SESSION 2: Autism Heterogeneity across Lifespan and Development

Julie Lounds Taylor, PhD & Somer Bishop, PhD
June 20, 2019 // 2:00 pm ET

Course Materials
The purpose of these materials is to help provide an introduction to the INSAR Institute session on autism heterogeneity across the lifespan and development. The materials were designed to prepare trainees who are unfamiliar with this topic and to help attendees derive the most benefit from the session. Toward this objective, we have prepared the following: (1) learning objectives for this session, (2) key terms and concepts that will appear in the session, and (3) relevant resources. These materials could be considered “prerequisites” in preparing for this session.

In collaboration with Drs. Taylor and Bishop, these materials were developed by Melissa Maye (postdoctoral fellow at the University of Pennsylvania; melmaye@upenn.edu), and Hillary Schiltz (doctoral student at Marquette University; hillary.schiltz@marquette.edu). Feel free to contact us with questions/comments. Register for this course and other sessions in this series at https://www.autism-insar.org/events
Learning Objectives
The INSAR Institute for Autism Research was established in direct response to requests from early career researchers (graduate students, postdocs, etc.), with training opportunities in multidisciplinary areas. The Institute team priorities are to provide: (1) freely available; (2) multidisciplinary training platform for young scientists and others from various backgrounds; that (3) allows for international participation. The INSAR Institute covers broad topics and is meant for people who are not experts in the topic area. It is offered over a free web platform, and allows researchers from around the world to connect with the presenter(s). The overarching goal of the INSAR Institute is to expose junior scientists to topics they are not currently engaged in, with the hope that basic scientists and clinical scientists could learn from each other to ultimately advance the understanding of autism.

The current session, Autism Heterogeneity across Lifespan and Development, is led by Dr. Julie Lounds Taylor from the Department of Pediatrics at Vanderbilt Kennedy Center and Vanderbilt University Medical Center and Dr. Somer Bishop from the Department of Psychiatry at the University of California, San Francisco.

At the conclusion of this session, participants will:
1. **Understand** heterogeneity of autism symptom presentation and the implications for diagnosis and treatment.
2. **Discuss** the role of the larger social and societal context in development for people on the autism spectrum.
3. **Identify** examples of how heterogeneity in autism impacts outcomes in adulthood and beyond.
4. **Discuss** ways to take heterogeneity into account in research while maintaining standardized outcomes.
5. **Describe** potential consequences of not taking into account heterogeneity in research.
Key Terms

**Comorbid.** Comorbid indicates that conditions are co-occurring or exist simultaneously.

**Intellectual Disability (ID).** ID is a neurodevelopmental disorder defined by limitations in cognitive abilities that affect both intellectual and adaptive functioning. Ability to learn, problem solve, and reason are all involved in intellectual functioning, which is generally quantified using an intelligence quotient (IQ) test. Intellectual disability is defined as an IQ ≤ 70 and reduced adaptive functioning. Adaptive functioning is typically measured using standardized questionnaires or interviews completed by caregivers and/or teachers. Skills that are necessary for day-to-day functioning, such as communication and practical skills, make up the adaptive functioning domain. At least one-third of individuals with autism spectrum disorder have comorbid intellectual disability.

**Language Disorder.** Language disorder is a neurodevelopmental disorder defined by persistent difficulties in the acquisition and use of language across modalities (e.g., spoken, written, sign) due to deficits in comprehension or production.

**Learning Disability (LD).** LD is a neurodevelopmental disorder defined by difficulty in one or more area for learning and using academic skills. Difficulties in these areas persist despite receiving intervention.

**Nonverbal IQ (NVIQ).** NVIQ is the use of thinking and problem solving skills in a way that does not require language. 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.

**Processing Speed.** Measures the speed and accuracy of visual identification, decision-making, and decision implementation.

**Repetitive behaviors.** These are behaviors that are stereotyped or repetitive and can involve motor movements, use of objects, or speech.

**Social communication.** Social communication encompasses all communicative behaviors (verbal and nonverbal) used in social contexts. These skills include social-emotional reciprocity (i.e., the back and forth of sharing affect and information), eye contact, social cognition (thinking about others’ cognitive states), and structurally appropriate language (e.g., word usage, sentence syntax).

**Standardized outcomes.** In order for test scores to be comparable between people, they need to be placed on a similar scale. This means that the tool is capturing the same construct or idea and is scored in a way that makes it consistent across people of varying ages, abilities, or genders.

**Working Memory.** Measures the ability to register, maintain, and manipulate visual and auditory information in conscious awareness.
**Quality of Life.** Quality of life is a broad construct that refers to the subjective evaluation of positive and negative components of life. There are multiple domains related to quality of life including health, culture, values, schools, and neighborhood.
**Relevant Readings**


