Title: Story Generation in Adolescents with Fragile X Syndrome

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Introduction: Individuals with fragile x syndrome (FXS) have a range of language, cognitive and social skills that are dependent on sex, age, methylation status and other factors (Wright-Talamante et al., 1996). Due to the range of abilities in this population, measures are needed that investigate the functional use of language and social skills in this population. Narrative generation is a functional measure of language ability that incorporates multiple skills. A story teller must sequence a series of events in a logical fashion, consider the listener’s point of view, provide necessary background information, and engage the listener by providing details and a theme throughout the story. Narrative abilities may also provide insight into social functioning as it is through sharing stories that peers build social relationships (Nelson, 1991). Researchers have presented conflicting findings with some demonstrating individuals with FXS producing narratives comparable to mental-age matched peers (Keller-Bell & Abbeduto, 2007), while others show significant differences among these two groups but no differences when matched on MLU (Finestack, Palmer & Abbeduto, 2012). Finally, Estigarribia et al. (2011) found that there were no significant differences between the narratives of individuals with and without autism who had the diagnosis of FXS. These findings make it difficult to determine if narrative abilities in FXS are related to cognitive or language abilities and what role autism symptomatology plays in narrative generation. The purpose of this study was to examine the effects of cognitive and language skills and the severity of autism symptomatology on the narrative generation skills of adolescents with FXS. The data presented is preliminary as the data collection for the longitudinal study is ongoing.

Method: Sixteen adolescents with FXS who are part of an ongoing longitudinal study participated. Narratives were collected from a picture book during a home visit using the protocol developed by Abbeduto (2015). The participants were also given the PPVT-4, EVT-2, Leiter-2 Brief IQ, and the Childhood Autism Rating Scale, 2nd edition (CARS-2). The narratives were coded using the narrative story structure (NSS) rubric adapted by Finestack and Palmer (2011). A regression analysis was conducted to determine the predictive factors of language, cognitive skills, and autism symptomatology on narrative abilities.

Results: The results revealed that language ability contributes to a statistically significant proportion of the variance in the total narrative score, $R^2=.638$, $F(2, 13)= 11.475$, p=.001. When autism symptomatology and IQ were added to the model they did not contribute to a significant amount of the variance (CARS $R^2_\Delta = .003$, p>.05 and IQ $R^2_\Delta = .015$, p>.05). The total narrative scores ranged from 2-24 points with a mean score of 13.938 and a standard deviation of 7.532 indicating a wide range of narrative abilities in adolescents with FXS.

Discussion: This study demonstrates that narrative ability is most closely tied to language skills. IQ scores and autism symptomatology do not contribute significantly to narrative ability. It also validates that adolescents with FXS have a wide range of narrative skills which are impacted by their variety of language and social abilities. Narratives can be used as a functional, clinical measure of language ability, which may also provide insight into social ability.

References/Citations: