



Implementing early intervention for autism spectrum disorder: a global perspective

In the early years of life, the brain is primed to develop language and social skills, key areas of difficulty in individuals with autism spectrum disorder (ASD). Teaching these language and social skills in the early years of life, when the brain expects to learn them, is associated with more rapid and stronger response than when these skills are taught at a later age (1-3). Early intervention can therefore optimize outcomes, improve independence, and lessen long-term costs (4,5). Globally, there is increased recognition of the importance of early detection and intervention as a critical public health focus (6). However, ASD research has disproportionately low representation from populations outside of the United States and Europe (7). Even in countries such as the United States, where the majority of ASD research has been conducted, there is limited representation from minority groups, multilingual families, and participants with lower socioeconomic status (8).

This is an important gap that warrants careful attention because observational studies have reported cross-cultural variations in many behaviors that define ASD, including eye contact, facial expressions, play, and language use. Failure to address these important differences may result in biases in ASD symptom recognition in linguistically and culturally diverse groups when using instruments normed on Western samples (9). In addition, while evidence-based early ASD interventions, such as Naturalistic Developmental Behavioral Interventions (NDBIs), are derived from the principles of applied behavior analysis and developmental science (10), behavioral and developmental research has limited global representation (11). The majority of this research has been conducted in non-representative populations, as less than 3% of participants come from Africa, Central and South America, Asia, and the Middle East (11). While efforts to implement early ASD intervention in community settings are increasing worldwide (12-14), the evidence base for determining whether these interventions improve outcomes across cultures is lacking, and certainly not as strong as the evidence for their efficacy in monolingual, English-speaking, middle-socio-economic status participants from Western cultural contexts. As such, important research gaps remain.

This special issue includes publications from Australia, China, Japan, South Africa, and the United States, thus representing a degree of geographic, cultural and linguistic diversity. All articles focus on aspects of the 'golden period', the early years of life, with topics including: implementation science; early detection; early intervention; measurement of treatment response; and parenting stress, sense of competence, and mental health. We wish to highlight one of these topics in particular, implementation science. Implementation science is an emerging field of research that should play a central role in the global ASD movement to improve access to evidence-based care. We cannot assume that evidence-based practice will simply integrate seamlessly into diverse, global settings without specific attention to local stakeholder perspectives and the local context. Implementation science, provides a framework to examine context across multiple levels and identify barriers and facilitators to evidence-based practice use. Implementation research highlights the importance of adopting systematic approaches to community implementation of evidence-based practice to improve 'fit' within the local context. To achieve a goal of allowing the benefits of early detection and early intervention for ASD to be globally attainable and inclusive of culturally and linguistically diverse families, understanding the implementation context is an essential step.

Acknowledgments

Funding: This work was supported by the National Institutes of Mental Health (K01-MH-104370 to L Franz).

Footnote

Conflicts of Interest: The authors have no conflicts of interest to declare.

Ethical Statement: The authors are accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

References

1. Courchesne E, Campbell K, Solso S. Brain growth across the life span in autism: age-specific changes in anatomical pathology. *Brain Res* 2011;1380:138-45.
2. Dawson G. Early behavioral intervention, brain plasticity, and the prevention of autism spectrum disorder. *Dev Psychopathol* 2008;20:775-803.
3. Lewis JD, Evans AC, Pruett JR, et al. Network inefficiencies in autism spectrum disorder at 24 months. *Transl Psychiatry* 2014;4:e388.
4. Estes A, Munson J, Rogers SJ, et al. Long-Term Outcomes of Early Intervention in 6-Year-Old Children With Autism Spectrum Disorder. *J Am Acad Child Adolesc Psychiatry* 2015;54:580-7.
5. Cidav Z, Munson J, Estes A, et al. Cost Offset Associated With Early Start Denver Model for Children With Autism. *J Am Acad Child Adolesc Psychiatry* 2017;56:777-83.
6. WHO. Meeting Report: Autism Spectrum Disorders & Other Developmental Disorders: From Raising Awareness to Building Capacity. Geneva, Switzerland: World Health Organization 2013.
7. Franz L, Chambers N, von Isenburg M, et al. Autism spectrum disorder in sub-saharan africa: A comprehensive scoping review. *Autism Res* 2017;10:723-49.
8. Singh JS, Bunyak G. Autism Disparities: A Systematic Review and Meta-Ethnography of Qualitative Research. *Qual Health Res* 2019;29:796-808.
9. Harrison AJ, Long KA, Tommet DC, et al. Examining the Role of Race, Ethnicity, and Gender on Social and Behavioral Ratings Within the Autism Diagnostic Observation Schedule. *J Autism Dev Disord* 2017;47:2770-82.
10. Schreibman L, Dawson G, Stahmer AC, et al. Naturalistic Developmental Behavioral Interventions: Empirically Validated Treatments for Autism Spectrum Disorder. *J Autism Dev Disord* 2015;45:2411-28.
11. Nielsen M, Haun D, Kartner J, et al. The persistent sampling bias in developmental psychology: A call to action. *J Exp Child Psychol* 2017;162:31-8.
12. Rahman A, Divan G, Hamdani SU, et al. Effectiveness of the parent-mediated intervention for children with autism spectrum disorder in south Asia in India and Pakistan (PASS): a randomised controlled trial. *Lancet Psychiatry* 2016;3:128-36.
13. Vivanti G, Kasari C, Green J, et al. Implementing and evaluating early intervention for children with autism: Where are the gaps and what should we do? *Autism Res* 2018;11:16-23.
14. Zhou B, Xu Q, Li H, et al. Effects of Parent-Implemented Early Start Denver Model Intervention on Chinese Toddlers with Autism Spectrum Disorder: A Non-Randomized Controlled Trial. *Autism Res* 2018;11:654-66.



Lauren Franz



Geraldine Dawson

Lauren Franz^{1,2,3}

(Email: lauren.franz@duke.edu)

Geraldine Dawson^{2,4}

(Email: geraldine.dawson@duke.edu)

¹Centre for Autism Research in Africa, Division of Child & Adolescent Psychiatry, University of Cape Town, Cape Town, South Africa;

²Duke Center for Autism and Brain Development, Department of Psychiatry and Behavioral Sciences, ³Duke Global Health Institute, ⁴Duke Institute for Brain Sciences, Duke University, Durham, NC, USA.

doi: 10.21037/pm.2019.07.09

View this article at: <http://dx.doi.org/10.21037/pm.2019.07.09>

doi: 10.21037/pm.2019.07.09

Cite this article as: Franz L, Dawson G. Implementing early intervention for autism spectrum disorder: a global perspective. *Pediatr Med* 2019;2:44.