

# Presentation at the CT-AIMH Annual Meeting: Sensory Sensitivities from Early Childhood to School-Age

Margaret Briggs-Gowan

Ayelet Ben-Sasson

Alice S. Carter

April 30, 2008

For additional information, please email  
[Briggsgowan@psychiatry.uchc.edu](mailto:Briggsgowan@psychiatry.uchc.edu)

# Disclosure

- Dr. Carter and I receive a portion of the royalties from the publication of the ITSEA.



# Acknowledgements

- This research was supported by grants from the National Institute of Mental Health and the Wallace Foundation.
  - We are grateful to the many families and children who have helped us to learn about children over the years.
  - Findings are excerpted from a presentation by Dr. Carter at the 2007 American Academy of Child and Adolescent Psychiatry Meetings and have been prepared in manuscript form (Ben-Sasson et al., submitted)
- 

# Goals

- To briefly share some of our findings from our longitudinal birth cohort that show linkages between sensory over-responsivity in early childhood and school-age sensory over-responsivity and internalizing disorders.

# Background

- Typically, children respond strongly to sensations that are dangerous, extreme, or novel.
- However, some children have extreme responses to non-noxious daily sensations (e.g. sirens, vacuum cleaner, light touch, specific food textures, cutting fingernails).
- It is important to characterize temporal and qualitative features as these extreme responses may be
  - rapid in onset,
  - prolonged, and
  - greater in intensity compared to peers.

# Background

- Sensory Over-Responsivity (SOR) as a clinical entity is estimated to affect about 5% of the general population of preschool children, although available data are limited. The prevalence in school-age children is unknown.
- SOR often involves negative responses towards sensations in the form of anxiety, withdrawal, irritability, aggression and/or distraction.
- Although clinically relevant, there have not been any studies of the course of sensory over-responsivity from infancy to school age.

# Background

- Evidence supports an association between SOR and internalizing symptoms (e.g. anxiety and depression) both as traits and states in general and clinical groups of children and adults.
- Recent findings in very young children suggest that sensory over-responsivity may be more persistent when it co-occurs with internalizing symptoms.
- **However, the relation of early emerging sensory over-reactivity to later psychopathology is unknown.**
- Evaluating whether SOR in infancy predicts psychiatric symptoms at school age is important for identifying early risk factors of later psychopathology, and informing early identification and intervention efforts.

# Method

## Healthy Birth Cohort

- Random Sample of children born healthy in the Greater New Haven 15-town Catchment area
- Access to birth record data was provided by the Connecticut Department of Public Health
- Exclusion of infants who were not born healthy (e.g., preterm, low birth weight, long hospital stay)
- Exclusion of families who moved out of state and who did not speak sufficient English to complete the survey as interview

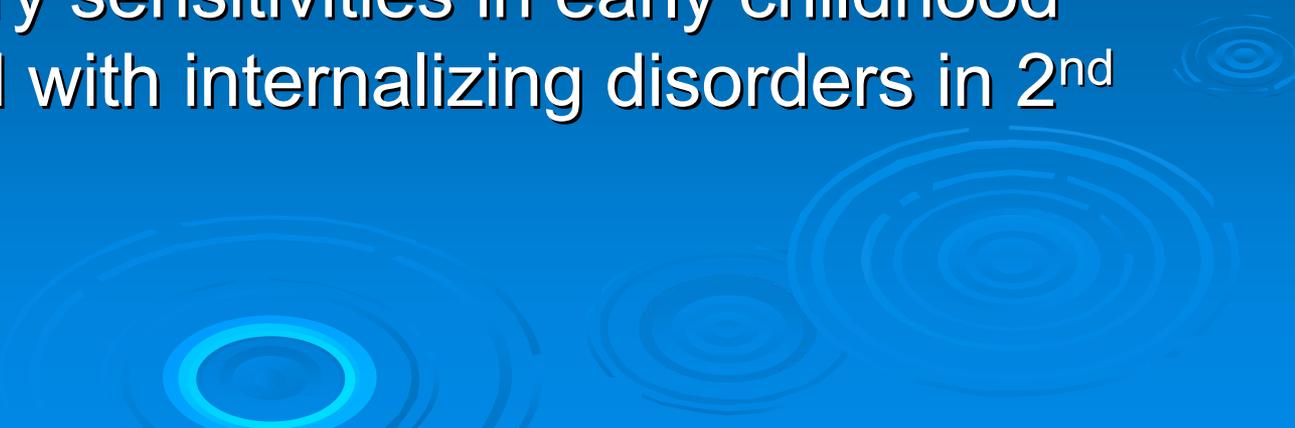
# Measures

- ITSEA<sup>©</sup> Sensory Sensitivities scale at 1, 2, and 3 years of age (brief, 6-item scale)
- The ITSEA *Of Concern* cutpoint indicates scores in the 90<sup>th</sup> percentile of a normative population
- Miller Sensory Profile in 2<sup>nd</sup> grade
- Diagnostic interview assessing psychiatric disorders in 2<sup>nd</sup> grade

# Participants (2<sup>nd</sup> Grade)

	SOR (n=148)	No SOR (n=751)
Child Age	8.1 (0.6)	8.1 (0.5)
Child Gender	52.7% boys 47.3% girls	51.7% boys 48.3% girls
Birth Weight **	3.31 (0.46)	3.43 (0.47)
Gestational Age*	39.05 (1.49)	39.36 (1.32)

# Questions

1. How prevalent are individual SOR behaviors in 2<sup>nd</sup> grade?
  2. Are sensory sensitivities in early childhood associated with SOR in 2<sup>nd</sup> grade?
  3. Do children with SOR in 2<sup>nd</sup> grade “look” different on the ITSEA in early childhood?
  4. Are sensory sensitivities in early childhood associated with internalizing disorders in 2<sup>nd</sup> grade?
- 

# Prevalence in 2<sup>nd</sup> Grade Children

High Frequency Behaviors > 10%

## TACTILE

- Tags in clothing (39%)
- Cutting fingernails/toenails (19%)
- Hair brushing/combining (16%)
- Mud (11%)

## AUDITORY

- Sirens (10.1%)

# Prevalence in 2<sup>nd</sup> Grade Children

Low Frequency Behaviors  $\leq 5\%$

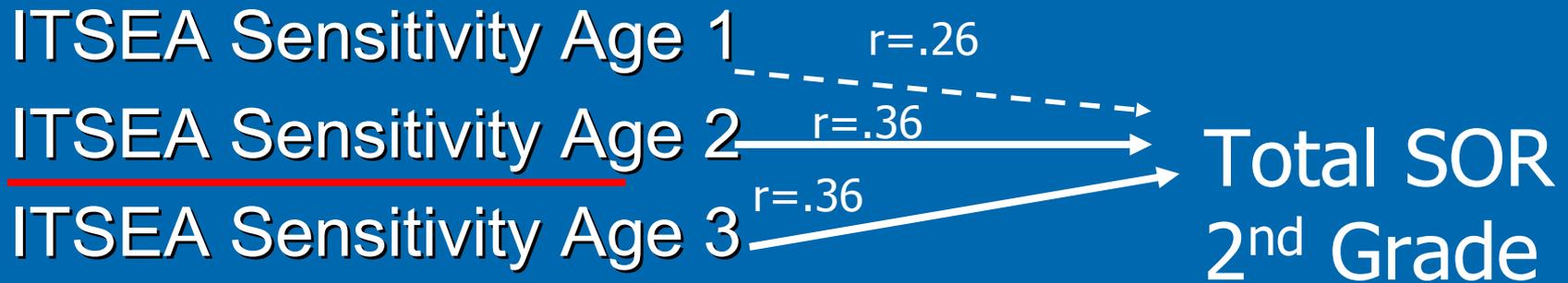
## AUDITORY

- Toilet flushing
- Door bell ringing
- People talking
- Malls
- Gymnasium
- Large gatherings
- Appliances

## TACTILE

- Getting dressed
- Play dough
- Finger painting
- Light stroking touch
- Kissing or hugging
- Foods
- Changing from long to short pants
- Course carpet

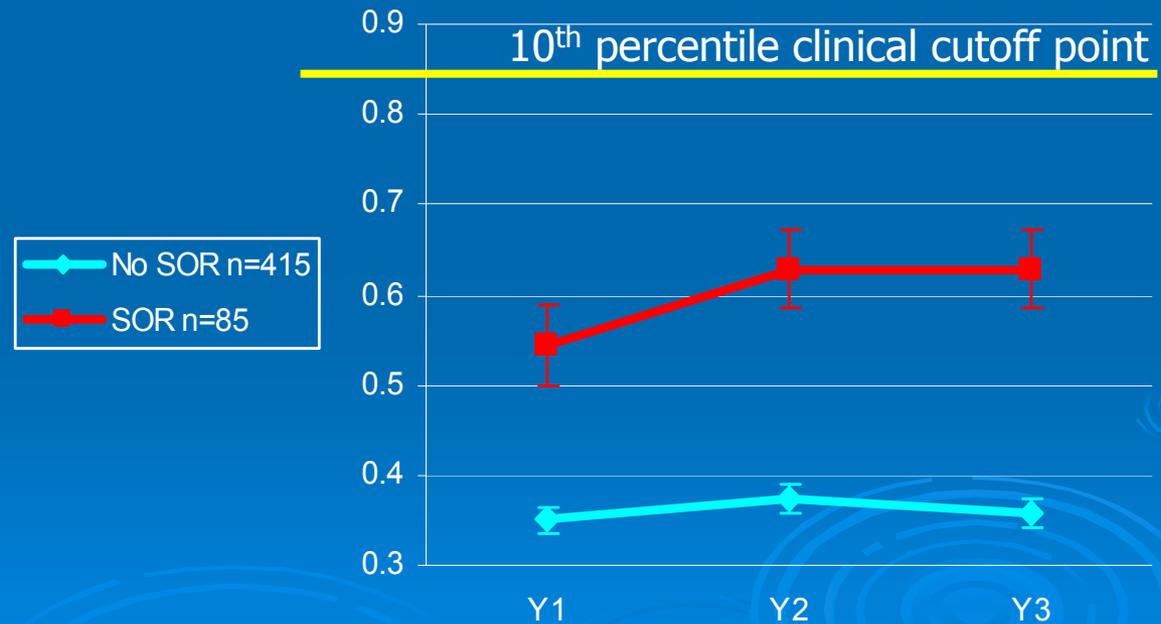
# Early sensitivity predicts later SOR



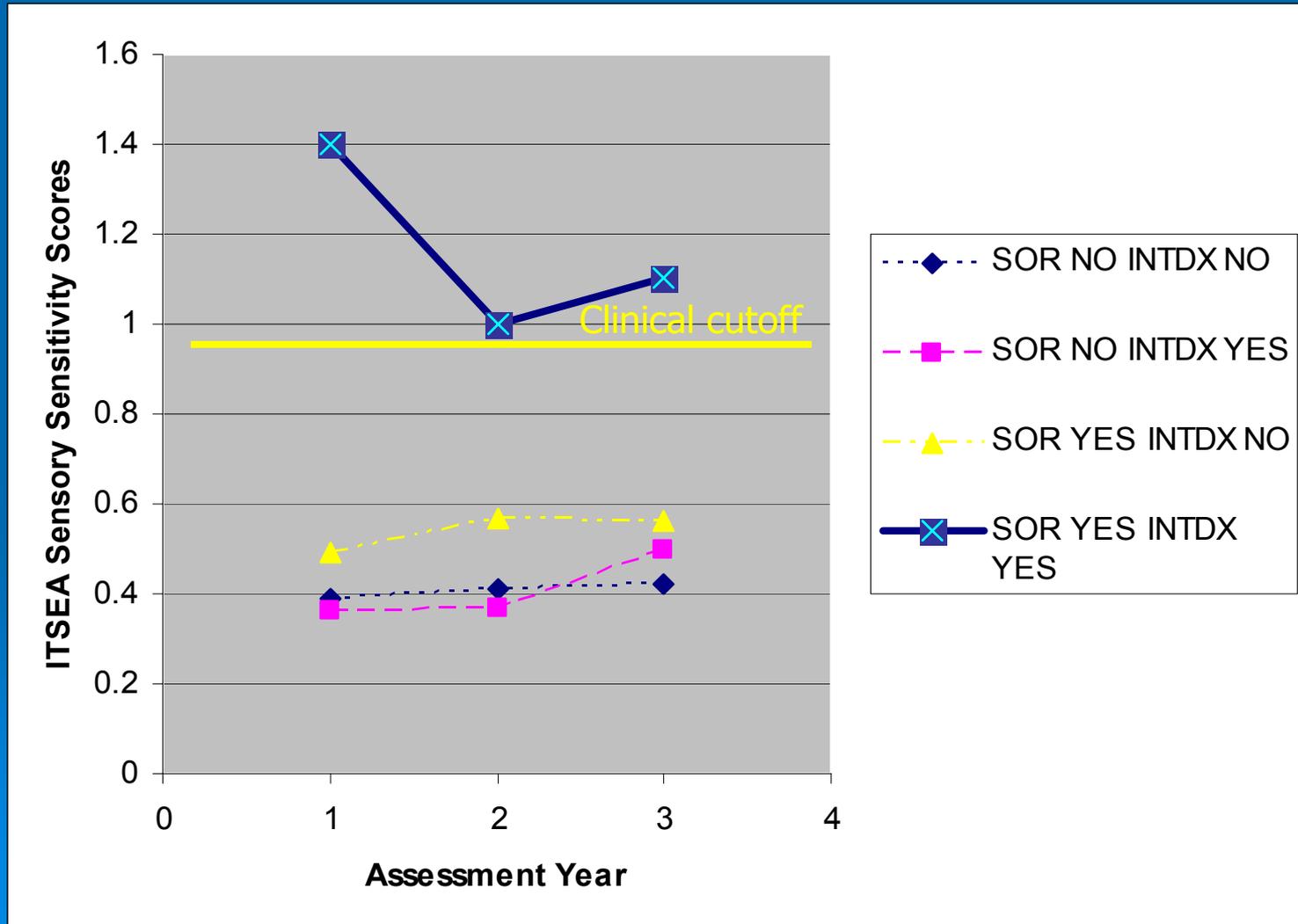
- Children with higher sensitivity scores at 1, 2, or 3 years of age tended to have higher SOR scores in 2<sup>nd</sup> Grade

# ITSEA Sensory Sensitivities According to SOR in 2<sup>nd</sup> Grade

- SOR group had higher ITSEA scores from Ages 1-3 years
- SOR group have increasing sensitivities across infancy
- Relatively stable phenomena in the general population



# Relation of Sensory Behaviors to Diagnostic Status in Second Grade



# Conclusions

- Sensory sensitivities in early childhood are associated with SOR at school-age
- Children with SOR at school-age had higher levels of sensory sensitivities in early childhood than children without SOR at school-age
- Children who had SOR at school-age PLUS and internalizing disorder had the highest levels of sensory problems in early childhood – suggesting a special subgroup of children with both SOR and internalizing disorders