**Title:** Language Dysfluencies in Adult Females with the FMR1 Premutation: A Longitudinal Study

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**Introduction:** Individuals who carry the fragile X mental retardation 1 gene premutation are at risk for cognitive problems such as dysexecutive syndrome (Berry-Kravis & Hall, 2012). A cross-sectional study by Sterling, Mailick, Greenberg, Warren, and Brady (2013) found that mothers with the premutation who have children with the full mutation produced significantly more language dysfluencies, a measure of executive function, compared to a group of mothers with children on the autism spectrum who were matched for age, education, and number of children. Sterling et al., (2013) also found that older premutation carriers had more dysfluencies; this was not true of the comparison group. We add to this work by examining the amount of dysfluencies produced by adult females with the premutation over time and across speaking contexts. The specific research questions were (1) does the rate of dysfluencies change over time and (2) does the amount of dysfluencies differ between monologues versus semi-structured interviews?

**Method:** Uninterrupted five-minute speech samples were collected from 23 females at three points in time over a period of eight years and analyzed for language dysfluencies. Participants were part of a larger longitudinal study (Warren, Brady, Sterling, Fleming, & Marquis, 2010). The mean age of females at the first observation was 39 (sd=5) and 47 (sd=5) at the last observation. Samples were separated by communication units (c-units) and all instances of filled pauses, repetitions, revisions, and abandoned utterances were coded using the Systematic Analysis for Language Transcripts (SALT: Miller & Iglesias, 2012). A semi-structured interview was also collected and analyzed at the third time point. Growth models for the percent of all c-units that contained dysfluencies were conducted with age centered at 40 years. Correlations between number of dysfluencies and speaking contexts were performed.

**Results:** There was a significant fixed effect for linear slope \( F(1,66.7) = 4.40, p=.04 \) such that the percentage of c-units containing a dysfluency increased by .5 for each year. The average percent of dysfluent c-units was 50.17 when the females were 40 years of age. There was significant variability in intercepts across mothers (122.58, SE=41.8, p=.0017). The percentage of c-units with dysfluencies during the five-minute speech sample and the semi-structured interview was highly correlated \((r=.86, p=.000)\).

**Discussion:** On average, adult females in our study became more dysfluent, however, this was not true for each individual. It may be that only a subset of FMR1 premutation carriers experience greater difficulty with language processing as they get older. The high correlation between the two speaking contexts indicates that these difficulties are pervasive and not solely the result of speaking in monologue. Additional research is needed to identify characteristics that are associated with more highly dysfluent mothers, and how well these dysfluencies relate to other measures of executive functioning, communication, and maternal mental health.

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**References/Citations:**