**Title:** The Role of Autonomic Function in Predicting Parenting Stress and Social Support in Mothers with the *FMR1* Premutation

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**Introduction:** Mutations on the *FMR1* gene cause a range of fragile X related conditions, including the *FMR1* premutation and fragile X syndrome (FXS). FXS is a neurodevelopmental disorder that is the most common inherited cause of intellectual disability and is associated with increased caregiver burden. Specifically, research has found higher levels of parenting stress reported from mothers with the *FMR1* premutation. The autonomic nervous system plays a role in regulating emotional responses and may mediate the caregiver burden associated with having a child affected by FXS. Specifically, dampened vagal tone, reflecting reduced parasympathetic “rest and restore” function of the autonomic nervous system, may magnify sensitivity to everyday stressors and is associated with reduced psychosocial well-being and feelings of social disconnectedness. Given that autonomic dysregulation is a hallmark feature of FXS, this study explored autonomic dysfunction as a potential feature of the *FMR1* premutation that may contribute to elevated parenting stress and reduced social support.

**Method:** Participants included 32 mothers with the *FMR1* premutation and 30 control mothers with typically developing children. Parenting stress and social support were measured using self-report questionnaires: the Parenting Stress Index (PSI-SF, Abidin, 1990) and the cohesion subscale of the Family Environment Scale (FES; Moos & Moos, 1986), which measures the amount of support provided by family members for one another. Heart rate data were collected using an Actiwave Cardio monitor (CamNtech Ltd., Cambridge, UK). Participants watched a neutral video showing an ocean scene for 3 minutes to measure the baseline heart rate. The data were then edited for artifacts through the CardioEdit program (Brain-Body Center, University of Illinois at Chicago) and estimates for heart rate and vagal tone were acquired through the CardioBatch program (Brain-Body Center, University of Illinois at Chicago).

**Results:** Mothers with the *FMR1* premutation reported higher levels of parenting stress ($F_{[1,52]} = 14.60, p = .004$) and lower levels of social support ($F_{[1,49]} = 5.34, p = .025$) than control mothers. A series of general linear models tested each cardiac index, group, and their interaction as predictors of parenting stress and social support. Neither vagal tone nor heart rate were significant predictors of stress or social support across the groups ($p = .904$).

**Discussion:** The present study examined the relationship between social support, parenting stress and autonomic function. Although we detected higher parenting stress and lower social support among women with the *FMR1* premutation compared to controls, there was no relationship between these outcomes and cardiac markers of autonomic function. Overall, findings suggest negative psychosocial outcomes in mothers with the *FMR1* premutation, yet these outcomes do not appear to be mediated by autonomic regulation.

**References/Citations:**