

Technical Report



SENSORY PROFILE

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Overview

The *Sensory Profile™* provides a standard method for professionals to measure the sensory processing abilities of children 5 to 10 years old (separate cut scores for 3 and 4 year olds are provided in the manual) and to profile the effects of sensory processing on functional performance in the children's daily lives. The *Sensory Profile* is a judgment-based questionnaire designed to contribute to a comprehensive assessment of a child's sensory performance when combined with other evaluations, observations, and reports.

The *Sensory Profile* uses a sensory integrative and neuroscience frame of reference and supports a family-centered care philosophy by involving the caregivers in the data-gathering process. The caregiver who has daily contact with the child completes the questionnaire by reporting the frequency with which behaviors described in the profile items occur. The therapist then scores the responses, and the team serving the child follows up on any relationship between sensory processing and performance difficulties.

Benefits and Features

The *Sensory Profile™* provides an evaluation tool for professionals to gather information about children's sensory processing abilities that support and/or interfere with functional performance. Important features of the *Sensory Profile* include:

- capturing salient information about a child's sensory processing;
- clearly linking sensory processing with the child's daily life performance;
- providing information for theory-based decision making; and
- including caregivers as critical members of the team.

The test applies for children with all types of disabilities and severity levels. It is easy to administer, score, and interpret.

The *Sensory Profile* provides both a measure of current performance and an indication of intervention directions. Because the *Sensory Profile* is organized into sections, test results suggest which sensory systems might be interfering with the child's performance of daily tasks. The information gained from the *Sensory Profile* provides status of current performance levels; and the section scores and the factor structure provide guideposts for planning interventions with the families and other caregivers.

Description of Item Categories

The *Sensory Profile* consists of 125 items grouped into three main sections.

Sensory Processing contains six item categories that reflect particular types of sensory processing as part of daily life.

- **Auditory Processing** items measure the child's responses to things heard.
- **Visual Processing** items measure the child's responses to things seen.
- **Vestibular Processing** measures the child's responses to movement.
- **Touch Processing** measures the child's responses to stimuli that touch the skin.
- **Multisensory Processing** measures the child's responses to activities that contain a combined sensory experience.
- **Oral Sensory Processing** measures the child's responses to touch and taste stimuli to the mouth.

Modulation contains five item categories that reflect various combinations of input for use in daily life.

- **Sensory Processing Related to Endurance/Tone** measures the child's ability to sustain performance.
- **Modulation Related to Body Position and Movement** measures the child's ability to move effectively.
- **Modulation of Movement Affecting Activity Level** measures the child's demonstration of activeness.
- **Modulation of Sensory Input Affecting Emotional Responses** measures the child's ability to use body senses to generate emotional responses.

- **Modulation of Visual Input Affecting Emotional Responses and Activity Level** measures the child's ability to use visual cues to establish contact with others.

Behavioral and Emotional Responses contains three item categories that reflect emotional and behavioral responses that might indicate a child's sensory processing abilities.

- **Emotional/Social Responses** items indicate the child's psychosocial coping strategies.
- **Behavioral Outcomes of Sensory Processing** items indicate the child's ability to meet performance demands.
- **Thresholds for Response** items indicate the child's level of modulation.

Items on the Caregiver Questionnaire unite to form nine meaningful groups or factors: Sensory Seeking, Emotionally Reactive, Low Endurance/Tone, Oral Sensory Sensitivity, Inattention/Distractibility, Poor Registration, Sensory Sensitivity, Sedentary, and Fine Motor/Perceptual. The factors identify items on the Caregiver Questionnaire that characterize children by their responsiveness to sensory input (i.e., overly responsive or underresponsive).

A short form of the *Sensory Profile* targets sensory modulation rather than the more multidimensional aspects of development. Researchers selected 38 items from the *Sensory Profile* that were the most indicative of sensory processing issues that affect performance. The *Short Sensory Profile* is most appropriate for screening programs and research protocols.

Scores Provided

Researchers defined a classification system, based on the performance of 1,037 children without disabilities, by determining cut scores for each section and factor raw score totals. The classification system describes the child's sensory processing abilities for each section

and factor as Typical Performance, Probable Difference, or Definite Difference and helps the professional quickly determine whether a child's performance on any section or factor groupings is of concern.

Research

The research on the *Sensory Profile* took place from 1993 to 1999 and included more than 1,200 children with and without disabilities between the ages of 3 and 14.

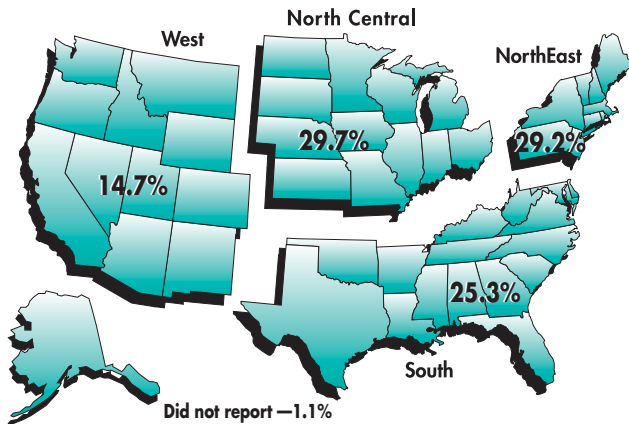
The 166 occupational therapists who participated as examiners provided a sample of 1,037 children without disabilities.

Examiners tested 524 girls and 510 boys, with gender for three children not reported. Children were excluded from the sample if caregivers reported they were receiving special education services and were on regular prescription medication.

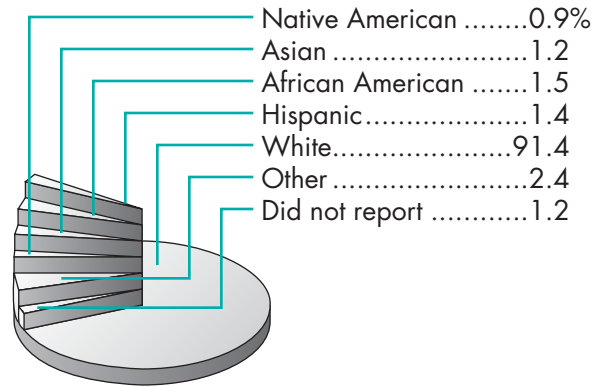
Age in years and months	3.0 to 3.11	4.0 to 4.11	5.0 to 5.11	6.0 to 6.11	7.0 to 7.11	8.0 to 8.11	9.0 to 9.11	10.0 to 10.11	Total
Sample* Number	139	138	140	124	139	127	110	120	1,037

*Children without disabilities

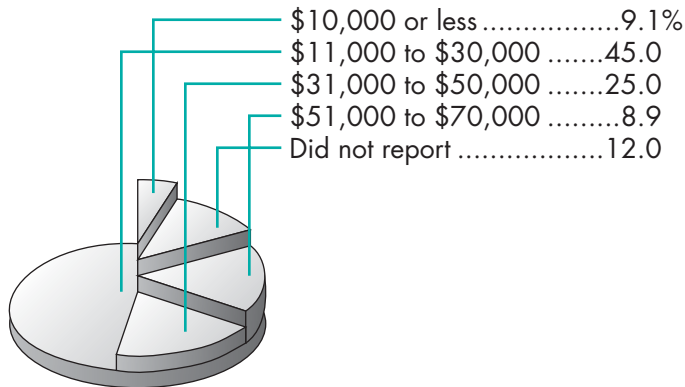
Sample by Geographic Region



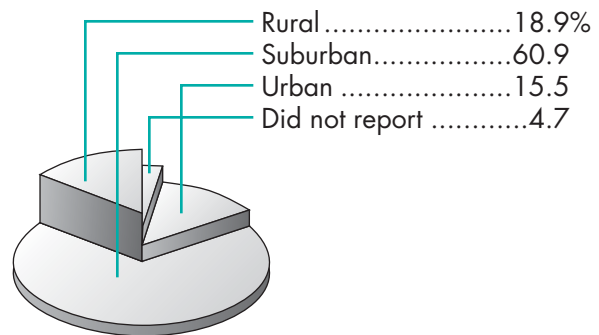
Race/Ethnicity



Income



Community



Researchers also conducted studies with smaller samples of children with various disabilities to establish validity. Children in the studies had been identified previously as having attention deficit/hyperactivity disorder (61 between ages 3 and 15 years), autism/pervasive devel-

opmental disorder (32 between ages 3 and 13 years), Fragile X disorder (24 between ages 3 and 17 years), or a sensory modulation disorder (21 between ages 4 and 9 years). A small number of children with other behavior or learning disabilities also were included.

Reliability and Validity

Test reliability is an indication of the degree to which a test provides a precise and stable score. Cronbach's coefficient alpha was calculated to examine the internal consistency for each section of the *Sensory Profile*. Internal consistency indicates the extent to which the items in each section measure a single construct. The values of alpha for the various sections ranged from .47 to .91.

Content validity was established during development of the *Sensory Profile* by determining that the test sampled the full range of children's sensory processing behaviors and that the items were placed appropriately within sections. Methods used included a literature

review, expert review by eight therapists experienced in applying sensory integration theory to practice, and category analysis based on a national study. The study included 155 occupational therapists who categorized the items in the *Sensory Profile* without cues about where the items would be placed. Results indicated that 80% of the therapists agreed on the category placement on 63% of the items. For the remaining items, new categories were developed.

To examine the convergent and discriminant validity of the *Sensory Profile*, various scores obtained on the *Sensory Profile* were compared with different functional tasks as measured by the *School Function Assessment*.

Researchers hypothesized that some school functions would be related to aspects of sensory processing while others would be independent of sensory processing. The *School Function Assessment* was selected because professionals and caregivers are interested in children's performance at school.

Researchers expected to see the following relationships, which would establish convergent validity:

- High correlations between the *School Function Assessment* performance items and the items in Factor 9 (Fine Motor/Perceptual) on the *Sensory Profile* because both measures evaluate product behaviors such as hand use.
- High correlations between the *School Function Assessment* socialization and behavior interaction sections and the modulation sections and factors on the *Sensory Profile* because children who have difficulty regulating sensory input have difficulty constructing appropriate responses.

Researchers expected to see the following relationships to establish discriminant validity:

- Low correlations between the *School Function Assessment* sections that capture daily routines and the sensory sections of the *Sensory Profile* because children can learn these routines as patterns of performance that do not require planning each time.

As expected, there were large and meaningful correlations between the *Sensory Profile's* Factor 9 (Fine Motor/Perceptual) and the performance items of the *School Function Assessment*. The moderate correlations between the Behavioral Regulation and Positive Interaction sections of the *School Function Assessment* and the modulation sections from the *Sensory Profile* also suggest convergent validity. The study findings also provide evidence of discriminant validity. Researchers found low correlations between the more detailed performance items on the *School Function Assessment* and the items on the *Sensory Profile*.

Clinical Group Studies

The performance of clinical groups with disabilities was compared to the research sample of children without disabilities to determine whether the *Sensory Profile* could delineate among the groups based on the children's responses to sensory events in daily life. The clinical groups included children with autism and those with ADHD.

Thirty-two children 3 to 13 years old who had autism were evaluated. On nearly 90% of the items, children with autism showed performance that was meaningfully different from the performance of children without disabilities. They engaged in the behaviors on the *Sensory Profile* more frequently than children without disabilities.

Further analysis showed the items that were most different scattered across all factors on the *Sensory Profile*.

Sixty-one children 3 to 15 years old who had ADHD were evaluated. They exhibited 113 of the 125 behaviors on the *Sensory Profile* more frequently than children without disabilities. From this study, a separate reproducible ADHD worksheet was developed. This worksheet (located in the manual) can be used as part of comprehensive assessment data for diagnosing ADHD and can be used to validate parents' and teachers' referral concerns.

Summary

The *Sensory Profile* provides a standard method to measure a child's sensory processing abilities and to profile the effect of sensory processing on functional performance in the daily life of the child. The *Sensory Profile* uses a sensory integrative and neuroscience frame

of reference and supports a family-centered care philosophy by involving the caregivers in the data-gathering process. The test provides the necessary link between performance in daily life and theory in order to facilitate diagnosis and intervention planning.

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