

Sensory Processing in Typical Adults: A Pilot Study



Teresa May-Benson, MS, OTR/L

Jane Koomar, Ph.D., OTR/L, FAOTA

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Purpose



To begin to collect normative data on OTA's Adult/Adolescent Sensory History (ASH) to develop a comparison group for clinical populations.

Research Questions



- 1. What is the mean performance on the individual items and composite scores of the ASH for typical adults?**
- 2. What is the distribution of the scores across age, sex, education and income level and are there differences between subgroups in sensory processing?**



- 3. Are there patterns of sensory processing within the normal population?**
- 4. What is the relationship between sensory processing and functional activities and social skills?**



- 5. What is the relationship between social skills and functional activities?**
- 6. Are there differences between sensory modulation and discrimination items and their relationship to functional activities and social skills?**

Instrumentation




- **Developed as a clinical tool, drawn from items on various existing sensory histories for children and interviews with adults who experience sensory integration difficulties.**
- **Research version of ASH finalized following review and feedback from five master occupational therapy clinicians from across the country with expertise in adults with sensory processing problems**
- **Adult/Adolescent Sensory History (ASH) (Koomar, Hurwitz, Reis, May-Benson, 1997)**

Adult/ Adolescent Sensory History




- **Consists of 235 items**
- **Sensory categories consisted of:**
 - Visual Spatial Perception 30 items
 - Auditory 15 items
 - Movement 31 items
 - Touch 34 items
 - Taste/ Smell 19 items
 - Proprioception/Posture/Motor Planning 35 items
 - Sleep 4 items, (scored yes or no)
- **Sensory Items: Scored 1=Never, 2=Rarely, 3=Sometime, 4=Often, 5=Always**
- **Social category 21 items**
- **Activity category 46 items**

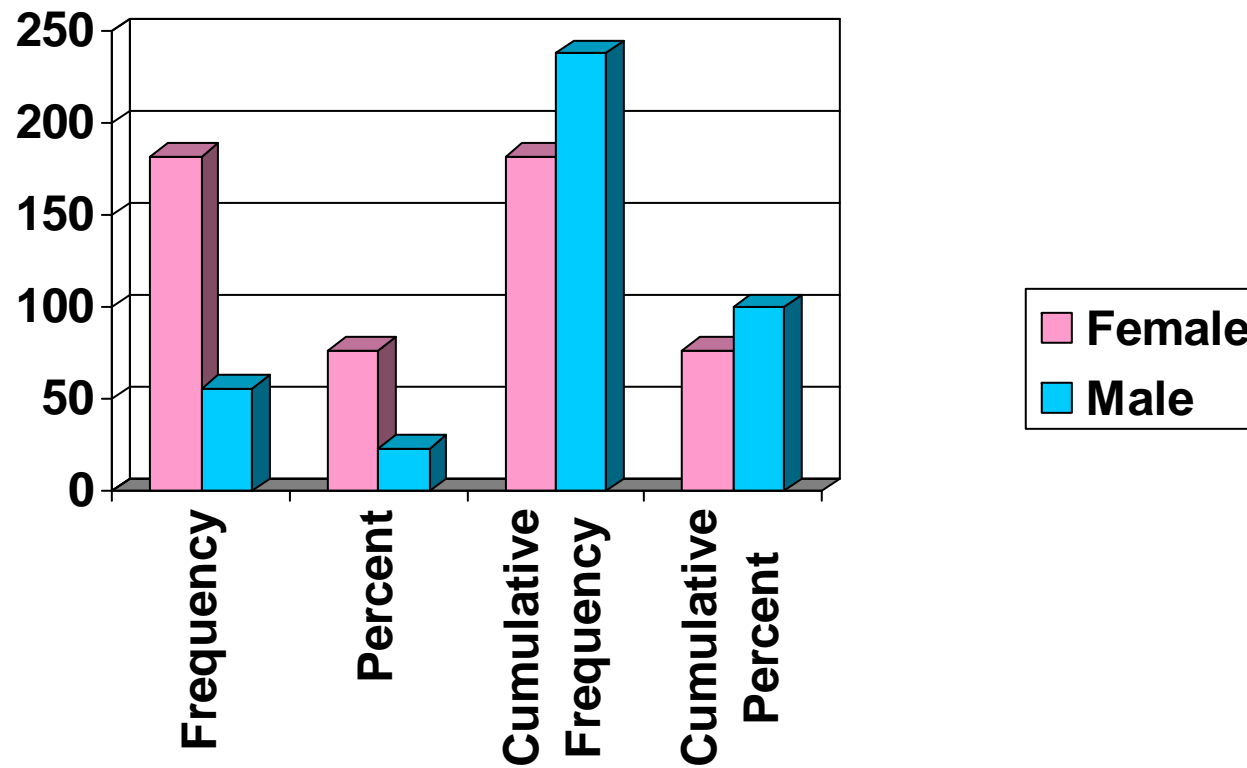
Methodology

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- Participant sample was collected from 14 states across the country and a small sample from Canada
 - Subjects were sought by 65 occupational therapists & physical therapists who attended SI workshops in different parts of the country, and OTA-Watertown administrative staff distributed the ASH to family, friends, and colleagues.
 - Participants anonymously completed the ASH and returned it to OTA-Watertown

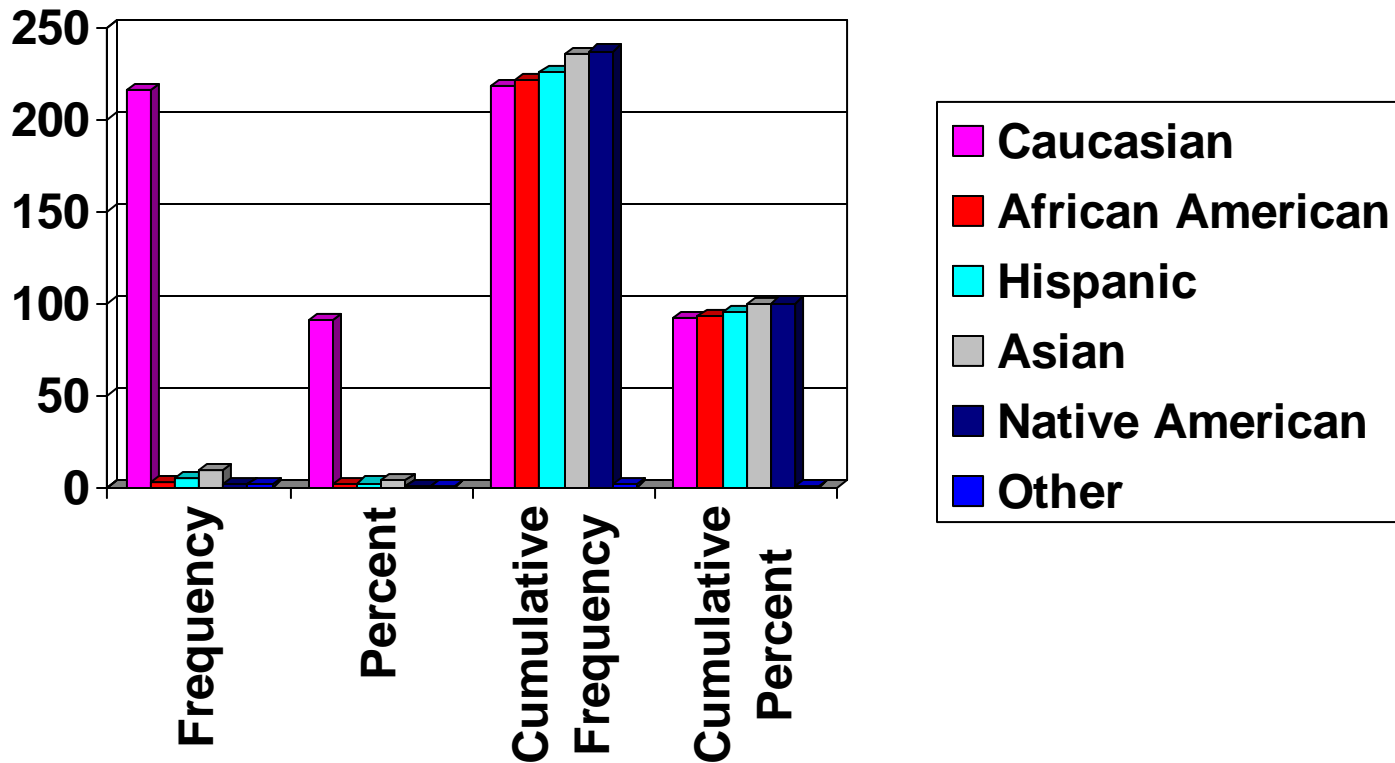
Participants

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- 238 typically functioning adults
 - Participants were included if they had no significant sensory or motor difficulties that interfered with ability to function in traditional school or vocational roles.
 - Age: 15 - 78 years
 - Sex: 182 Females, 56 Males
 - Range of Educational and Income levels

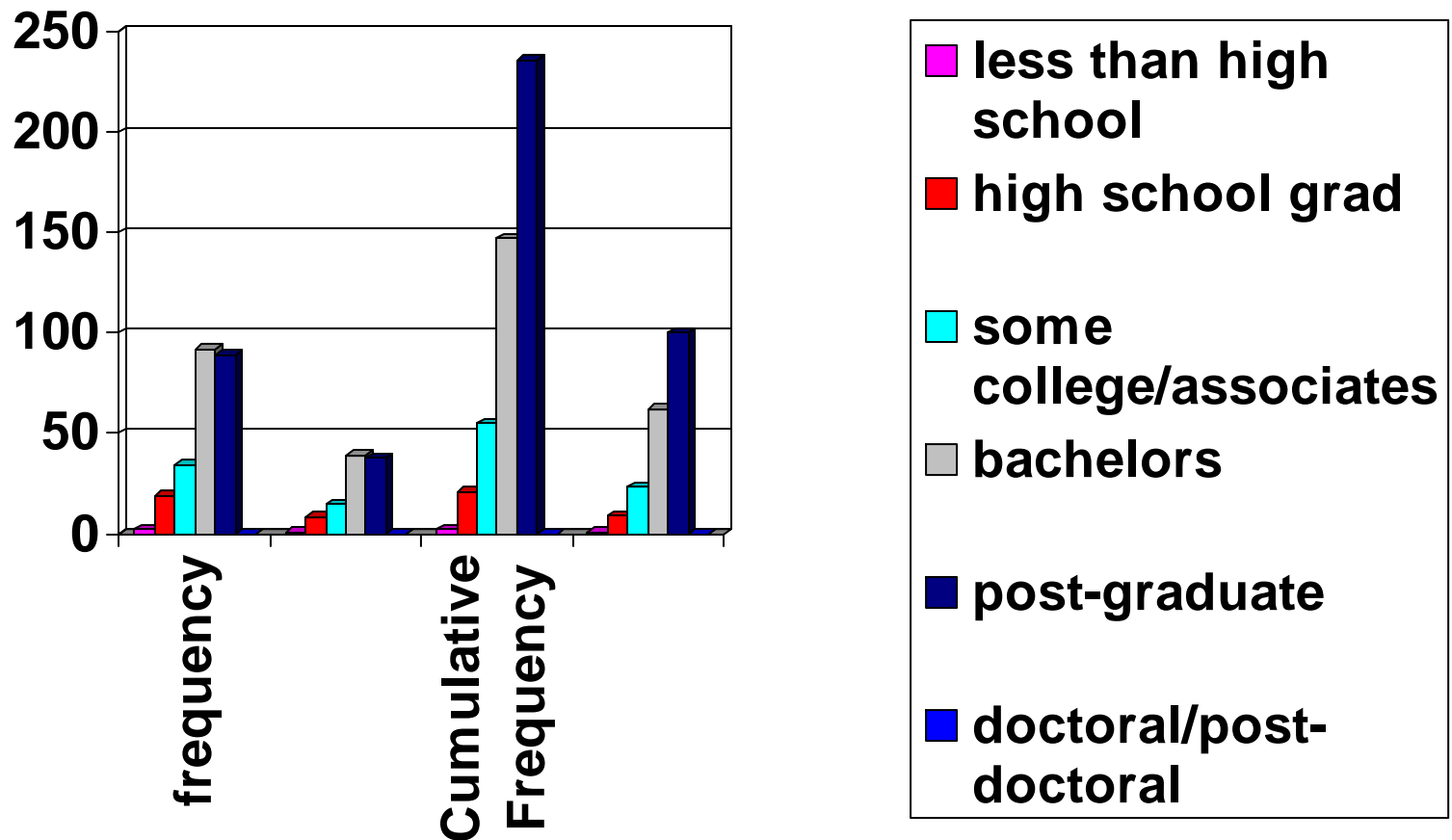
Age Distribution



Client's Race



Highest Education Completed



Results



- **Question 1: Mean performance**
 - 182 of 188 of sensory items (97%) had mean scores of 1 or 2
 - 16 of 21 social items (76%) had mean scores of 1 or 2
 - 34 of 47 activity items (72%) had mean scores of 4
 - Composite scores for total sensory history, each sensory system, social and activity categories were calculated for further analysis

- **A normal distribution of scores was obtained for total sensory history score**



■ Question 2: Score Distributions

■ ANOVA showed no significant difference in total sensory history score for sex, education and income

- Age F (3,232) 2.08, p = .103
- Sex F (1,237) 2.52, p = .113
- Education F (4,235) .55, p = .699
- Income F (5,224) .76, p = .582



- **Question 3: Patterns of Sensory Processing**
- **Correlation analysis was completed on total sensory history score, sensory composites, and social and activity composites**
- **Pearson r resulted in significant relationships between total sensory history score and all sensory, social and activity composites, except sleep at, $r > .09$, $p < .14$.**




Age	N	X	SD	Range
18 – 25	34	51.088	4.30	46 - 60
25 – 35	51	39.843	2.68	36 - 45
35 – 45	100	29.730	2.86	26 - 35
45 – 60	30	22.700	2.52	15 - 25

Pearson Correlations



	AU	VSP	T	MV	PR	SL	ACT	SOC
SxHx	.794	..735	.853	.760	.872	.116	-.445	.695
Auditory	1	.562	-	-	-	-	-	.561
Visual	.562	1	-	-	-	-	-	.492
Touch	.595	.531	1	-	-	-	-	.519
Movement	.551	.430	.536	1	-	-	-	.627
Prop	.669	.564	.636	.731	1	-	-	.652
Sleep	.093	.131	.125	.095	.190	1	-	.251
Activity	-.361	-.293	-0.314	-.239	-.450	-.095	1	-.321

Factor Analysis

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- **Preliminary rotated factor analysis revealed 45 factors with eigenvalues greater than 1 and suggests 12 primary factors (communality > .30)**
 - Auditory processing (20 items)
 - Visual spatial/oral/oculo-motor/skilled eye-hand (16 items)
 - Visual/TD/proprioception (24 items)
 - Vestibular - modulation (18 items)
 - Vestibular - discrimination (10 items)
 - Proprioception (11 items)
 - Tactile defensiveness (10 items)
 - Clothing tactile defensiveness 10 items)
 - Visual/oculo-motor and motor sequencing (10 items)
 - Oral organization strategies and panic/anxiety (5 items)
 - Light touch tactile defensiveness (7 items)
 - Deep pressure touch/ proprioception (8 items)



■ Question 4: Sensory Processing and Activities/ Social Skills

**Regression analysis showed significant relationship
between total SxHx score and Functional Activities**

- R-square = .167, $p = .0001$.
- Regression with individual sensory composites yielded
- R-square= .214, $p = .0001$.
- Proprioception composite $t = -3.68$, $p > .0003$



■ **Regression analysis showed significant relationship between total SxHx score and Social**

- R-square = .421, $p = .0001$.
- Regression with individual sensory composites yielded
- R-square = .446, $p = .0001$.
- Proprioception composite $t = 4.79$, $p > .0001$
- Tactile composite $t = 2.89$, $p > .004$



- **Question 5: Relationship between Social Skills and Functional Activities**
- **Regression analysis showed a significant relationship between social skills and functional activities**
- **R square = .103, p= .001.**



- **Question 6: Modulation/ Discrimination and Social Skills / Functional Activities**
- **Regression showed significant relationship between**
 - **Sensory modulation composite and social skills**
 - » **R-square = .351, p = .0001**
 - **Sensory discrimination composite and social skills**
 - » **R-square = .397, p = .0001**
 - **Sensory modulation composite and functional activities**
 - » **R-square = .089, p = .0001.**
 - **Sensory discrimination composite and functional activities**
 - » **R-square = .213, p = .0001.**

Conclusions



- **Significant relationships were found between overall sensory processing and social skills and functional activities. In addition, a number of specific patterns of sensory processing were identified.**
- **Sensory modulation and discrimination skills were shown to have a moderate relationship with social skills in adults and a somewhat lesser, but significant relationship with functional activities.**