

## 2021 Gatlinburg Conference Poster Submission

**Title:** Concurrent Predictors of Pragmatic Communication in Children and Adolescents with Williams Syndrome

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**Introduction:** Williams syndrome (WS) is a neurodevelopmental disorder resulting from a hemideletion of 26 – 28 genes on chromosome 7q11.23. Although individuals with WS often are characterized as highly sociable and gregarious, overfriendliness and behavioral and emotional regulation problems are very common (see review in Mervis & Greiner de Magalhães, in press), as are difficulty making meaningful social connections and maintaining friendships (e.g., Davies et al., 1998). Weaknesses in pragmatic communication also have been documented (e.g., Lane et al., 2019). Effective pragmatic communication, which requires that the speaker consider the social situation, including the relationships among the participants in the conversation, and adjust both his or her language form and content (speech, semantics, and syntax) and behavior accordingly (Washburn, 2011), is important for developing and maintaining meaningful social relationships. Thus, both language form and content and the executive functions of emotional and behavioral regulation would be expected to be important contributors to pragmatic language ability. In the current study, we considered individual differences in language form and content ability and in emotional and behavioral regulation as concurrent predictors of individual differences in the pragmatic communication abilities of children and adolescents with WS.

**Method:** Participants were 247 children and adolescents (126 females, 121 males) with genetically-confirmed classic-length WS deletions, who ranged in age from 6.01 – 15.50 years ( $M = 10.57$  years,  $SD = 2.96$ ). As part of a larger study, parents completed the Children's Communication Checklist-2 (CCC-2; Bishop, 2006) and the Behavior Rating Inventory of Executive Function (BRIEF; Gioia et al., 2000). The BRIEF was later rescored using the BRIEF-2 (Gioia et al., 2015) norms, as recommended by L. Kenworthy (personal communication, 2018). Participants completed the Kaufman Brief Intelligence Test-2 (KBIT-2; Kaufman & Kaufman, 2004). Language form and content was measured by the mean scaled score for the CCC-2 Speech, Syntax, Semantics, and Coherence scales. Pragmatic communication was measured by the mean scaled score for the CCC-2 Initiation, Scripted Language, Context, and Nonverbal Communication scales. Emotional and behavioral regulation was measured by the mean of the BRIEF-2 Behavior Regulation Index (BRI) and Emotion Regulation Index (ERI). Nonverbal reasoning was measured by the KBIT-2 Nonverbal standard score (SS). Data were collected between October 2004 and June 2019.

**Results:** To determine the concurrent predictors of pragmatic communication ability for children and adolescents with WS, a multiple linear regression was performed with CCC-2 Pragmatic Communication mean scaled score as the dependent variable and chronological age, sex, CCC-2 Language Form and Content mean scaled score, KBIT-2 Nonverbal SS, and BRIEF-2 BRI and ERI mean  $T$ -score as independent variables. The model explained a large amount of the variance in CCC-2 Pragmatic Communication mean scaled score,  $R^2 = .64$ , adjusted  $R^2 = .64$ ,  $F(5, 246) = 87.14$ ,  $p < .001$ . All independent variables except Nonverbal Reasoning contributed significantly to the model. The effect size was small for Chronological Age (uniquely accounting for 0.67% of the variance in the Pragmatic Communication variable) and Sex (uniquely accounting for 1.46% of the variance), medium for Behavioral and Emotional Regulation (uniquely accounting for 10.96% of the variance), and large for Language Form and Content (uniquely accounting for 22.66% of the variance).

**Discussion:** These findings indicate that individual differences in both language form and content ability and emotion and behavior regulation are important concurrent predictors of individual differences in pragmatic communication ability of children and adolescents with WS, beyond the contributions of nonverbal reasoning ability, chronological age, and sex. Interventions targeting both language form and content and behavior and emotion regulation may also have a positive impact on pragmatic communication ability, leading to higher quality of life for individuals with WS. Longitudinal studies are needed to determine if early language form and content ability and early behavioral and emotional regulation are significant predictors of later pragmatic communication ability.

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