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Prevalence of Sensory Processing in the General Population: It’s all about us!
Winnie Dunn PhD OTR FAOTA
Distinguished Professor
University of Missouri

Learning Objectives
- 1) recognize the similarities in sensory patterns across the general population and people with various conditions
- 2) recalibrate thinking about normality of sensory processing patterns for everyone
- 3) employ evidence to explain the relationships between sensory processing and participation

Prevalence of Sensory Processing Patterns in the General Population
Winnie Dunn PhD OTR FAOTA
Lauren Little PhD OTR
Evan Dean PhD OTR
Scott Tomchek PhD OTR FAOTA
University of Kansas

Children with various sensory patterns

Distribution of scores on CSP2

Distribution for typical, ASD, ADHD

Which MORE THAN OTHERS categories are most common?

Use of the Bell Curve

“This brings us to the question of the moment – can we use statistics in some simple and precise way to define mental normality? Can the bell curve provide a scientific guide in deciding who is mentally normal and who is not? Conceptually, the answer is ‘why not,’ but practically the answer is ‘hell no.’ ... There are just too many statistical, contextual, and value judgments that perplex a simple statistical solution.” (p. 7)

-[Frances, 2013, Saving Normal]

Use of the Bell Curve

“We must reconcile to there not being any simple standard to decide the question of how many of us are abnormal. The normal curve tells us a great deal about the distribution of everything from quarks to koalas, but it doesn’t dictate to us where normal ends and abnormal begins.” (p. 8)
Use of the Bell Curve

- "Human difference was never meant to be reducible to an exhaustive list of diagnoses...it takes all types to make a successful tribe and a full palette of emotions to make a fully lived life. We shouldn't medicalize difference and attempt to treat it away...”

[Frances, 2013, Saving Normal]

Adults with ASD have same patterns of sensory processing

- more than others’ scores
  - Avoiding
  - Sensitivity
  - Registration

repetitive behaviors & sensory processing[18]

- There is a relationship between repetitive/ SIB and stereotypies and patterns of sensory processing

- Sensory based interventions have not been successful at consistently changing repetitive behavior patterns

Positive & Negative affect & SP
Engel-Yeger & Dunn in press CJOT

- 290 adults 18-50 years old
- Positive & Negative Affect Scale [PANAS]

Sensory Processing & Participation

The state of the science on sensory factors and their impact on daily life for children:

A SCOPING REVIEW


No. of Studies by Year

SP & DAILY LIFE: School [19]

SENSORY PROCESSING and DAILY LIFE cont.

- Correlations between home and school sensory patterns are moderate, suggesting that there are both universal and context specific features
26 **SP & DAILY LIFE: eating [7]**
- Children responsive to visually familiar foods
  [adults use touch to decide]

27 **SP & DAILY LIFE: Play [6]**
- Lower proprioception: sedentary play
- Children with ADHD and ASD have fewer play choices

28 **SP & DAILY LIFE: adaptive behavior [5]**
- In FASD sensory processing differences are associated w/ adaptive behavior
  - [unrelated to IQ]
  -
- Children with ASD/ ADHD:
  - low thresholds: low autonomy in self care
  - Low registration: less involved in self care & daily living

29 **SP & DAILY LIFE: Activity Participation [7]**
- Low thresholds SP: lower competence
- Children w/wo ADHD with differences in SP: no differences in participation
- Children with ASD: SP + lower participation

30 **SP & DAILY LIFE: continence [2]**
- In 2 studies, researchers concluded that sensory processing informs incontinence and can be helpful in resolving this challenge for families

31 **SP & DAILY LIFE: sleep [1]**
- For children with FASD
  - sensitivity-shorter sleeping
  - Seeking-less total sleep
  - Avoiding-more wakefulness

32 **SP & PARTICIPATION: Social Participation [10]**
- When SP is different, same levels of enjoyment with family and small no. of friends
- Children in gen pop with sensitivities have differences in social interactions

33 **SP & FAMILY INTERACTIONS [16]**

34 **Pain experience & Sensory Processing**
- Adults who are overly sensitive to sensory input continue to experience pain sensations at least 5 minutes after the sensation is over...
- What does this ‘residue’ mean for participation?

1 **HANDWRITING**
SLEEPING
SEEKING predicts handwriting pressure, time and spatial organization
SENSITIVITY predicts velocity
SENSITIVITY correlated with poorer quality of sleep

[touch,
visual,
auditory]

WOMEN & CHOCOLATE!
- Women who have higher sensitivity:
  - Eat more emotionally
  - Eat more chocolate

Findings from Intervention Studies
- IMBEDDING IDEAS INTO ROUTINES IS EFFECTIVE
- Coaching with sensory processing info supports increases parental competence and children’s participation
- Parents want information for everyday life
- Tele-health was effective

- Everyone has sensory processing patterns
- Those sensory patterns manifest in everyday life behaviors and responses
- Sensory patterns seem to continue across time

Sensory Processing:
It only matters in everyday life
- Occupational Therapy has been fascinated with sensory processing for decades since Dr. Ayres pointed out its importance for understanding particular behaviors. Sometimes sensory processing has become the focus of our work. As families and colleagues have come to rely on us for sensory processing expertise, it is more important than ever to characterize sensory processing as a key factor in participation goals rather than the goal itself. In this session we will examine the critical link between sensory processing and how people live satisfying lives on their own terms.

Findings from Intervention Studies
- Effectiveness of sensory based approaches
  - A few showed effectiveness
  - Many show NOT effective
- Equal outcomes to alternative interventions
- Different outcomes for comparison groups
- Variable outcomes across the study
- Promising new ideas

**IMPLICATIONS FOR STAKEHOLDERS**
- Evaluate sensory processing as part of comprehensive assessment PAIRED with participation and activity analysis
- Employ sensory processing knowledge as a therapeutic medium

**Questions?**