Title: Impact of Structural and Pragmatic Language on Anxiety in Young Adult Males with Fragile X Syndrome

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Introduction: Males with fragile X syndrome frequently have heightened rates of problem behaviors, particularly those reflecting anxiety (Bailey, 2008; Cordeiro, 2011). Approximately 86% of males with FXS meet criteria for an anxiety disorder compared to 10% of the general population and 40% in nonsyndromic autism spectrum disorder (ASD) populations (Rodas, 2017). In populations without FXS or ASD, speech and pragmatic language difficulties have been associated with risk for anxiety (Coplan & Weeks, 2009; Whitehouse, 2009). In nonsyndromic ASD, higher structural language abilities along with poorer pragmatic language abilities are predictive of increased rates of anxiety (Rodas, 2017). Structural and pragmatic language impairments are a hallmark of FXS; however, it is unclear whether there is an association between structural and pragmatic language and the development of anxiety behaviors in FXS. The present study examines the predictive effects of structural and pragmatic language skills at Time 1 on anxiety symptomatology at Time 2, sampled a year later, in young adult males with FXS.

Methods: Participants included 27 young adult males (M age=19.8, SD 2.2) with FXS who participated in a larger longitudinal study on language development. The Yale in Vivo Pragmatic Protocol (YiPP; Simmons, 2015) was administered to characterize pragmatic language abilities. Error scores captured appropriateness of communicative responses with higher error scores indicating greater impairment. The Expressive Vocabulary Test-2 (EVT-2), Comprehensive Assessment of Spoken Language (CASL) syntax subtest, and Test for Reception of Grammar-2 (TROG-2) were administered to measure structural language abilities (Bishop, 2009; Carrow-Woolfolk, 1999; Williams, 1997). The EVT-2 is a norm referenced measure of expressive vocabulary. The CASL syntax assesses knowledge and use of grammar. The TROG captures understanding of grammatical construction. The growth scale value score from the brief IQ composite Leiter International Performance Scale, Revised (Leiter-R) provided a measure of nonverbal intelligence (Roid & Miller, 1997). Social anxiety and generalized anxiety behaviors were measured using the social avoidance and generalized anxiety disorder (GAD) subscales from the Anxiety, Depression and Mood Scale (ADAMS; Esbensen, 2010). Structural and pragmatic language skills were examined as predictors of social and generalized anxiety behaviors sampled one year later.

Results: Males with FXS had mean social anxiety scores of 4.58 (SD 3.51) and GAD scores of 4.27 (SD 3.08), indicating mild to moderate symptoms. Multiple linear regressions were conducted. Structural language skills were not predictive of social and generalized anxiety behaviors (ps > .190). Increased pragmatic language impairment was predictive of greater rates of social anxiety (B=3.17, p=.043), but not generalized anxiety (B=.70, p=.601) behaviors after covarying for nonverbal intelligence.

Discussion: These findings demonstrated that greater pragmatic language impairment was predictive of increased rates of social, but not generalized, anxiety behaviors in young adult males with FXS. Unlike previous work, stronger structural language skills were not predictive of increased anxiety symptoms in FXS. These results highlight a potential divergence between populations with average compared to lower cognitive abilities (Rodas, 2017). Findings suggest that pragmatic language impairment may be a factor in the heightened risk for social anxiety in individuals with FXS. Intensive interventions that target core pragmatic language skills may reduce social anxiety behaviors in adulthood for males with FXS.

References:


