Title: Adaptive Behavior of Children and Adolescents with Williams Syndrome

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Introduction: Williams syndrome (WS) is caused by a microdeletion of 26 genes on chromosome 7q11.23. Individuals with WS typically have mild to moderate intellectual disability and an unusual intellectual and behavioral profile. Research on children with this syndrome has focused primarily on intellectual abilities and personality characteristics, with limited research on adaptive behavior. Brawn and Porter (2018), in a review of the available research, reported that based on small-sample studies using the original edition of the Vineland Adaptive Behavior Scales (VABS), WS is associated with a childhood adaptive behavior profile of relative strength in the Socialization (SOC) domain and relative weaknesses in the Communication (COM) and Daily Living Skills (DLS) domains. The profile at the subdomain level has not been systematically examined. In the present study, we used the VABS-3 (Sparrow et al., 2016) to establish an adaptive behavior profile at the domain and subdomain levels.

Method: To date, the primary caregiver(s) of 76 children with genetically-confirmed classic-length WS deletions (36 girls, 40 boys), aged 4.01 – 17.93 years (M = 9.48, SD = 3.70) have completed the VABS-3 Comprehensive Interview Form. (Data collection is ongoing, and we expect at least 90 participants.) The COM, DLS, and SOC domains contribute to the VABS-3 Adaptive Behavior Composite (ABC). For the general population, these measures have a mean SS of 100 (SD = 15). The COM domain consists of the Receptive, Expressive, and Written subdomains. The DLS domain consists of the Personal, Domestic, and Community subdomains. The SOC domain consists of the Interpersonal Relationships, Play and Leisure, and Coping subdomains. The subdomains yield v-scale scores (M = 15, SD = 3). The Differential Ability Scales-II (DAS-II; Elliott, 2007) was administered to each participant. The DAS-II General Cognitive Ability score (GCA; M = 100, SD = 15) was used as a measure of intellectual ability.

Results: Mean COM SS was 65.55 (SD = 12.94), mean DLS SS was 64.92 (SD = 9.87), and mean SOC SS was 69.39 (SD = 11.73). A repeated measures ANOVA indicated significant differences among mean SSS on the VABS-3 domains, F(1.87, 140.18) = 13.61, p < .001, ηp² = .15 (Huynh-Feldt correction). Multiple comparisons using the Sidak method indicated that mean SOC SS was significantly higher than mean COM SS and DLS SS, which did not differ significantly from each other.

Additional repeated measures ANOVAs were conducted to test for significant differences within each domain (Huynh-Feldt correction). Pairwise comparisons were performed using the Sidak method. For the COM domain, the subdomains differed significantly, F(1.65, 123.49) = 22.13, p < .001, ηp² = .23. The mean v-scale scores for the Receptive (M = 9.50, SD = 2.27) and Written (M = 9.12, SD = 2.23) subdomains did not differ significantly, but both were significantly higher than the mean v-scale score for the Expressive (M = 7.91 SD = 3.36) subdomain. For the DLS domain, the mean v-scale scores differed significantly, F(1.56, 116.76) = 16.32, p < .001, ηp² = .18. The mean v-scale score for the Domestic subdomain (M = 8.91, SD = 1.85) was significantly higher than the mean v-scale scores for the Community (M = 7.84, SD = 2.32) and Personal (M = 6.96, SD = 3.95) subdomains, which did not differ significantly from each other. For the SOC domain, the mean v-scale scores differed significantly, F(1.48, 111.29) = 29.49, p < .001, ηp² = .28. The mean v-scale scores for the Coping subdomain (M = 10.29, SD = 1.64) was significantly higher than the mean v-scale scores for the Interpersonal Relationships (M = 9.17, SD = 2.41) and Play and Leisure subdomains, which did not differ significantly from each other. We also plan to examine the patterns of relative strengths and weaknesses at the domain and subdomain level for individual children.

A Pearson correlation coefficient was computed to assess the relation between the VABS-3 ABC and DAS-II GCA. A strong, positive correlation was detected (r = .76, p < .001), indicating that as DAS-II GCA increased, VABS-3 ABC increased.

Discussion: Consistent with prior findings based on the VABS-1, at the group level, the adaptive behavior profile of children with WS identified in the present study includes a relative strength in social abilities and relative weaknesses in both communication and daily living skills abilities. Specific subdomain patterns of relative strengths and weaknesses also were identified within each of the domains. Consistent with prior findings of a significant relation between adaptive behavior skills and IQ for typically developing children, overall adaptive behavior (VABS-3 ABC) was strongly positively correlated with overall intellectual ability for children with WS. Patterns of relative strengths and weaknesses at the individual-child level will be determined, and theoretical and practical implications of these findings will be considered.

References/Citations: