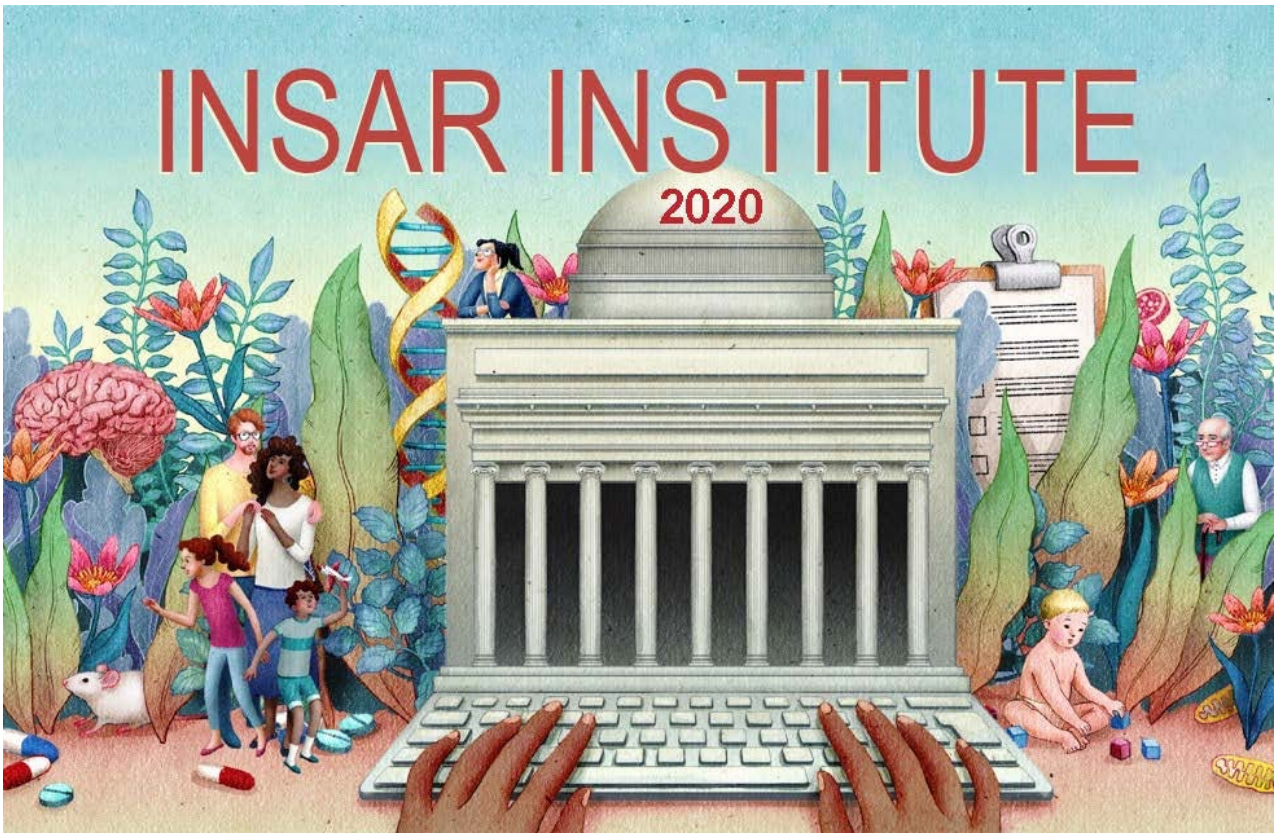

SESSION III: Symptom Continuity from Infancy through Childhood and Adolescence in Autism

Peter Mundy, PhD
June 25, 2020 // 2:00 pm EDT

Course Materials

The purpose of these materials is to help provide an introduction to the Summer Institute session on the development and continuity of core Autism Spectrum Disorder (ASD) symptoms from infancy through adolescence. The materials were designed to provide trainees who are unfamiliar with this research with the general background to get the most educational benefit from the session. Toward this objective, we have prepared the following: (1) learning objectives for this session; (2) some key terms and concepts; (3) a selection of recommended resources. These materials are intended to supplement the webinar while providing direction for further engagement with the topic.

In collaboration with Dr. Peter Mundy, these materials were developed by **Hillary Schiltz, M.S.** (PhD candidate at Marquette University; hillary.schiltz@marquette.edu), **Michal Cook, M.S.W.** (doctoral student at the University of North Carolina; michal.cook@unc.edu), **Nicholas Fears,**

Ph.D. (Postdoctoral Research Associate at the University of North Texas Health Science Center; nicholas.fears@unthsc.edu), **Fathima Kodakkadan, M.S.** (doctoral student at Anglia Ruskin University; fathima.kodakkadan@pgr.anglia.ac.uk). Feel free to contact us with questions/comments. Register for this course and other sessions in this series at https://www.autism-insar.org/page/SI2020.

Learning Objectives

The INSAR Institute for Autism Research was established in direct response to requests from students and trainees for multidisciplinary training opportunities. The INSAR Institute team is also working to engage stakeholders. The INSAR Institute priorities are to provide a (1) freely available, (2) multidisciplinary training platform for young scientists and others from various backgrounds that (3) allows for international participation. The overarching goal of the INSAR Institute is to expose junior scientists to topics they are not currently engaged in, with the hope that both basic and clinical scientists may learn from each other to ultimately advance the understanding of autism.

The current session, **Symptom Continuity from Infancy through Childhood and Adolescence in Autism**, is led by Dr. Peter Mundy and a team of trainees who worked in tandem to prepare these materials. *Over the course of the webinar participants will:*

1. Explore the barriers and facilitators of childhood and adolescent development in autism
    a. **Understand** the Interagency Autism Coordinating Committee (IACC) priorities related to barriers and facilitation
    b. **Explore** how core symptoms of autism develop across early childhood to adolescence
2. Consider the example of social attention symptoms in autism
    a. **Explore** new hypotheses related to (1) the early onset of social attention systems, (2) the role of social attention in cognition and behavior across the lifespan, and (3) the neurocognitive and neurogenetic mechanisms which may be involve
    b. **Discuss** current research efforts to target social attention symptoms through intervention at the (1) preschool and (2) child/adolescent developmental level

Key Terms

Autism Spectrum Disorder Diagnostic criteria: The two core diagnostic criteria for autism described by Diagnostic Statistical Manual-5 (DSM-5) are as follows:

1) **Restricted, Repetitive Behaviors, Interests, or Activities:** Repetitive behaviors occur over and over or are stereotyped. They can involve motor movements, use of objects, or speech. Restricted interests are highly restricted, fixated interests that are atypical in intensity or focus. There may be an insistence on sameness of activities or inflexible adherence to routines.

2) **Social Communication:** Social communication is a broad term that describes verbal and nonverbal behaviors used to interact with others. Examples include, but are not limited to, speech, prosody, gestures, and facial expressions. These behaviors can be used to initiate or respond to joint attention, to share emotion with others, or to signal when one person wants the attention of another person, and many other uses. Difficulties with social communication are a diagnostic characteristic of autism. (More information: https://www.cdc.gov/ncbddd/autism/hcp-dsm.html)

Biological motion: A special type of motion that comes from actions of biological organisms such as a person walking.

Co-occurring Conditions: The coexistence of more than one condition or disorder in a single person. For example, Attention-Deficit Hyperactivity Disorder, Anxiety Disorders, and Developmental Coordination Disorder are common co-occurring conditions for Autistic individuals.

Intelligence quotient (IQ): IQ was originally the ratio of mental age to chronological age. The term “mental age,” popularized by early tests of intelligence, referred to the age of the children in the standardization sample whose performance the child matched. Most tests of intelligence no longer use this ratio, and IQ instead refers to a person’s ability relative to available norms, which are usually age-based. By convention, IQ scores have a mean of 100 and a standard deviation of 15. Thus, about 95% of people fall within two standard deviations of the mean (i.e., 70–130). People with scores above 120 are generally considered of superior intelligence. When IQ falls below 70, it can be used in conjunction with adaptive behavior to determine level of intellectual disability.

Non-verbal IQ (NVIQ): A person’s NVIQ is assessed through performance on one or more tests involving the use of thinking and problem-solving skills in a way that does not require language (i.e., non-verbal abilities). This type of intelligence involves manipulating or problem solving about visual information and may vary in the amount of internalized, abstract, or conceptual reasoning and motor skills that are required to complete a task (e.g., creating specific block designs or pattern matching).

Verbal IQ (VIQ): A person’s verbal intelligence is assessed through performance on one or more tests involving receptive and/or expressive spoken language (i.e., verbal abilities). While these tests assess a limited range of specific verbal abilities, they are also intended to estimate, or to contribute to an estimation of, a person’s general intelligence.

Interagency Autism Coordinating Committee (IACC): A US federal advisory committee that coordinates efforts and provides advice on issues related to autism. The IACC facilitates the exchange of information on and coordinates autism activities among member agencies and organizations and increases public understanding of the member agencies' activities, programs, policies, and research by providing a public forum for discussions related to autism research and services. https://iacc.hhs.gov/

Joint attention: The human capacity for coordinating social attention or when multiple individuals focus their attention on an object, event, or a person at the same time. Joint attention is usually initiated when one individual guides another individual's attention to an object, event, or a person by eye-gazing, pointing, verbal indications, or other non-verbal indications.

Neurogenetics: The study of the role of genetics in the development and function of the nervous system.

Social attention: Attention to social information and the behaviors produced to allow and maintain interaction with the social world. Joint attention, social orienting, face processing and nonverbal communication, as well as response to biological motion are all types of social attention.

Social cognition: The ability to process and interpret social information in order to appreciate the mental intentions related to other people's behavior and verbal and nonverbal communication, in order to respond appropriately to one's social environment.

Social orienting: The tendency to reflexively or intentional prioritize looking to social stimuli in the environment.

Recommended Readings & Resources

Journal Articles

Dawson, G., et al. (2004). Early social attention impairments in autism: social orienting, joint attention, and attention to distress." *Developmental Psychology, 40*(2), 271-283.

Klin, A., Shultz, S., & Jones, W. (2015). Social visual engagement in infants and toddlers with autism: early developmental transitions and a model of pathogenesis. *Neuroscience & Biobehavioral Reviews*, *50*, 189-203.

Mundy, P. (2018). A review of joint attention and social-cognitive brain systems in typical development and autism spectrum disorder. *European Journal of Neuroscience*, *47*(6), 497-514.

Mundy, P. (2019). Individual differences, social attention, and the history of the social motivation hypotheses of autism. *Behavioral and Brain Sciences*, *42*.

Mundy, P., Block, J., Vaughan Van Hecke, A., Delgado, C., Venezia Parlade, M. & Pomares, Y. (2007) Individual differences and the development of infant joint attention. *Child Development*, 78, 938–954.

Mundy, P., & Jarrold, W. (2010). Infant joint attention, neural networks and social cognition. *Neural Networks*, *23*(8-9), 985-997.

Mundy, P., Kim, K., McIntyre, N., Lerro, L. & Jarrold, W. (2016) Brief Report: Joint attention and information processing in children with higher functioning autism spectrum disorders. *J. Autism Dev*. *Disord*., 46, 1–6.

Mundy, P., & Newell, L. (2007). Attention, Joint attention and Social-Cognition. *Current Directions in Psychological Science*, 16, 269–274.

Mundy, P., Novotny, S., Swain-Lerro, L., McIntyre, N., Zajic, M., & Oswald, T. (2017). Joint-attention and the social phenotype of school-aged children with ASD. *Journal of autism and developmental disorders*, *47*(5), 1423-1435.

Mundy, P., Sigman, M., & Kasari, C. (1990). A longitudinal study of joint attention and language development in autistic children. *Journal of autism and developmental disorders*, *20*(1), 115-128.

Salley, B., & Colombo, J. (2016). Conceptualizing social attention in developmental research. *Social Development*, *25*(4), 687-703.

Books and Book Chapters

Mundy, P. (2016). *Autism and joint attention: Development, neuroscience, and clinical fundamentals*. Guilford Publications Inc, New York, NY.

Mundy, P. (2017). Lessons learned from autism: an information processing model of joint attention and social cognition. In *Minnesota symposium on child psychology: Meeting the challenge of translational research in child psychology* (pp. 3-44). DOI: 10.1002/9781119466864.ch3.

Mundy, P., Mastergeorge, A., & McIntyre, N. (2012). The effects of autism on social learning and social attention, Chapter 1. *In P. Mundy & A. Mastergeorge (Eds.), Autism for Educators Translating Research to Schools and Classrooms* (pp. 3–34). San Fran-cisco, CA: Jossey Bass.