average internal consistency coefficients presented for the subtests that exceed .80 for all except Nonword Repetition with an average alpha of .77. For the composites the average internal consistency coefficients were all .85 or higher. Validity of the CTOPP-2 subtests and composites validity was demonstrated by correlations to measures directly related to the constructs measured by the CTOPP-2. Averaged subtests' coefficients range from .49 (moderate) to .84 (very large); those for the composites range from .65 (large) to .76 (very large) in magnitude (Wagner et al., 2013).</p>
Rationale/Justification	<p>Strengths: This instrument is one of the few comprehensive</p>

	<p>measures of phonological processing that is available for an extended age range including preschoolers; however, there are floor effects on some of the subtests at the lower ages.</p> <p>Weaknesses: The CTOPP is not designed to monitor student performance progress or to make informed instructional decisions (Haight, 2006).</p>
<p>References</p>	<p>Key References: Wagner, R.K., Torgesen, J.K., Rashotte, C.A., Pearson, N.A. (2013). Comprehensive Test of Phonological Processing – Second Edition (CTOPP-2). Austin, TX: PRO-ED. Retrieved 12Dec2023, from https://www.proedinc.com/Products/13080/ctopp2-comprehensive-test-of-phonological-processingsecond-edition.aspx</p> <p>Haight SL. Test Review: Wagner, R. K., Torgesen, J. K., & Rashotte, C. A. (1999). Comprehensive Test of Phonological Processing (CTOPP). Austin, TX: PRO-ED. Assess Eff Interv. 2006;31(2):81-3.</p> <p>Wagner, R., Torgesen, J., and Rashotte, C. (1999). Comprehensive Test of Phonological Processing. Examiner's Manual. Pearson Assessments: San Antonio, TX.</p> <p>Additional References: Hintze J, Ryan AL, Stoner G. Concurrent Validity and Diagnostic Accuracy of the Dynamic Indicators of Basic Early Literacy Skills and the Comprehensive Test of Phonological Processing. School Psychol Rev. 2003;23(4):541-56.</p> <p>Mitchell J. Comprehensive Test of Phonological Processing. Assess Eff Interv. 2001;26(3):57-63.</p> <p>Tennant KE. Test Review: R. K. Wagner, J. K. Torgesen, C. A. Rashotte, & N. A. Pearson. (2013). Comprehensive Test of Phonological Processing–Second Edition (CTOPP-2). Austin, TX: PRO-ED. J Psychoeduc Assess. 2014;32(7):678-681.</p> <p>TBI-Specific Reference(s): Ewing-Cobbs L, Prasad M, Swank P, Kramar L, Cox C, Fletcher J, Barnes M, Zhang X. Arrested development and disrupted callosal microstructure following pediatric traumatic brain injury: relation to neurobehavioral outcomes. Neuroimage. 2008;42(4):1305-1315.</p> <p><i>Document last updated October 2024 January 2026</i></p>

NINDS CDE Notice of Copyright Frontal Systems Behavior Scale (FrSBe)

Availability	Please visit this website for more information about the instrument: <u>Frontal Systems Behavior Scale</u>
Classification TBI v3.0 Classification Pending	<p>NeuroRehab Supplemental – Highly Recommended Recommendations for Use: Indicated for studies requiring a measure of behavioral function.</p> <p>Supplemental: Amyotrophic Lateral Sclerosis (ALS), Huntington's Disease (HD), and Traumatic Brain Injury (TBI)</p> <p>Exploratory: Unruptured Cerebral Aneurysms and Subarachnoid Hemorrhage (SAH) and Sport-Related Concussion (SRC) Persistent/Chronic (3 months and greater post-concussion)</p>
Short Description of Instrument	<p>Summary/ Overview of Instrument: Formerly the Frontal Lobe Personality Scale (FLOPS), the Frontal Systems Behavior Scale (FrSBe) was designed to identify and quantify behavioral problems associated with frontal lobe dysfunction. This scale assesses behavior related to frontal systems damage. It also quantifies behavioral changes over time by including both baseline (retrospective) and current assessments of behavior. Forms are available for both patient participant and family member to complete, with separate norms for each informant. There is potential for discrepancy between the information collected from the informant and the participant.</p> <p>Construct measured: Assesses behavior Generic vs. disease specific: Generic Intended use of instrument/ purpose of tool: Cross-sectional or longitudinal assessment of symptoms commonly seen in patients with 'frontal' disorders Means of administration (paper and pencil, computerized): Paper and pencil Location of administration: Clinic or home (self-report) Intended respondent: Patient Participant and/or caregiver Number of items: Apathy (14 items), Disinhibition (15 items), Executive Dysfunction (17 items) Number of subscales and names of sub-scales: 3 – Apathy, Disinhibition, Executive Dysfunction</p>
Comments/ Special Instructions	NeuroRehab-Specific: The FrSBe is a brief behavior rating scale with demonstrated validity for the assessment of behavior disturbances associated with damage to the frontal-subcortical brain circuits assessment of behavior disturbances associated with damage to the frontal-subcortical brain circuits.
Scoring and Psychometric Properties	<p>Scoring: Each item is rated on a 5-point Likert scale. Totals are generated for each subscale and normative data is referenced (based on patient gender, age and education) and standardized T scores are determined (mean: 50, SD:10).</p> <p>Interpretation of results requires training and coursework in psychological assessment.</p> <p>Standardization of scores to a reference population (z scores, T scores, etc.): Previously validated in patients with a variety of neuropsychiatric</p>

	<p>disorders. If scores have been standardized to a reference population, indicate frame of reference for scoring (general population, HD subjects, other disease groups, etc., not available).</p> <p>Psychometric Properties:</p> <p>Reliability: Acceptable based on normative sample data (Grace & Malloy, 2001).</p> <p>Validity: Construct validity: Reviewed in manual and acceptable. Convergent validity with other behavioral measures was high (NPI, $r=.64$). Discriminant validity also good (Grace & Malloy, 2001).</p> <p>Feasibility: Informants completing the Family Rating Form should have at least weekly contact with the patient participant to ensure accurate behavioral observation. Patients Participants must have cognitive capacity to read and complete the form.</p> <p>Factor structure: An exploratory principal component factor analysis using the family version with 324 neurological outpatients (mainly Huntington's disease (HD), Parkinson's disease (PD) and Alzheimer's disease patients) confirmed a factor structure consistent with the subscales originally proposed on theoretical grounds (Stout et al., 2003).</p> <p>Sensitivity to Change/ Ability to Detect Change (over time or in response to an intervention): This measure was designed in part to assess change over time.</p> <p>Known Relationships to Other Variables: There have been no published reports of patients with manifest HD using the FrSBe, other than the factor analysis referred to above (Stout et al., 2003). In the PREDICT-HD study, 745 mutation-positive participants, 163 mutation-negative control participants and their companions completed participant and family versions respectively of the FrSBE (Duff et al., 2010). Mutation-positive participants reported more frontal behaviors than mutation-negative controls, even though most participants were more than 10 years from predicted motor onset. However, discrepancies between self-report and companion scores suggested impaired insight in those closest to predicted disease onset. In non-HD studies, Apathy and Executive Dysfunction subscale scores are correlated with instrumental activities of daily living (IADLs) (Grace & Malloy, 2001), and the Disinhibition scale score is strongly related to caregiver burden (Grace & Malloy, 2001).</p> <p>Diagnostic Sensitivity and Specificity, if applicable: N/A</p> <p>Special Requirements for administration: None</p> <p>Administration Time: The scale takes 10 minutes to administer and 10–15 minutes to score.</p>
<p>Rationale/ Justification</p>	<p>Strengths: Assesses multiple domains of frontal lobe functioning and allows for comparison of premorbid behavior with current status. Also allows for comparison between patient and caregiver reports.</p> <p>Weaknesses: Large number of items may be a problem for more cognitively impaired participants. Scoring requires normative database and understanding of T scores.</p>

References	<p>Key References:</p> <p>Grace J, Malloy PF. Frontal Systems Behavior Scale Professional Manual. Lutz, FL: Psychological Assessment Resources, Inc., 2001.</p> <p>Stout JC, Ready RE, Grace J, Malloy PF, Paulsen JS. Factor analysis of the frontal systems behavior scale (FrSBe). Assessment. 2003 Mar;10(1):79-85.</p> <p>Additional Reference(s):</p> <p>Duff K, Paulsen JS, Beglinger LJ, Langbehn DR, Wang C, Stout JC, Ross CA, Aylward E, Carlozzi NE, Queller S; Predict-HD Investigators of the Huntington Study Group. "Frontal" behaviors before the diagnosis of Huntington's disease and their relationship to markers of disease progression: evidence of early lack of awareness. J Neuropsychiatry Clin Neurosci. 2010 Spring;22(2):196-207.</p> <p>TBI-Specific Reference(s):</p> <p><i>Document last updated December 2023 December 2025</i></p>
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NINDS CDE Notice of Copyright Gray Oral Reading Test 5th Edition (GORT-5)

Availability	Please visit this website for more information about the instrument: Gray Oral Reading Test 5th Edition
Classification TBI v3.0 Classification Pending	Supplemental: Traumatic Brain Injury (TBI)
Short Description of Instrument	The Gray Oral Reading Test-5 (GORT-5) assesses a participant's oral reading, including strengths and weaknesses. The test consists of two forms, each containing 16 reading passages with corresponding comprehension questions following each passage. The test is individually administered and takes from 20 to 30 minutes to complete.
Comments/ Special Instructions	
Scoring and Psychometric Properties	<p>Scoring: The individual receives five scores which provide information in the domains of rate, accuracy, fluency, comprehension and overall reading ability. In addition to standard scores (M=10, SD=3), percentile ranks, grade equivalents, and age equivalents are provided.</p> <p>Psychometric Properties: Skills commensurate with at least a Master's degree level in psychology, education, or related field are recommended for interpretation.</p>
Rationale/ Justification	<p>Strengths:</p> <p>Weaknesses:</p>
References	<p>Key References: Psych Corp/ Pearson Assessments/ Pearson Education, Inc. Gray Oral Reading Test – Fifth Edition (GORT-5). Retrieved 22Dec2025, from https://www.pearsonassessments.com/en-us/Store/Professional-Assessments/Academic-Learning/Dyslexia/Gray-Oral-Reading-Test-%7C-Fifth-Edition/p/100000106.</p> <p>Wiederholt, J., and Bryant, B. (2012). Gray Oral Reading Test (GORT-5). Manual (Fifth ed.). Pearson Assessments: San Antonio, TX.</p> <p>Additional Reference(s):</p> <p>TBI-Specific References: Ewing-Cobbs L, Prasad MR, Kramer L, Cox CS Jr, Baumgartner J, Fletcher S, Mendez D, Barnes M, Zhang X, Swank P. Late intellectual and academic outcomes following traumatic brain injury sustained during early childhood. J Neurosurg. 2006 Oct;105(4 Suppl):287-296.</p> <p>Ewing-Cobbs L, Prasad MR, Swank P, Kramer L, Cox CS Jr, Fletcher JM, Barnes M, Zhang X, Hasan KM. Arrested development and disrupted callosal microstructure following pediatric traumatic brain injury: relation to neurobehavioral outcomes. Neuroimage. 2008 Oct 1;42(4):1305-1315.</p> <p><i>Document last updated July-2019 December 2025</i></p>

NINDS CDE Notice of Copyright KeyMath-3 Diagnostic Assessment

Availability	Please visit this website for more information about the instrument: KeyMath-3 Diagnostic Assessment
Classification TBI v3.0 Classification Pending	Supplemental: Traumatic Brain Injury (TBI)
Short Description of Instrument	<p>The KeyMath-3 Diagnostic Assessment is used to assess a participant's ability to understand and apply mathematical concepts. Five subtests assess basic concepts (Numeration, Algebra, Geometry, Measurement, Data Analysis and Probability); three subtests test operations (Mental Computation and Estimation, Written Computation: Addition and Subtraction, Written Computation: Multiplication and Division); and two subtests are devoted to applying concepts (Foundations of Problem Solving and Applied Problem Solving).</p> <p>The KeyMath-3 is individually administered and ranges from 30 to 90 minutes for the entire battery of tests, depending on the student's grade level. Select subtests may be administered if a professional is interested in a particular area of the student's ability.</p>
Comments/ Special Instructions	
Scoring and Psychometric Properties	<p>Scoring: Standard scores (M=100, SD=15), scale scores, percentiles, and grade/age equivalents are given for the Total Test, 3 areas, and 10 subtests.</p> <p>Examiner should have formal training in mathematics and test interpretation. This assessment has two versions that can be administered (by alternating versions) every three months.</p> <p>Psychometric Properties: Normative data is available from the publisher. See Kim et al., 2015 for additional psychometric properties information.</p>
Rationale/ Justification	<p>Strengths:</p> <p>Weaknesses:</p>
References	<p>Key References:</p> <p>Wagner, R., Torgesen, J., and Rashotte, C. (1999). Comprehensive Test of Phonological Processing. Examiner's Manual. Pearson Assessments: San Antonio, TX.</p> <p>Psych Corp/ Pearson Assessments/ Pearson Education, Inc. KeyMath 3 Diagnostic Assessment. Retrieved 16 May 2024, from https://www.pearsonassessments.com/store/usassessments/en/Store/Professional-Assessments/Academic-Learning/Math/KeyMath-3-Diagnostic-Assessment/p/100000649.html.</p>

Additional Reference(s):

Kim H, Schmidt KM, Murrah WM, Cameron CE, Grissmer D. A Rasch Analysis of the KeyMath-3 Diagnostic Assessment. J Appl Meas. 2015;16(4):365-378.

TBI-Specific References(s):

Ewing-Cobbs L, Prasad MR, Swank P, Kramer L, Cox CS Jr, Fletcher JM, Barnes M, Zhang X, Hasan KM. Arrested development and disrupted callosal microstructure following pediatric traumatic brain injury: relation to neurobehavioral outcomes. Neuroimage. 2008 Oct 1;42(4):1305-1315.

Document last updated ~~July 2019~~ December 2025

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Kiddie-Schedule for Affective Disorders and Schizophrenia-Present and Lifetime Version (K-SADS-PL)

Availability	<p>Please visit this website for more information about the instrument: Kiddie Schedule for Affective Disorders and Schizophrenia Present and Lifetime Version</p> <p>*The K-SADS-PL does not require permission to use if:</p> <ol style="list-style-type: none"> 1. It is for clinical use in a not-for-profit institution 2. It is being used as part of an IRB approved research protocol <p>All other uses require permission from the Author: Joan Kaufman, joan.kaufman@ksads-comp.com</p>
Classification TBI v3.0 Classification Pending	<p>Supplemental: Headache and Traumatic Brain Injury (TBI)</p> <p>Exploratory: Myalgic encephalomyelitis/Chronic fatigue syndrome (ME/CFS) and Sport-Related Concussion (SRC) Subacute (after 72 hours to 3 months) and Persistent/Chronic (3 months and greater post-concussion)</p>
Short Description of Instrument	<p>The DSM-III-R and DSM-IV criteria describe the K-SADS-PL as a semi-structured diagnostic interview designed to assess current and past episodes of psychopathology in children and adolescents. Probes and objective criteria are provided to rate individual symptoms.</p> <p>The primary diagnoses assessed with the K-SADS-PL include: Adjustment Disorders, Agoraphobia, Alcohol Abuse, Anorexia Nervosa, Attention Deficit Hyperactivity Disorder, Avoidant Disorder of Childhood and Adolescence, Bipolar Disorders, Brief Reactive Psychosis, Bulimia, Chronic Motor or Vocal Tic Disorder, Conduct Disorder, Cyclothymia, Dysthymia, Encopresis, Enuresis, Generalized Anxiety, Hypomania, Major Depression, Mania, Obsessive Compulsive Disorder, Oppositional Defiant Disorder, Overanxious Disorder, Panic Disorder, Post-Traumatic Stress Disorder, Schizoaffective Disorders, Schizophrenia, Schizophreniform Disorder, Separation Anxiety Disorder, Simple Phobia, Social Phobia, Substance Abuse, Tourette's Disorder, and Transient Tic Disorder.</p> <p>The probes that are included in the instrument do not have to be recited verbatim, and they are provided to illustrate ways to elicit the information necessary to score each item. The interviewer should feel free to adjust the probes to the developmental level of the child, and use language supplied by the parent and child when querying about specific symptoms.</p> <p>The K-SADS-PL is administered by interviewing the parent(s), the child, and then achieving summary ratings which include all sources of information (parent, child, school, chart, and other).</p> <p>ME/CFS-Specific: This instrument is recommended if a research protocol needs to rule out psychiatric comorbidity in children and adolescents.</p>

Comments/Special Instructions	It takes approximately 45-75 minutes to complete.
Scoring and Psychometric Properties	Scoring: Psychometric Properties:
Rationale/Justification	Strengths: Weaknesses:
References	Key Reference(s): Kaufman J, Birmaher B, Brent D, Rao U, Flynn C, Moreci P, Williamson D, Ryan N. Schedule for Affective Disorders and Schizophrenia for School-Age Children—Present and Lifetime version (K-SADS-PL): Initial reliability and validity data. J Am Acad Child Adolesc Psychiatry. 1997; 36(7):980–988. Additional Reference(s): TBI-Specific Reference(s): Document last updated April 2020 December 2025

NINDS CDE Notice of Copyright Mullen Scales of Early Learning (MSEL)

Availability	Please visit this website for more information about the instrument: Mullen Scales of Early Learning
Classification TBI v3.0 Classification Pending	Supplemental – Highly Recommended: Cerebral Palsy (CP) Supplemental: Epilepsy, Neuromuscular Diseases (NMD) and Traumatic Brain Injury (TBI)
Short Description of Instrument	<p>Description: The Mullen Scales of Early Learning (MSEL) include five scales that provide information on cognitive and motor ability. The five scales are: Gross Motor (0-33 months only), Visual Reception, Fine Motor, Expressive Language and Receptive Language. In addition to assessing a child's strength and weaknesses, this measure is used to assess school readiness. Included in the questionnaire are three different forms depending on the age of the child: a 15 minute test for 1-year olds, a 25-35 minute test for 3 year olds and a 40-60 minute test for 5 year olds. The report generated from this measure includes a list of tasks that parents can help their child learn at home (based on age).</p> <p>Permissible Values: T scores, percentiles, and age-equivalents are given for each scale, plus an Early Learning Composite score (M=100, SD=15).</p> <p>Procedures: Administration time is 15 to 60 minutes, depending on the child's age. The younger the child, the less time it takes to complete this measure. This instrument should be interpreted by individuals with a doctorate in psychology, education, or a related field.</p>
Comments/Special Instructions	The MSEL assesses learning abilities and patterns in several developmental domains in children aged 2 to 5.5 years. Measurement of unevenness in learning is assessed through an emphasis on differentiation of visual and auditory learning. The MSEL AGS Edition combines the infant MSEL (Mullen, 1989) and preschool MSEL (Mullen, 1995) and is applicable to children from birth to 68 months.
Scoring and Psychometric Properties	<p>Scoring: The MSEL results are reported using T scores to interpret the results (Mullen, 1995).</p> <p>Psychometric Properties: The standardization for the MSEL included 1849 children aged 2 days to 69 months (Mullen, 1995).</p>
Rationale/Justification	<p>Strengths: As a test of cognitive function, strengths include separate standard scores for expressive and receptive language and fine and gross motor skills (Stein & Lukasik, 2009).</p> <p>Weaknesses: The normative sample is outdated. The standardization of this test did not include studies of children with specific conditions, such as children with language delay or cerebral palsy (Stein & Lukasik, 2009).</p> <p>TBI Rationale: The test "has strong psychometric properties and has been used with a variety of populations including children with TBI." – McCauley et al., 2012.</p>

References	<p>Key References:</p> <p>Mullen EM. Mullen Scales of Early Learning. Circle Pines, MN: American Guidance Service, 1984.</p> <p>Mullen EM. Infant Mullen Scales of Early Learning. Bloomington, MN: Pearson Assessments, 1989.</p> <p>Mullen EM. (1995). Mullen Scales of early learning. American Guidance Service, Inc.: Circle Pines, MN. Available from: https://www.pearsonassessments.com/en-us/Store/Professional-Assessments/Developmental-Early-Childhood/Observational/Mullen-Scales-of-Early-Learning/p/100000306.</p> <p>Additional References:</p> <p>Alward GP & Stancin T. Screening and Assessment Tools. In: Developmental-Behavioral Pediatrics. 2008, pp. 123-201.</p> <p>Stein MT & Lukasik MK. Developmental Screening and Assessment: Infants, Toddlers, and Preschoolers. In: Developmental-Behavioral Pediatrics, 4th edition. 2009, pp. 785-96.</p> <p>TBI-Specific References:</p> <p>Keenan H, Hooper S, Wetherington C, Nocera M, Runyan D. Neurodevelopmental consequences of early traumatic brain injury in 3-year-old children. Pediatrics. 2007;119:e616-e623.</p> <p>McCauley SR, Wilde EA, Anderson VA, Bedell G, Beers SR, Campbell TF, Chapman SB, Ewing-Cobbs L, Gerring JP, Gioia GA, Levin HS, Michaud LJ, Prasad MR, Swaine BR, Turkstra LS, Wade SL, Yeates KO. Recommendations for the use of common outcome measures in pediatric traumatic brain injury research. J Neurotrauma. 2012;29(4):678-705.</p> <p><i>Document last updated October 2024 December 2025</i></p>
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NINDS CDE Notice of Copyright NIH Toolbox Emotion Battery

Availability	Please visit this website for more information about the instrument: NIH Toolbox Emotion Battery
Classification	<p>NeuroRehab Supplemental – Highly Recommended Recommendations for Use: Indicated for studies requiring an emotional/behavioral measure.</p> <p>Supplemental: Traumatic Brain Injury (TBI)</p> <p>Exploratory: Sport-Related Concussion (SRC) Subacute (after 72 hours to 3 months) and Persistent/Chronic (3 months and greater post concussion)</p>
Short Description of Instrument	<p>The National Institutes of Health Toolbox is part of the NIH Blueprint initiative. It seeks to assemble brief, comprehensive assessment tools that will be useful in a variety of settings with a particular emphasis on measuring outcomes in epidemiologic studies and clinical trials across the lifespan.</p> <p>The ultimate goal is to help improve communication within and between fields of biomedical research and advance knowledge by using common data elements. The NIH Toolbox Emotion Battery (NIHTB-EB) consists of surveys of Positive Affect, General Life Satisfaction, Emotional Support, Friendship, Loneliness, Perceived Rejection, Perceived Hostility, Self-Efficacy, Sadness, Perceived Stress, Fear, and Anger.</p> <p>The evaluation will take approximately 12-22 minutes to administer.</p> <p>The battery is designed to measure these domains in ages 3 through 85.</p>
Comments/Special Instructions	NeuroRehab-Specific: Applicable to the following populations: Stroke; Medical Rehabilitation and Neurological.
Scoring and Psychometric Properties	<p>Scoring: There are individual scores provided for each measure, there are no composite scores.</p> <p>Psychometric Properties: Multivariate base rates: The portion of individuals obtaining one or more potentially problematic scores on the NIHTB-EB scales and subdomains was 61.2 and 23.2%, respectively.</p>
Rationale/Justification	<p>Sport-Related Concussion-Specific: Strengths: Simple measure that can constitute an emotional endpoint to concussion. It can be used for primary questions of role of personality style/structure in modulating recovery trajectory.</p> <p>Weaknesses: Not used with the population in previous studies</p> <p>TBI-Specific: Individuals with neurologic conditions reported lower levels of positive emotional states (psychological well-being and social satisfaction) compared to a normative sample, with</p>

	<p>small to medium effect sizes. For the negative effect summary score reflecting fear, anger, sadness, and stress, the TBI group demonstrated somewhat elevated scores compared to a normative group ($d = 0.27$); the sadness score (reflecting depressed mood) was elevated in all three neurologic groups (TBI, spinal cord injury (SCI), cerebrovascular accident (CVA); Babakhanyan et al., 2019).</p>
References	<p>Key Reference(s): NIH Toolbox Executive Summary. NIH Toolbox (accessed March 10, 2010).</p> <p>Additional References: Babakhanyan I, Carlozzi NE, McKenna BS, Casaletto KB, Heinemann AW, Heaton RK. National Institutes of Health Toolbox Emotion Battery: Application of Summary Scores to Adults With Spinal Cord Injury, Traumatic Brain Injury, and Stroke. Arch Phys Med Rehabil. 2019 Oct;100(10):1863-1871.</p> <p>Babakhanyan I, McKenna BS, Casaletto KB, Nowinski CJ, Heaton RK. National Institutes of Health Toolbox Emotion Battery for English- and Spanish-speaking adults: normative data and factor-based summary scores. Patient Relat Outcome Meas. 2018 Mar 15;9:115-127.</p> <p>Carlozzi NE, Goodnight S, Casaletto KB, Goldsmith A, Heaton RK, Wong AWK, Baum CM, Gershon R, Heinemann AW, Tulskey DS. Validation of the NIH Toolbox in Individuals with Neurologic Disorders. Arch Clin Neuropsychol. 2017 Aug 1;32(5):555-573.</p> <p>Gershon RC, Cella D, Fox NA, Havlik RJ, Hendrie HC, Wagster MV. Assessment of neurological and behavioural function: the NIH Toolbox. Lancet Neurol. 2010 Feb;9(2):138-9.</p> <p>Ingram EO, Karr JE. Multivariate base rates of potentially problematic scores on the NIH Toolbox Emotion Battery. Arch Clin Neuropsychol. 2024 May 21;39(4):454-463.</p> <p>Paolillo EW, McKenna BS, Nowinski CJ, Thomas ML, Malcarne VL, Heaton RK. NIH Toolbox® Emotion Batteries for Children: Factor-Based Composites and Norms. Assessment. 2020 Apr;27(3):607-620.</p> <p>Quatrano LA, Cruz TH. Future of outcomes measurement: impact on research in medical rehabilitation and neurologic populations. Arch Phys Med Rehabil. 2011 Oct;92(10 Suppl):S7-11.</p> <p>Salsman JM, Butt Z, Pilkonis PA, Cyranowski JM, Zill N, Hendrie HC, Kupst MJ, Kelly MA, Bode RK, Choi SW, Lai JS, Griffith JW, Stoney CM, Brouwers P, Knox SS, Cella D. Emotion assessment using the NIH Toolbox. Neurology. 2013 Mar 12;80(11 Suppl 3):S76-86.</p> <p>Document last updated January 2022 December 2025</p>

NINDS CDE Notice of Copyright Participation Assessment with Recombined Tools- Objective (PART-O)-17

Availability	Please visit this website for more information about the instrument: Participation Assessment With Recombined Tools-Objective-17
Classification TBI v3.0 Classification Pending	Supplemental: Traumatic Brain Injury (TBI) Exploratory: Cerebral Palsy (CP)
Short Description of Instrument	The Participation Assessment with Recombined Tools-Objective (PART-O) consists of 24 items asking for the frequency that the person engages in various activities within the community. Scores have been standardized based on a population sample. Several scoring options have been examined, providing a total score and 3 subscale scores. A subsequent revision, the PART-O-17, shortened the instrument to 17 items (Bogner et al., 2011).
Comments/Special Instructions	Interview or paper/pencil with participant or proxy. Manual available. Administration time is 10-15 minutes. The instrument can be completed by mail, telephone, or in-person with participant.
Scoring and Psychometric Properties	Scoring: Standardized z-scores generally range from -4 to +4, with 0 as the mean. Psychometric Properties: Each question scored on a 0-5 scale with three domain subscales. If 50% of items are scored in a domain, the subscale score is an average.
Rationale/Justification	Strengths: Examines community participation and integration after brain injury. Weaknesses: Norms based on a population with higher educational level. Caution recommended for use in populations with lower educational levels.
References	Key References: Whiteneck GG, Dijkers MP, Heinemann AW, Bogner JA, Bushnik T, Cicerone KD, Corrigan JD, Hart T, Malec JF, Millis SR. Development of the participation assessment with recombined tools-objective for use after traumatic brain injury. Arch Phys Med Rehabil. 2011;92(4):542-551. Bogner J. The Participation Assessment with Recombined Tools-Objective: The Center for Outcome Measurement in Brain Injury; 2013 [cited 2016 1 July]. Available from: https://www.tbims.org/combi/parto/ . Traumatic Brain Injury Model Systems National Data and Statistical Center, Part-O Manual, October, 2007. https://www.tbindsc.org/ . Traumatic Brain Injury Model System Participation Special Interest Group. Participation Assessment with Recombined Tools-Objective-17 Interviewer Manual. Retrieved 23Dec2025, from www.tbindsc.org/ .

Additional References:

Bogner JA, Whiteneck GG, Corrigan JD, Lai JS, Dijkers MP, Heinemann AW. Comparison of scoring methods for the participation assessment with recombined tools-objective. Arch Phys Med Rehabil. 2011;92(4):552-563.

Malec JF, Whiteneck GG, Bogner JA. Another Look at the PART-O Using the Traumatic Brain Injury Model Systems National Database: Scoring to Optimize Psychometrics. Arch Phys Med Rehabil. 2016;97(2):211-217.

TBI-Specific Reference(s):

Document last updated ~~July 2019~~ December 2025

NINDS CDE Notice of Copyright

Patient Health Questionnaire - 9 (PHQ-9) Depression Scale

Availability	Please visit this website for more information about the instrument: Patient Health Questionnaire - 9 Depression Scale
Classification	<p>NeuroRehab Supplemental – Highly Recommended Recommendations for use: Indicated for studies requiring a measure for mood/anxiety.</p> <p>Supplemental – Highly Recommended: Headache, Spinal Cord Injury (SCI)* and SCI-Pediatric* (ages 12 and older), Stroke, and Traumatic Brain Injury (TBI)</p> <p>*Recommendations for use: Indicated for studies requiring a screening measure for depression.</p> <p>Supplemental: Epilepsy, Parkinson’s Disease (PD), and Sport-Related Concussion (SRC) Subacute (after 72 hours to 3 months) and Persistent/Chronic (3 months and greater post-concussion); and Traumatic Brain Injury (TBI)</p> <p>Exploratory: Unruptured Cerebral Aneurysms and Subarachnoid Hemorrhage (SAH)</p>
Short Description of Instrument	The Patient Health Questionnaire - 9 (PHQ-9) is a screening tool that is specific to depression. This 9-item measure asks participants whether and how often they have been bothered by depression-related symptoms over the last two weeks.
Comments/Special Instructions	<p>Parkinson’s Disease-Specific: Has a question on suicide. Preferable to assess the general population because it is not as tedious as the Columbia-Suicide Severity Rating Scale (C-SSR). Better designed for a study featuring depression (the Geriatric Depression Scale – 15 (GDS-15) is better for a general assessment of depression). A good predictive tool to help clinicians make psychiatric diagnoses.</p> <p>Sport-Related Concussion-Specific: Well validated, widely used screening instrument for depression symptoms. Although not a diagnostic instrument, at higher cut-off levels there is a high correlation with diagnostic interviews.</p> <p>NeuroRehab-Specific: The validity of the PHQ-9 as a screen for major depressive disorder has been established in multiple neurological samples including stroke, TBI and SCI.</p> <p>Age Range: 13 years and older</p>
Scoring and Psychometric Properties	<p>Scoring: 9 items are scored on a scale of 0 to 3, resulting in a total score of 0 to 27 for depression severity:</p> <p>0 = not at all 1 = several days 2 = more than half the days 3 = nearly every day</p>

	<p>Total Scores: (Kroenke et al., 2001)</p> <p>0-4 indicates minimal depression (no treatment action required)</p> <p>5-9 indicates mild depression (watch and repeat PHQ-9 at follow-up)</p> <p>10-14 indicates moderate depression (treatment plan and counseling recommended and/or pharmacotherapy)</p> <p>15-19 indicates moderately severe depression (active treatment with pharmacotherapy and/or psychotherapy)</p> <p>20-27 indicates severe depression (immediate initiation of pharmacotherapy and, if severe impairment or poor response to therapy, expedited referral to a mental health specialist for psychotherapy and/or collaborative management)</p> <p>Several scoring methods have been used in a TBI population, to include a total score of 10, 5+ symptoms rated at 2 or more (“more than half the days”, or 5+ symptoms rated at 1 or more “several days”.</p> <p>Psychometric Properties: The PHQ-9 is a valid screening measure for major depressive disorder in people with SCI assessed during their initial inpatient rehabilitation. At a slightly higher cutoff than usual (greater than or equal to 11), the PHQ-9 has a sensitivity of 100% and a specificity of 84% and met stringent criteria for an adequate diagnostic test (Youden criterion). The PHQ-9 has also been found to be as sensitive to change in the context of a clinical trial of antidepressant treatment as the “gold standard” Hamilton Depression Rating Scale and some other measures.</p> <p>Maximal discrimination between depressed and non-depressed PD patients was reached with a cut-off score of 9 in the PHQ-9 (sensitivity of 100% and specificity of 83.1%). The internal consistency of the scale was 0.83 and, when used as a diagnostic instrument, the PHQ-9 had a sensitivity of 52.6% and specificity of 95.4%.</p> <p>The AUC for the PHQ-9 in a mild TBI sample was 0.91 (95% CI, 0.88-0.94). A cutoff point of at least 10 had the best balance of sensitivity and specificity. The criteria of 5 or more symptoms rated at a score of least 2 favored specificity (0.94 [95% CI, 0.91-0.96] vs. sensitivity of 0.67 [95% CI, 0.57-0.76]), while the criteria of 5 or more symptoms rated at a score of at least 1 favored sensitivity (0.94 [95% CI, 0.88-0.98] vs. specificity of 0.64 [95% CI, 0.59-0.69]) (Table 3). For each cutoff, the positive likelihood ratios were greater than 2.00 and the negative likelihood ratios were less than 1.00. Additionally, the NPVs were 0.88 or greater, and the PPVs were 0.78 or less (Gitaari et al., 2024).</p>
Rationale/Justification	<p>Administration: 1 to 3 minutes; paper and pencil.</p> <p>SCI-specific notes: This instrument has excellent internal consistency, as it showed promise as a tool with which to identify</p>

	<p>probable Major Depressive Disorder in people with SCI (Bombardier et al., 2004).</p> <p>A shortened version of the PHQ-9 with just questions 1, 2 and 6 may be used to increase efficiency and reduce gender effects of the 9 item questionnaire (Graves and Bombardier, 2008). (PHQ-2) consists of the first two questions of the PHQ-9. A score > or = to 3 showed a sensitivity of 83% and a specificity of 92% for major depression (Kroenke et al., 2003).</p> <p>TBI-Specific: Strengths:</p> <p>Weaknesses: Instrument relies on valid self-report.</p>
<p>References</p>	<p>Key Reference(s): Kroenke K, Spitzer RL, Williams JB. The PHQ-9: validity of a brief depression severity measure. J Gen Intern Med. 2001 Sep;16(9):606-13.</p> <p>Additional References: He C, Levis B, Riehm KE, Saadat N, Levis AW, Azar M, Rice DB, Krishnan A, Wu Y, Sun Y, Imran M, Boruff J, Cuijpers P, Gilbody S, Ioannidis JPA, Kloda LA, McMillan D, Patten SB, Shrier I, Ziegelstein RC, Akena DH, Arroll B, Ayalon L, Baradaran HR, Baron M, Beraldi A, Bombardier CH, Butterworth P, Carter G, Chagas MHN, Chan JCN, Cholera R, Clover K, Conwell Y, de Man-van Ginkel JM, Fann JR, Fischer FH, Fung D, Gelaye B, Goodyear-Smith F, Greeno CG, Hall BJ, Harrison PA, Härter M, Hegerl U, Hides L, Hobfoll SE, Hudson M, Hyphantis TN, Inagaki M, Ismail K, Jetté N, Khamseh ME, Kiely KM, Kwan Y, Lamers F, Liu SI, Lotrakul M, Loureiro SR, Löwe B, Marsh L, McGuire A, Mohd-Sidik S, Munhoz TN, Muramatsu K, Osório FL, Patel V, Pence BW, Persoons P, Picardi A, Reuter K, Rooney AG, da Silva Dos Santos IS, Shaaban J, Sidebottom A, Simning A, Stafford L, Sung S, Tan PLL, Turner A, van Weert HCPM, White J, Whooley MA, Winkley K, Yamada M, Thombs BD, Benedetti A. The Accuracy of the Patient Health Questionnaire-9 Algorithm for Screening to Detect Major Depression: An Individual Participant Data Meta-Analysis. Psychother Psychosom. 2020;89(1):25-37.</p> <p>Kroenke K, Spitzer RL, Williams JB. The Patient Health Questionnaire-2: validity of a two-item depression screener. Med Care. 2003 Nov;41(11):1284-92.</p> <p>Levis B, Benedetti A, Ioannidis JPA, Sun Y, Negeri Z, He C, Wu Y, Krishnan A, Bhandari PM, Neupane D, Imran M, Rice DB, Riehm KE, Saadat N, Azar M, Boruff J, Cuijpers P, Gilbody S, Kloda LA, McMillan D, Patten SB, Shrier I, Ziegelstein RC, Alamri SH, Amtmann D, Ayalon L, Baradaran HR, Beraldi A, Bernstein CN, Bhana A, Bombardier CH, Carter G, Chagas MH, Chibanda D, Clover K, Conwell Y, Diez-Quevedo C, Fann JR, Fischer FH, Gholizadeh L, Gibson LJ, Green EP, Greeno CG, Hall BJ, Haroz EE, Ismail K, Jetté N, Khamseh ME, Kwan Y, Lara MA, Liu SI, Loureiro SR, Löwe B, Marrie RA, Marsh L, McGuire A, Muramatsu K, Navarrete L, Osório FL, Petersen I, Picardi A, Pugh SL, Quinn TJ, Rooney AG, Shinn EH, Sidebottom A, Spangenberg L, Tan</p>

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Pediatric Evaluation of Disability Inventory (PEDI) Social Functioning Scale

Availability	Please visit this website for more information about the instrument: Pediatric Evaluation of Disability Inventory Social Functioning Scale
Classification TBI v3.0 Classification Pending	Supplemental: Traumatic Brain Injury (TBI)
Short Description of Instrument	The Pediatric Evaluation of Disability Inventory (PEDI) is a descriptive measure of a child's current functional capabilities performance and also tracks changes over time. The measure has three content areas: Self-care, Mobility and Social Function. The social functioning section includes 65 items pertaining to several domains including communication, problem-resolution, play with peers and objects and self-protection.
Comments/Special Instructions	
Scoring and Psychometric Properties	<p>Scoring: Scores for the PEDI range between 0-100, with higher scores indicating a lesser degree of disability.</p> <p>Psychometric Properties:</p>
Rationale/Justification	<p>Strengths: The PEDI takes between 45 and 60 minutes to administer. Skills commensurate with at least a Master's degree level in psychology, education, or related field are recommended for interpretation. The PEDI is a paper-based instrument. The computerized PEDI-MCAT provides individual participant patient reports that summarize a participant's patient's functional status and provide a comparison of scores to the norm.</p> <p>The PEDI is recommended for children in acute and rehabilitation settings and for post-discharge follow-up. The measure is appropriate for ages 6 months to 7 years.</p> <p>The PEDI "has been used in many studies with children with TBI and other acquired brain injuries, and has established evidence of reliability, validity and responsiveness to change during inpatient rehabilitation and post-discharge follow-up" (McCauley et al., 2012).</p> <p>Weaknesses:</p>
References	<p>Key Reference(s): Haley S, Coster W, Ludlow LH, Haltiwanger JT, and Andrellos P. Pediatric evaluation of disability inventory: development, standardization, and administration manual, version 1.0. Trustees of Boston University, Health and Disability Research Institute: Boston, MA; 1992.</p> <p>Additional Reference(s):</p>

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NINDS CDE Notice of Copyright Pediatric Quality of Life Inventory (PedsQL) Social Subscale

Availability	Please visit this website for more information about the instrument: Pediatric Quality of Life Inventory Social Subscale
Classification TBI v3.0 Classification Pending	Supplemental: Traumatic Brain Injury (TBI)
Short Description of Instrument	The Pediatric Quality of Life Inventory (PedsQL) is a 23-item measure that can be used to assess health-related quality of life in children. The measure includes items in the domains of physical, emotional, social and school functioning. Age-appropriate child forms are available between the ages of 5 and 18, and parent proxy forms can be used down to age 2. Respondents indicate how much each item has been a problem in the past month; responses for 8–18-year-old children and for parents are rated on a 5-point Likert scale, while younger children rate their responses on a 3-point scale. A total score and two summary scores for physical health and psychosocial health can be calculated.
Comments/Special Instructions	
Scoring and Psychometric Properties	<p>Scoring: The total score is on a scale from 1-100, with higher scores indicating a higher health-related quality of life. Summary scores and scores for each subscale are computed by averaging the component item responses, and range between 0-4. The PedsQL is appropriate for children and adolescents ages 2-18 years.</p> <p>Psychometric Properties:</p>
Rationale/Justification	<p>The test can be completed in under 5 minutes. Parents and children 8 years or older may self-administer the PedsQL or the administrator can read the instructions to the child.</p> <p>“It has been used in pediatric TBI and has been translated into over 48 languages including Spanish.” – McCauley et al., 2012</p> <p>Strengths:</p> <p>Weaknesses:</p>
References	<p>Key Reference(s): Varni JW, Seid M, Kurtin PS. PedsQL 4.0: reliability and validity of the Pediatric Quality of Life Inventory version 4.0 generic core scales in healthy and patient populations. Med Care. 2001 Aug; 38(8):800-812.</p> <p>Additional Reference(s): Varni J, Burwinkle T, Seid M, Skarr D. The PedsQL 4.0 as a pediatric population health measure: feasibility, reliability, and validity. Ambul Pediatr. 2003;3(6):329-341.</p>

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NINDS CDE Notice of Copyright PTSD Checklist for DSM-5 (PCL-5) (New for TBI)

Availability	Please visit this website for more information about the instrument: PTSD Checklist for DSM-5 (PCL-5)
Classification	<p>NeuroRehab Supplemental – Highly Recommended Recommendations for Use: Indicated for studies requiring a measure of psychiatric/psychological status.</p> <p>Supplemental: Traumatic Brain Injury (TBI)</p>
Short Description of Instrument	<p>The Post Traumatic Stress Disorder Checklist (PCL) is a 20-item self-report measure of the DSM-5 symptoms of PTSD. Respondents rate how much they were “bothered by a symptom” on a 5-point scale ranging from 0 (“not at all”) to 4 (“extremely”). The measure takes 5-10 minutes to complete.</p> <p>Proper administration requires that the test taker be able to respond meaningfully to the items. The test taker must be able to see, read, and comprehend the items. Average reading difficulty is about the 6th-grade level.</p> <p>Unlike the PCL for DSM-IV which had three versions (military, civilian, and stressor specific), the PCL-5 has one version with three formats for administration.</p>
Comments/Special Instructions	
Scoring and Psychometric Properties	<p>The PCL provides a brief assessment of PTSD symptoms, can be used for diagnostic and severity purposes, and can be used to monitor change in response to treatment. It is in the public domain and is a widely used measure.</p> <p>Scoring: The PCL can be scored in two ways: a) a total score (range 0-80), or b) using differential symptom response to follow the DSM-5 criteria. In the latter approach item ratings of 2 - 4 (Moderately or above) are considered symptomatic and DSM criteria are used for a diagnosis:</p> <ul style="list-style-type: none"> - Symptomatic response to at least 1 “B” item (Questions 1–5) - Symptomatic response to at least 1 “C” items (Questions 6–7) - Symptomatic response to at least 2 “D” items (Questions 8–14) - Symptomatic response to at least 2 “E” items (Questions 15–20) <p>Psychometric Properties: When using total score, studies have utilized multiple cutoff scores, ranging between 28 and 44, with the most frequent cut-off score at 31, showing good sensitivity and specificity (Coeur et al., 2025).</p>
Rationale/Justification	<p>TBI-Specific: TBI has been associated with a wide range of mental health conditions, including PTSD. Posttraumatic stress symptoms have been linked to persistent post concussive symptoms and poorer outcomes. Contextual factors around the injury (e.g., assault, military deployment) have been linked with higher rates of subsequent posttraumatic stress symptoms.</p>

	<p>Strengths: The PCL-5 is easily administered and has been used in multiple studies of traumatic brain injury, especially mild TBI in military populations.</p> <p>Weaknesses:</p>
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NINDS CDE Notice of Copyright

Screen for Child Anxiety Related Emotional Disorders (SCARED) Child Version

Availability	Please visit this website for more information about the instrument: Screen for Child Anxiety Related Emotional Disorders
Classification TBI v3.0 Classification Pending	Supplemental: Traumatic Brain Injury (TBI) Exploratory: Sport-Related Concussion (SRC) Subacute (after 72 hours to 3 months), Sport-Related Concussion (SRC) Persistent/Chronic (3 months and greater post- concussion)
Short Description of Instrument	<p>The Screen for Child Anxiety Related Emotional Disorders (SCARED) is a child and parent self-report measure used to screen for anxiety disorders and symptoms related to school phobias. The measure has 41 items and 5 factors that parallel the DSM-IV classifications of anxiety disorders.</p> <p>The test is appropriate for ages 8-18 and is completed by parent or child in approximately 10 minutes via paper and pencil. Results can be interpreted by trained clinicians and psychiatrists.</p>
Comments/Special Instructions	
Scoring and Psychometric Properties	<p>Scoring: Symptom severity for each of 41 items is rated using a 0 to 2-point rating scale, where 0= not true or hardly ever true, 1= sometimes true and 2= true or often true. Total anxiety is the sum of all the items (maximum score of 82). The cut-off for discriminating anxious and non-anxious children is 25 on the child self-report form.</p> <p>Psychometric Properties:</p>
Rationale/Justification	<p>Sport-Related Concussion-Specific Strengths: Has a history of use in childhood anxiety</p> <p>Weaknesses: No use in TBI or mild TBI or sport concussion</p>
References	<p>Key Reference(s): Birmaher B, Khetarpal S, Brent D, Cully M, Balach L, Kaufman J, Neer SM. The Screen for Child Anxiety Related Emotional Disorders (SCARED): scale construction and psychometric characteristics. J Am Acad Child Adolesc Psychiatry. 1997;36(4):545–553.</p> <p>Additional References: Birmaher B, Brent DA, Chiappetta L, Bridge J, Monga S, Baugher M. Psychometric properties of the Screen for Child Anxiety Related Emotional Disorders (SCARED): a replication study. J Am Acad Child Adolesc Psychiatry. 1999;38(10):1230–1236.</p> <p>Hale WW 3rd, Raaijmakers Q, Muris P, Meeus W. Psychometric properties of the Screen for Child Anxiety Related Emotional Disorders (SCARED) in the general adolescent population. J Am Acad Child Adolesc Psychiatry. 2005;44(3):283–290.</p>

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TBI-Specific Reference(s):

Document last updated ~~March 2018~~ December 2025

NINDS CDE Notice of Copyright

Screen for Child Anxiety Related Emotional Disorders (SCARED) Parent Version

Availability	Please visit this website for more information about the instrument: Screen for Child Anxiety Related Emotional Disorders
Classification TBI v3.0 Classification Pending	Supplemental: Traumatic Brain Injury (TBI) Exploratory: Sport-Related Concussion (SRC) Subacute (after 72 hours to 3 months), Sport-Related Concussion (SRC) Persistent/Chronic (3 months and greater post- concussion)
Short Description of Instrument	<p>The Screen for Child Anxiety Related Emotional Disorders (SCARED) is a child and parent self-report measure used to screen for anxiety disorders and symptoms related to school phobias. The measure has 41 items and 5 factors that parallel the DSM-IV classifications of anxiety disorders.</p> <p>The test is appropriate for ages 8-18 and is completed by parent or child in approximately 10 minutes via paper and pencil. Results can be interpreted by trained clinicians and psychiatrists.</p>
Comments/Special Instructions	
Scoring and Psychometric Properties	<p>Scoring: Symptom severity for each of 41 items is rated using a 0 to 2-point rating scale, where 0= not true or hardly ever true, 1= sometimes true and 2= true or often true. Total anxiety is the sum of all the items (maximum score of 82). The cut-off for discriminating anxious and non-anxious children is 25 on the child self-report form.</p> <p>Psychometric Properties:</p>
Rationale/Justification	<p>Sport-Related Concussion-Specific Strengths: Has a history of use in childhood anxiety</p> <p>Weaknesses: No use in TBI or mild TBI or sport concussion</p>
References	<p>Key Reference(s): Birmaher B, Khetarpal S, Brent D, Cully M, Balach L, Kaufman J, Neer SM. The Screen for Child Anxiety Related Emotional Disorders (SCARED): scale construction and psychometric characteristics. J Am Acad Child Adolesc Psychiatry. 1997;36(4):545–553.</p> <p>Additional References: Birmaher B, Brent DA, Chiappetta L, Bridge J, Monga S, Baugher M. Psychometric properties of the Screen for Child Anxiety Related Emotional Disorders (SCARED): a replication study. J Am Acad Child Adolesc Psychiatry. 1999;38(10):1230–1236.</p> <p>Hale WW 3rd, Raaijmakers Q, Muris P, Meeus W. Psychometric properties of the Screen for Child Anxiety Related Emotional Disorders (SCARED) in the general adolescent population. J Am Acad Child Adolesc Psychiatry. 2005;44(3):283–290.</p>

Monga S, Birmaher B, Chiappetta L, Brent D, Kaufman J, Bridge J, Cully M. Screen for Child Anxiety-Related Emotional Disorders (SCARED): convergent and divergent validity. *Depress Anxiety*. 2000;12(2):85–91.

Su L, Wang K, Fan F, Su Y, Gao X. Reliability and validity of the screen for child anxiety related emotional disorders (SCARED) in Chinese children. *J Anxiety Disord*. 2008;22(4):612–621.

Weitkamp K, Romer G, Rosenthal S, Wiegand-Grefe S, Daniels J. German Screen for Child Anxiety Related Emotional Disorders (SCARED): Reliability, Validity, and Cross-Informant Agreement in a Clinical Sample. *Child Adolesc Psychiatry Ment Health*. 2010;4:19.

TBI-Specific Reference(s):

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NINDS CDE Notice of Copyright Strengths and Difficulties Questionnaire (SDQ) Combined Full and Follow-up Versions

Availability	Please visit this website for more information about the instrument: Strengths and Difficulties Questionnaire
Classification TBI v3.0 Classification Pending	<p>NeuroRehab Core: Pediatric (ages 3-16)</p> <p>Supplemental: Traumatic Brain Injury (TBI)</p> <p>Exploratory: Sport-Related Concussion (SRC) Subacute (after 72 hours to 3 months) and Persistent/Chronic (3 months and greater post concussion)</p>
Short Description of Instrument	<p>The Strengths and Difficulties Questionnaire (SDQ) is a screening measure for detecting behavior problems. There are multiple versions of the SDQ, depending on the age of the child, and the specific person completing the form (e.g., teacher/parent, self-completion). Domains include emotional problems, conduct problems, hyperactivity/inattention, peer relationships problems, and prosocial behavior.</p> <p>A. All versions of the SDQ include 25-items pertaining to attributes and are divided into five sub-scales: emotional symptoms, conduct problems, hyperactivity/inattention, peer relationship problems and pro-social behavior.</p> <p>B. Extended versions of the SDQ have questions pertaining to whether the respondent thinks the child has a problem and further questions about chronicity, distress, social impairment and burden to others.</p> <p>C. There are two follow-up questions for use after an intervention. The follow-up questions of the SDQ ask about the past one month, as opposed to the past six months or this school year, which is the reference period for the standard versions. May be completed by children aged 11–16, or by parents or teachers of children aged 4–16. It can be completed in about 5 minutes using paper and pencil.</p>
Comments/Special Instructions	<p>NeuroRehab-Specific:</p> <p>This measure is appropriate for ages 3-16 years. It is difficult to capture diagnosis traits in the first two years of a child's life. This tool assesses positive characteristics and is harmonious with NIH values of showing respect for individual differences.</p>
Scoring and Psychometric Properties	<p>Scoring: Questions are answered on a 3-point Likert scale. The score for each scale is the sum of item scores, generating a scale score from 0–10. A total difficulties score (from scores for hyperactivity, emotional symptoms, conduct problems and peer problems) ranges from 0–40.</p> <p>Psychometric Properties: The website lists over 100 papers that describe the normative and psychometric properties in English and other languages. https://www.sdqinfo.org/a0.html</p>
Rationale/Justification	<p>NeuroRehab-Specific:</p> <p>Strengths: The SDQ is a broad screening instrument for</p>

	<p>behavioral disturbance used in large epidemiological studies. It is shorter than the Child Behavior Checklist (CBCL) with only 25 items. It is a complement to the Pediatric Quality of Life Inventory (PedsQL) because it focuses on problem behaviors. In addition to the pediatric versions, there is also an adult version. It is free and available in multiple languages.</p> <p>Sport-Related Concussion-Specific: Advantages Strengths: This is an established measure in children with more severe acquired brain injury with initial use in the subacute phase in an international population which was referred to as "mild TBI" (not sport-related concussion specific) but appears to include at least some children with more severe injuries. Brief rating scale (25 items) with reasonable psychometric properties and concurrent validity with like measures.</p> <p>Limitations Weakness: This is not a TBI-specific measure, and sensitivity has not been established in sport-related concussion. Minimal research with mild TBI, none with sport-related concussion.</p>
<p>References</p>	<p>Key Reference(s): Goodman R. The Strengths and Difficulties Questionnaire: a research note. J Child Psychol Psychiatry. 1997 Jul;38(5):581-6.</p> <p>Additional References: Gale E, Holling A. Young people and stigma. Young Minds Magazine. 2000;49-50.</p> <p>Goodman R, Scott S. Comparing the Strengths and Difficulties Questionnaire and the Child Behavior Checklist: is small beautiful? J Abnorm Child Psychol. 1999 Feb;27(1):17-24.</p> <p>The California Evidence-Based Clearinghouse for Child Welfare. Strengths and Difficulties Questionnaire (SDQ). Retrieved 12July2012, from California Evidence-Based Clearinghouse for Child Welfare Strengths and Difficulties Questionnaire.</p> <p>TBI-Specific Reference(s): Petersen C, Scherwath A, Fink J, Koch U. Health-related quality of life and psychosocial consequences after mild traumatic brain injury in children and adolescents. Brain Inj. 2008 Mar;22(3):215-21.</p> <p><i>Document last updated March 2022 December 2025</i></p>

NINDS CDE Notice of Copyright Strengths and Difficulties Questionnaire (SDQ) Follow-up Version

Availability	Please visit this website for more information about the instrument: Strengths and Difficulties Questionnaire
Classification TBI v3.0 Classification Pending	<p>NeuroRehab Core: Pediatric (ages 3-16)</p> <p>Supplemental: Traumatic Brain Injury (TBI)</p> <p>Exploratory: Sport-Related Concussion (SRC) Subacute (after 72 hours to 3 months) and Persistent/Chronic (3 months and greater post concussion)</p>
Short Description of Instrument	<p>The Strengths and Difficulties Questionnaire (SDQ) is a screening measure for detecting behavior problems. There are multiple versions of the SDQ, depending on the age of the child, and the specific person completing the form (e.g., teacher/parent, self-completion). Domains include emotional problems, conduct problems, hyperactivity/inattention, peer relationships problems, and prosocial behavior.</p> <p>A. All versions of the SDQ include 25-items pertaining to attributes and are divided into five sub-scales: emotional symptoms, conduct problems, hyperactivity/inattention, peer relationship problems and pro-social behavior.</p> <p>B. Extended versions of the SDQ have questions pertaining to whether the respondent thinks the child has a problem and further questions about chronicity, distress, social impairment and burden to others.</p> <p>C. There are two follow-up questions for use after an intervention. The follow-up questions of the SDQ ask about the past one month, as opposed to the past six months or this school year, which is the reference period for the standard versions. May be completed by children aged 11–16, or by parents or teachers of children aged 4–16. It can be completed in about 5 minutes using paper and pencil.</p>
Comments/Special Instructions	<p>NeuroRehab-Specific:</p> <p>This measure is appropriate for ages 3-16 years. It is difficult to capture diagnosis traits in the first two years of a child's life. This tool assesses positive characteristics and is harmonious with NIH values of showing respect for individual differences.</p>
Scoring and Psychometric Properties	<p>Scoring: Questions are answered on a 3-point Likert scale. The score for each scale is the sum of item scores, generating a scale score from 0–10. A total difficulties score (from scores for hyperactivity, emotional symptoms, conduct problems and peer problems) ranges from 0–40.</p> <p>Psychometric Properties: The website lists over 100 papers that describe the normative and psychometric properties in English and other languages. https://www.sdqinfo.org/a0.html</p>
Rationale/Justification	<p>NeuroRehab-Specific:</p> <p>Strengths: The SDQ is a broad screening instrument for</p>

	<p>behavioral disturbance used in large epidemiological studies. It is shorter than the Child Behavior Checklist (CBCL) with only 25 items. It is a complement to the Pediatric Quality of Life Inventory (PedsQL) because it focuses on problem behaviors. In addition to the pediatric versions, there is also an adult version. It is free and available in multiple languages.</p> <p>Sport-Related Concussion-Specific: Advantages Strengths: This is an established measure in children with more severe acquired brain injury with initial use in the subacute phase in an international population which was referred to as "mild TBI" (not sport-related concussion specific) but appears to include at least some children with more severe injuries. Brief rating scale (25 items) with reasonable psychometric properties and concurrent validity with like measures.</p> <p>Limitations Weakness: This is not a TBI-specific measure, and sensitivity has not been established in sport-related concussion. Minimal research with mild TBI, none with sport-related concussion.</p>
<p>References</p>	<p>Key Reference(s): Goodman R. The Strengths and Difficulties Questionnaire: a research note. J Child Psychol Psychiatry. 1997 Jul;38(5):581-6.</p> <p>Additional References: Gale E, Holling A. Young people and stigma. Young Minds Magazine. 2000;49-50.</p> <p>Goodman R, Scott S. Comparing the Strengths and Difficulties Questionnaire and the Child Behavior Checklist: is small beautiful? J Abnorm Child Psychol. 1999 Feb;27(1):17-24.</p> <p>The California Evidence-Based Clearinghouse for Child Welfare. Strengths and Difficulties Questionnaire (SDQ). Retrieved 12July2012, from California Evidence-Based Clearinghouse for Child Welfare Strengths and Difficulties Questionnaire.</p> <p>TBI-Specific Reference(s): Petersen C, Scherwath A, Fink J, Koch U. Health-related quality of life and psychosocial consequences after mild traumatic brain injury in children and adolescents. Brain Inj. 2008 Mar;22(3):215-21.</p> <p>Document last updated March 2022 December 2025</p>

NINDS CDE Notice of Copyright Strengths and Difficulties Questionnaire (SDQ) Full Version

Availability	Please visit this website for more information about the instrument: Strengths and Difficulties Questionnaire
Classification TBI v3.0 Classification Pending	<p>NeuroRehab Core: Pediatric (ages 3-16)</p> <p>Supplemental: Traumatic Brain Injury (TBI)</p> <p>Exploratory: Sport-Related Concussion (SRC) Subacute (after 72 hours to 3 months) and Persistent/Chronic (3 months and greater post concussion)</p>
Short Description of Instrument	<p>The Strengths and Difficulties Questionnaire (SDQ) is a screening measure for detecting behavior problems. There are multiple versions of the SDQ, depending on the age of the child, and the specific person completing the form (e.g., teacher/parent, self-completion). Domains include emotional problems, conduct problems, hyperactivity/inattention, peer relationships problems, and prosocial behavior.</p> <p>A. All versions of the SDQ include 25-items pertaining to attributes and are divided into five sub-scales: emotional symptoms, conduct problems, hyperactivity/inattention, peer relationship problems and pro-social behavior.</p> <p>B. Extended versions of the SDQ have questions pertaining to whether the respondent thinks the child has a problem and further questions about chronicity, distress, social impairment and burden to others.</p> <p>C. There are two follow-up questions for use after an intervention. The follow-up questions of the SDQ ask about the past one month, as opposed to the past six months or this school year, which is the reference period for the standard versions. May be completed by children aged 11–16, or by parents or teachers of children aged 4–16. It can be completed in about 5 minutes using paper and pencil.</p>
Comments/Special Instructions	<p>NeuroRehab-Specific:</p> <p>This measure is appropriate for ages 3-16 years. It is difficult to capture diagnosis traits in the first two years of a child's life. This tool assesses positive characteristics and is harmonious with NIH values of showing respect for individual differences.</p>
Scoring and Psychometric Properties	<p>Scoring: Questions are answered on a 3-point Likert scale. The score for each scale is the sum of item scores, generating a scale score from 0–10. A total difficulties score (from scores for hyperactivity, emotional symptoms, conduct problems and peer problems) ranges from 0–40.</p> <p>Psychometric Properties: The website lists over 100 papers that describe the normative and psychometric properties in English and other languages. https://www.sdqinfo.org/a0.html</p>
Rationale/Justification	<p>NeuroRehab-Specific:</p> <p>Strengths: The SDQ is a broad screening instrument for</p>

	<p>behavioral disturbance used in large epidemiological studies. It is shorter than the Child Behavior Checklist (CBCL) with only 25 items. It is a complement to the Pediatric Quality of Life Inventory (PedsQL) because it focuses on problem behaviors. In addition to the pediatric versions, there is also an adult version. It is free and available in multiple languages.</p> <p>Sport-Related Concussion-Specific: Advantages Strengths: This is an established measure in children with more severe acquired brain injury with initial use in the subacute phase in an international population which was referred to as "mild TBI" (not sport-related concussion specific) but appears to include at least some children with more severe injuries. Brief rating scale (25 items) with reasonable psychometric properties and concurrent validity with like measures.</p> <p>Limitations Weakness: This is not a TBI-specific measure, and sensitivity has not been established in sport-related concussion. Minimal research with mild TBI, none with sport-related concussion.</p>
<p>References</p>	<p>Key Reference(s): Goodman R. The Strengths and Difficulties Questionnaire: a research note. J Child Psychol Psychiatry. 1997 Jul;38(5):581-6.</p> <p>Additional References: Gale E, Holling A. Young people and stigma. Young Minds Magazine. 2000;49-50.</p> <p>Goodman R, Scott S. Comparing the Strengths and Difficulties Questionnaire and the Child Behavior Checklist: is small beautiful? J Abnorm Child Psychol. 1999 Feb;27(1):17-24.</p> <p>The California Evidence-Based Clearinghouse for Child Welfare. Strengths and Difficulties Questionnaire (SDQ). Retrieved 12July2012, from California Evidence-Based Clearinghouse for Child Welfare Strengths and Difficulties Questionnaire.</p> <p>TBI-Specific Reference(s): Petersen C, Scherwath A, Fink J, Koch U. Health-related quality of life and psychosocial consequences after mild traumatic brain injury in children and adolescents. Brain Inj. 2008 Mar;22(3):215-21.</p> <p><i>Document last updated March 2022 December 2025</i></p>

NINDS CDE Notice of Copyright Strengths and Difficulties Questionnaire (SDQ) Single Version

Availability	Please visit this website for more information about the instrument: Strengths and Difficulties Questionnaire
Classification TBI v3.0 Classification Pending	Supplemental: Traumatic Brain Injury (TBI)
Short Description of Instrument	<p>The Strengths and Difficulties Questionnaire (SDQ) is a screening measure for detecting behavior problems. There are multiple versions of the SDQ, depending on the age of the child, and the specific person completing the form (e.g., teacher/parent, self-completion).</p> <p>The forms have between one and three of the following components:</p> <p>A. All versions of the SDQ include 25-items pertaining to attributes and are divided into five sub-scales: emotional symptoms, conduct problems, hyperactivity/inattention, peer relationship problems and pro-social behavior.</p> <p>B. Extended versions of the SDQ have questions pertaining to whether the respondent thinks the child has a problem and further questions about chronicity, distress, social impairment and burden to others.</p> <p>C. There are two follow-up questions for use after an intervention. The follow-up questions of the SDQ ask about the past one month, as opposed to the past six months or this school year, which is the reference period for the standard versions.</p> <p>May be completed by children aged 11-16, or by parents or teachers of children aged 4-16. It can be completed in about 5 minutes using paper and pencil.</p>
Comments/Special Instructions	
Scoring and Psychometric Properties	<p>Scoring: Questions are answered on a 3-point Likert scale. The score for each scale is the sum of item scores, generating a scale score from 0-10. A total difficulties score (from scores for hyperactivity, emotional symptoms, conduct problems and peer problems) ranges from 0-40.</p> <p>Psychometric Properties: Over 100 papers that describe the normative and psychometric properties in English and other languages have been published, see: https://www.sdqinfo.org/a0.html</p>
Rationale/Justification	<p>Strengths:</p> <p>Weaknesses:</p>
References	<p>Key Reference(s): Goodman R. The Strengths and Difficulties Questionnaire: a research note. J Child Psychol Psychiatry. 1997 Jul;38(5):581-6.</p> <p>Additional References:</p>

Gale E, Holling A. Young people and stigma. Young Minds Magazine. 2000;49-50.

Goodman R, Scott S. Comparing the Strengths and Difficulties Questionnaire and the Child Behavior Checklist: is small beautiful? J Abnorm Child Psychol. 1999 Feb;27(1):17-24.

TBI-Specific Reference(s):

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NINDS CDE Notice of Copyright

Test of Word Reading Efficiency 2nd Edition (TOWRE-2)

Availability	Please visit this website for more information about the instrument: Test of Word Reading Efficiency 2nd Edition
Classification	<p>Supplemental: Traumatic Brain Injury (TBI)</p> <p>Exploratory: Sport-Related Concussion (SRC)</p>
Short Description of Instrument	<p>The Test of Word Reading Efficiency 2nd Edition (TOWRE-2) assesses reading development with two subtests that present the participant either with familiar words or unfamiliar nonsense words. The participant is scored on the ability to pronounce the words accurately. Each of the subtests has two alternate forms.</p> <p>The TOWRE-2 is comprised of two subtests, lasting 45 seconds each.</p> <p>The test should be administered by trained research assistants with formal training in administration, scoring, and interpretation of clinical assessments.</p>
Comments/ Special instructions	The TOWRE is appropriate for ages 6 through 24.
Scoring and Psychometric Properties	<p>Scoring: Raw scores are the number of real words that are read correctly in 45 seconds and the number of non-words pronounced correctly in 45 seconds.</p> <p>Psychometric Properties: Subtest standard scores have a mean of 100 and a standard deviation of 15. The TOWRE scoring software includes percentiles, standard scores, and age and grade equivalents.</p>
Rationale/ Justification	<p>Strengths: Quick screening tool useful for early identification of reading problems and useful for diagnosing reading disabilities.</p> <p>Weaknesses: Only appropriate for younger ages (6-24) and scores may be lower due to language barriers for non-native English speakers.</p>
References	<p>Key References: Wagner, R., Torgesen, J., and Rashotte, C. (1999). Comprehensive Test of Phonological Processing. Examiner's Manual. Pearson Assessments: San Antonio, TX.</p> <p>Torgesen, J., Wagner, R., and Rashotte, C. (1999). Test of Word Reading Efficiency. Pro-Ed: Austin, TX. Western Psychological Services. Test of Word Reading Efficiency (TOWRE). Retrieved July 12, 2012.</p> <p>Additional Reference(s):</p> <p>TBI-Specific References: Ewing-Cobbs L, Prasad MR, Swank P, Kramer L, Cox CS Jr, Fletcher JM, Barnes M, Zhang X, Hasan KM. Arrested development and disrupted callosal microstructure following</p>

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