

2021 Gatlinburg Conference Poster Submission

Title: Emotion Regulation and Word Reading Ability as Concurrent Predictors of Community Living Skills for Children and Adolescents with Williams Syndrome

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Introduction: The overall adaptive functioning of individuals with Williams syndrome (WS) typically is in the mild to moderate disability range, with the full range extending from average for the general population to severe disability (see Brawn & Porter, 2018 for a systematic review). Fisher, Josol, and Shivers (2020) reported that of 114 adults with WS ($M = 27.99$ years) only 6% lived independently. One crucial component of adaptive behavior is community living skills, the individual's ability to function independently in the world outside the home. Intellectual ability has been shown repeatedly to be associated with community living skills for individuals with WS (Brawn & Porter, 2018). In addition, even after controlling for IQ, word-reading ability (Brawn, Kohnen, Tassabehji, & Porter, 2018) and emotion regulation skills (Phillips, 2008) have separately been found to be positively associated with the community living skills of adolescents and young adults with WS. In the present study, we considered the relative contributions of individual differences in IQ, word-reading ability, and emotion regulation to the individual differences in community living skills in a relatively large sample of children and adolescents with WS.

Method: Participants were 59 children (27 girls) with genetically-confirmed classic-length WS deletions ($M = 13.14$ years, $SD: 3.08$, range: 9.00 – 17.98). Adaptive functioning was measured by the Vineland Adaptive Behavior Scales-3: Comprehensive Interview Form (VABS-3; Sparrow, Saulnier, Cicchetti, & Doll, 2016), a semi-structured interview completed with a parent. The dependent variable, community living skills, was measured by the v-scale score (mean = 15, $SD: 3$ for the general population) for the Community subdomain of the VABS-3 Daily Living Skills domain. The Community subdomain assesses how the individual functions outside the home, including the areas of personal safety, understanding of rights and responsibilities, use of technology, and understanding of time and money. The independent variables included sex; chronological age (CA); intellectual ability as measured by the Differential Ability Scales-II (DAS-II; Elliott, 2007) General Conceptual Ability (GCA; mean = 100, $SD: 15$ for the general population); word-reading as measured by the Wechsler Individual Achievement Test-III (WIAT-III; Wechsler, 2009) Basic Reading Composite (mean = 100, $SD: 15$ for the general population), measuring single real-word and pseudoword reading accuracy; and emotion regulation skills as measured by the v-score on the VABS-3 Coping Skills subdomain of the Socialization domain. The Coping Skills subdomain assesses the individual's demonstration of behavioral and emotional control as evidenced, for example, by respecting others, controlling anger, managing social risks, and adapting behavior to the situation.

Results: Mean Community skills v-score was 7.00 ($SD: 2.72$, range: 3 – 14). For the assessed independent variables, mean DAS-II GCA was 62.88 ($SD: 14.13$, range: 32 – 86), mean Basic Reading Composite was 75.42 ($SD: 16.68$, range: 43 – 106), and mean Coping Skills v-score was 8.97 ($SD: 2.03$, range: 3 – 14). A multiple regression analysis predicting Community skills v-score from sex, CA, DAS-II GCA, Basic Reading Composite, and Coping Skills v-score explained a large amount of the variance, $R^2 = .75$, adjusted $R^2 = .72$, $F(5, 53) = 31.20$, $p < .001$. Significant concurrent effects were found for CA ($p = .001$, semi-partial $r = .24$), DAS-II GCA ($p = .006$, semi-partial $r = .20$), Basic Reading Composite ($p = .008$, semi-partial $r = .19$), and Coping Skills v-score ($p < .001$, semi-partial $r = .40$). The concurrent effect of sex was not significant ($p = .881$, semi-partial $r = .01$).

Discussion: As expected based on the literature (Brawn & Porter, 2018), intellectual ability was a strong concurrent predictor of community living skills for children and adolescents with WS. In addition, both word-reading skills and emotion regulation ability each accounted for significant unique variance in Community skills v-scores. These findings raise the possibility that interventions designed to increase word-reading ability (e.g., using a systematic phonics approach to word-reading instruction [Mervis, 2009]) and emotion regulation skills (e.g., mindfulness-based interventions, which have been shown to improve emotion regulation skills for children with autism spectrum disorders [Conner et al., 2019] and could be adapted for children with WS) may simultaneously have a positive impact on community skills, eventually leading to increased independence for individuals with WS.

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