Title: Profiles of Adaptive Behavior in Children and Adolescents with ASD

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Introduction: Autism spectrum disorder (ASD) is characterized by significant heterogeneity (Klopper, Testa, Pantelis, & Skafidas, 2017). Research using the first edition of the Vineland Adaptive Behavior Scales (Sparrow, Balla, & Cicchetti, 1984) highlighted an “autism profile” of adaptive skill deficits (Carter, et al., 1998). The purpose of this study was to identify subgroups of people with ASD with different adaptive skill profiles based on Vineland-II scores.

Method: The sample was comprised of 451 individuals (ages 3.01-21.92; M_age = 11.42, SD = 4.69, 351 males) selected from a state-wide ASD community based sample. All participants had a guardian-reported community diagnosis of ASD and a positive Autism Diagnostic Observation Schedule (ADOS-2) assessment, as well as a completed Vineland Adaptive Behavior Scales, Second Edition (Vineland-II) (Sparrow, Cicchetti, & Balla, 2005). Latent class analysis (LCA) was used to identify classes based on Vineland-II domain scores. A linear mixed effects model (LME) with age as a covariate was used to examine the adaptive behavior profiles identified by the LCA.

Results: LCA identified 4 classes: class 1 (11.3%, n = 51), class 2 (35.9%, n =162), class 3 (37.3%, n = 168), and class 4 (15.5%, n = 70). The LME revealed a main effect of class such that classes differed in level of overall functioning: class 1 has the lowest Vineland-II domain scores, followed by class 2, class 3, and class 4 (F(3, 173.12) = 607.75, p = .000). The model also revealed a significant interaction between class and domain scores (F(9, 227.72) = 7.91, p = .000). Class 1 exhibited relative strength in the motor skills domain when compared to the communication daily living skills, and socialization domains. Class 1 also demonstrated a relative strength in socialization skills compared to daily living skills and communication skills. Classes 2 and 3 exhibited a pattern of relatively low socialization domain scores and stronger motor scores as compared to daily living and communication skills. Class 4 also exhibited the lowest scores on the socialization domain, but the motor skills domain was not significantly higher than communication or daily living skills.

Discussion: In a community-based sample, LCA identified four clusters of individuals with ASD who differed in both overall level of adaptive functioning and in their profiles describing relative strengths and weaknesses in specific functional domains. Relative strengths in motor skills and weaknesses in social skills was a relatively consistent pattern across groups. Individuals with especially low levels of adaptive functioning had a relatively flatter skill profile, without evidence of a relative weakness in social skills. This pattern may indicate a floor effect for this measure at levels of more significant impairment, but also suggest that the specificity of social impairments in ASD are more evident in individuals with relatively stronger overall adaptive skills.

References:
Figure 1. Profiles of Vineland-II domain scores by class

Communication  | DLS     | Socialization | Motor

Class 1         | Class 2 | Class 3       | Class 4