

Outcome Measure	<b>NEPSY Social Cognition – Second Edition (NEPSY-II)</b>
Sensitivity to Change	Yes
Population	Paediatrics
Domain	Social Cognition
Type of Measure	Objective assessment
ICF-Code/s	B1 and d3
Description	<p>The NEPSY Second Edition (NEPSY-II) is the revision of the NEPSY (Korkman, Kirk, &amp; Kemp, 1998), a comprehensive instrument designed to assess neuropsychological development in preschool and school-age children. Results obtained from a NEPSY-II assessment inform diagnoses and aid in intervention planning for a variety of childhood disorders. In particular, the NEPSY-II provides the clinician with insight regarding academic, social and behavioural difficulties.</p> <p>The NEPSY-II consists of a series of neuropsychological subtests that can be used in various combinations according to the needs of the child and the experience of the examiner. A broad range of subtests is included to assess neuropsychological development across six functional domains:</p> <ol style="list-style-type: none"> <li>1) Attention and Executive Functioning,</li> <li>2) Language,</li> <li>3) Memory and Learning,</li> <li>4) Sensorimotor,</li> <li>5) Social Perception, and</li> <li>6) Visuospatial Processing.</li> </ol> <p>The most common types of assessment using the NEPSY-II are a</p> <ol style="list-style-type: none"> <li>1) <b>General Assessment</b> for an overview of a child's neuropsychological status,</li> <li>2) <b>Diagnostic Assessment</b> based on the primary diagnostic concerns or referral questions,</li> <li>3) <b>Selective Assessment</b> with the examiner selecting subtests based on clinical needs, and</li> <li>4) <b>Full Assessment</b> for a comprehensive neuropsychological evaluation.</li> </ol> <p>The NEPSY-II enables the clinician to focus on specific cognitive abilities related to general referral questions (E.g. school readiness). The examiner is not required to administer every subtest, only those relevant to the current referral question.</p>

	<p>Subtest scores, rather than global index or domain scores, are used to determine a child's strengths and weaknesses.</p> <p><b>New Domain: Social Perception</b>  Social perception is one aspect of social cognition, the study of how people process social information about individuals, groups, and social context and the attribution of intent in social interactions. Social cognition comprises those mental functions that operate in understanding social contexts, including the ability to interpret non-verbal communication, form impressions of others, and use contextual information to make inferences about others and their behaviour.</p> <p>A concerted effort to include measures of social ability was made during the development of the NEPSY-II. Upon review of the literature, it was decided to focus on two particular areas of social perception:</p> <ol style="list-style-type: none"> <li>1) identification of facial expressions; and</li> <li>2) ability to understand others' perspectives and points of view and understand how these influence the behaviours of others (E.g., theory of mind).</li> </ol> <p>The subtests in the social perception domain assess recognition of facial affect, affect in relation to contextual cues, and theory of mind. <b>Affect Recognition</b> assesses the ability to determine if two different children demonstrate the same affect and to match different children with the same affect. <b>Theory of Mind</b> assesses the child's ability to comprehend the perceptions and experiences of others and apply that knowledge to questions.</p>
<p><b>Properties</b></p>	<p>Scores on NEPSY-II are classified as primary, process, or contrast scores, or as behavioural observations.</p> <ol style="list-style-type: none"> <li>1) <b>Primary scores</b> are available on all subtests and describe the overall or main abilities involved in the subtest.</li> <li>2) <b>Process scores</b> provide more specific information on the component skills required to complete or influence performance on the task.</li> <li>3) <b>Contrast scores</b> apply a scaled score metric to score comparisons within or between subtests, providing information on the performance of a higher-level skill or ability controlling for a lower-level or more basic skill.</li> <li>4) <b>Behavioural observations</b> provide quantitative data on common behaviours observed in children.</li> </ol> <p>Scores are expressed as scaled scores, percentiles or cumulative percentages.</p> <p><b>Psychometric Properties</b></p> <p><b><u>Normative Data</u></b></p> <p>The NEPSY-II normative data were collected from 2005 to 2006. The sample was stratified on key demographic variables according the US</p>

	<p>census data (2003). Several subtests were not modified in any way from the 1998 NEPSY. These subtests were not re-normed in the NEPSY-II and the norms collected for the 1998 NEPSY are reprinted.</p> <p><b><u>Evidence of Reliability and Validity</u></b></p> <p>Along with special group studies, a number of concurrent studies were conducted to provide evidence of the battery's reliability and validity.</p> <p>Retest data are reported for all scaled scores for all ages, and by smaller age bands.</p> <p>Evidence of convergent and discriminant validity is provided by correlation studies with the following instruments: NEPSY, Wechsler Intelligence Scale of Children - Fourth Edition (WISCIV; Wechsler, 2003), Differential Abilities Scales - Second Edition (DAS-II; Elliott, 2007), Wechsler Nonverbal Scale of Ability (WNV; Wechsler and Naglieri, 2006), Wechsler Individual Achievement Test - Second Edition (WIAT-II; Harcourt Assessment, 2005), Children's Memory Scale (CMS; Cohen, 1997), Delis-Kaplan Executive Function System (D-KEFS; Delis et al., 2001), Bracken Basic Self Concept Scale - Third Edition: Receptive (BBCS-3:R; Bracken, 2006a), Bracken Basic Self Concept Scale - Third Edition: Expressive (BBCS-3:E; Bracken, 2006b), Devereux Scales of Mental Disorders (DSMD; Naglieri, LeBuffe &amp; Pfeiffer, 1994), Children's Communication Checklist - Second Edition, United States Edition (CCC-2; Bishop, 2006), Brown Attention-Deficit Disorder Scales for Children and Adolescents (Brown ADD Scales; Brown, 2001), and Adaptive Behaviour Assessment System-Second Edition (ABAS-II; Harrison &amp; Oakland, 2003).</p>
<b>Advantages</b>	<p>Several features of the NEPSY-II make it particularly useful for assessing children and adolescents:</p> <ol style="list-style-type: none"> <li>(1) The subtests were designed specifically for children between the ages of 3 and 16, <u>providing the clinician with age appropriate assessment of cognitive functioning.</u></li> <li>(2) The subtests were normed on a single, well stratified sample. This <u>provides a comprehensive view of neuropsychological processes in children and patterns of age-related quantitative and qualitative changes in neuropsychological performance.</u></li> <li>(3) It was developed using four different subtest administration orders to limit the effects of subtest order on the normative data. This <u>allows for flexibility in subtest selection and administration order.</u></li> <li>(4) The NEPSY-II is designed to <u>help identify cognitive deficits related to disorders that are typically first diagnosed in childhood and that may limit a child's academic success.</u></li> </ol>
<b>Disadvantages</b>	-
<b>Additional Information</b>	<p><b>Revision Goals for the NEPSY-II</b></p> <p>Revision goals for the NEPSY-II were based on research in the fields of</p>

neuropsychology, child development, and clinical psychology; customer and expert feedback; author experience; and early pilots of revisions and new subtests. The four primary revision goals were to:

- (1) improve domain coverage across the age span, enhance clinical and diagnostic utility,
- (2) improve psychometric properties, and
- (3) enhance usability and ease of administration.

### **(A) Improving Domain Coverage**

The need for assessment of a variety of cognitive abilities has grown since the publication of the 1998 NEPSY. In response to changes and advances in the field and the need to expand the areas covered by the NEPSY, improvements were made in the NEPSY–II to enhance the measurement of executive functioning, visuospatial processing, and social perception.

#### **Executive Functioning**

The NEPSY–II includes three new measures of executive functioning: Animal Sorting, Clocks, and Inhibition.

#### **Visuospatial Processing**

The NEPSY–II includes two new measures of visuospatial processing: Picture Puzzles and Geometric Puzzles.

#### **Social Perception**

The Social Perception domain of NEPSY–II was created to enhance the assessment of children with autism spectrum disorders. This new domain includes two subtests: Affect Recognition and Theory of Mind.

### **(B) Enhancing Clinical Utility**

#### **Emphasis on Subtest-Level Scores**

Domain scores have been dropped from the NEPSY–II in favour of the more clinically sensitive subtest level scores. This requires the clinician to review the performance of the child at the level of specific abilities rather than at the global domain level where scores often mask subtle deficits.

#### **Special Group Studies**

To assess the clinical utility of the NEPSY–II, 10 special group studies were conducted during standardisation. Special group samples included children with the following diagnoses: Attention- Deficit/ Hyperactivity Disorder, Asperger’s Disorder, Autistic Disorder, Deaf and Hard of Hearing, Emotionally Disturbed, Language Disorder, Mild Intellectual Disability, Mathematics Disorder, Reading Disorder, and Traumatic Brain Injury.

### **(C) Improving Psychometric Properties**

#### **Normative Data**

Items and scores may become outdated over time. Scores used to

determine eligibility for special programs and for diagnostic purposes should be based on normative data that are both current and representative of the relevant population. The NEPSY-II normative data were collected from 2005 to 2006. The sample was stratified on key demographic variables (i.e., age, sex, race/ethnicity, parent education level, and geographic region) according to the October 2003 U.S. census data. Several subtests were not re-normed in the NEPSY-II and the norms collected for the 1998 NEPSY are reprinted. Design Fluency, Imitating Hand Positions, List Memory, Manual Motor Sequences, Oromotor Sequences, Repetition of Nonsense Words, and Route Finding were not re-normed and were not modified in any way from the 1998 NEPSY.

#### **Evidence of Reliability and Validity**

Along with the special group studies described earlier, a number of concurrent studies were conducted to provide evidence of the battery's reliability and validity. Retest data are reported for all scaled scores for all ages, and by smaller age bands. Evidence of convergent and discriminant validity is provided by correlation studies with the following instruments: NEPSY, Wechsler Intelligence Scale for Children—Fourth Edition (WISC-IV; Wechsler, 2003), Differential Abilities Scales—Second Edition (DAS-II; Elliott, 2007), Wechsler Nonverbal Scale of Ability (WNV; Wechsler & Naglieri, 2006), Wechsler Individual Achievement Test—Second Edition (WIAT-II; Harcourt Assessment, 2005), Children's Memory Scale (CMS; Cohen, 1997), Delis-Kaplan Executive Function System (D-KEFS; Delis et al., 2001), Bracken Basic Concept Scale—Third Edition: Receptive (BBCS-3:R; Bracken, 2006a), Bracken Basic Concept Scale—Expressive (BBCS:E; Bracken, 2006b), Devereaux Scales of Mental Disorders (DSMD; Naglieri, LeBuffe, & Pfeiffer, 1994), Children's Communication Checklist—Second Edition, United States Edition (CCC-2; Bishop, 2006), Brown Attention-Deficit Disorder Scales for Children and Adolescents (Brown ADD Scales; Brown, 2001), and Adaptive Behaviour Assessment System—Second Edition (ABAS-II; Harrison & Oakland, 2003).

#### **Floors and Ceilings**

Increased attention was paid to the floors and ceilings of subtests to ensure adequate coverage across the wide range of abilities in children ages 3–16. To address this wide range of ability, subtests were developed for subsets of the age range (E.g., Body Part Naming and Identification for 3–4 years old), and easier and more difficult items were added to many of the subtests. Data collected on children with mild intellectual disability demonstrated the improved floors across the subtests. Although ceilings were increased, the focus of the NEPSY-II is on identifying impairment in various domains, so the focus on improved floors was critical to the clinical utility of the NEPSY-II.

#### **(D) Enhancing Usability**

##### **Flexibility of Subtest Administration**

The NEPSY-II was designed to allow examiners to choose the subtests

	<p>relevant to a specific clinical investigation. Although a general referral battery is provided, clinicians are free to choose subtests to administer based on clinical, research, or child-specific needs. The method of norms collection supports the use of the norms in this flexible approach to assessment. By tailoring the NEPSY–II to the needs of individual children, clinicians can reduce testing time and produce more meaningful results.</p> <p><b><u>Referral Batteries</u></b></p> <p>Based on the information obtained from the special group studies, eight batteries are suggested to assist examiners in planning assessments for common referral questions.</p> <p><b><u>Order of Presentation</u></b></p> <p>Most of the NEPSY–II materials are presented in alphabetical order to increase usability during administration. Due to the multiple administration order possibilities, the alphabetised components make subtests easier to find. In addition, the Administration Manual contains only the information required to administer the subtests and score subtest-level data.</p>
<b>Reviewers</b>	<p>Vicki Anderson Cathy Catroppa</p>

## References

Korkman, M., Kirk, U., & Kemp, S. (1998). NEPSY: A developmental neuropsychological assessment. San Antonio, TX: The Psychological Corporation.

Korkman, M., Kirk, U., & Kemp, S.L. (2007a). NEPSY II. Administrative manual. San Antonio, TX: Psychological Corporation.

Korkman, M., Kirk, U., Kemp, S.L. (2007b). NEPSY II. Clinical and interpretative manual. San Antonio, TX: Psychological Corporation.