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Abstract

Parkinson's disease is a neurodegenerative disease associated with a wide range of motoric, cognitive, and behavioral symptoms. Impairments in facial mobility and emotional expressivity are common and can impair communication, in turn affecting daily functioning and quality of life. Previous research suggests that the Lee Silverman Voice Treatment © (LSVT LOUD; Ramig et al., 2001, 2011) increases vocal loudness and facial expressivity in individuals with PD compared to PD and healthy controls. This study extends the literature by examining the effects of LSVT and an articulation-based control treatment (i.e., ARTIC) on multiple aspects of facial expressivity (i.e., emotional frequency [EF], intensity [EI], variability [EV] and social engagement [SE]) as well as non-emotional facial mobility. In addition, we examined whether demographic, clinical, cognitive, and affective variables predict facial expressivity and mobility improvement via LSVT.

Participants included 40 individuals with idiopathic PD (67.5% male) and 14 demographically-matched healthy controls (60% male). The PD participants were randomly assigned to either the LSVT LOUD treatment group ($n = 13$), a control therapy (ARTIC Treatment; $n = 14$), or an Untreated Control Condition ($n = 13$). All posers (PDs and HCs) were video-taped, before and after treatment (for the LSVT and ARTIC PD groups) or at baseline and after a 4-5 week waiting period for (for the Untreated PDs [UPDs] and HCs), while producing emotional (happy, sad, and angry) and neutral ($n = 1$) monologues from the New York Emotion Battery (Borod et al., 1998; Borod, Welkowitz, & Obler, 1992). The monologues were randomized and divided into 15-second segments, and evaluated by 24 naïve raters for 5 different aspects of facial emotional expression and facial mobility. Separate training sessions were held for each of the five facial rating variables (i.e., FM, EF, EV, EI, & SE) and reliability was largely in the high range. Findings revealed that PD posers displayed lower facial expressivity than HCs on three out of five variables, however, these effects were moderated by gender and emotion. In terms of gender, women were more expressive than men on all facial expression variables. Treatment results showed that individuals in the LSVT group showed significant improvements from pre- to post-treatment in facial expressivity for four out of the five variables examined (i.e., FM, EF, EV, & EI), however, for EV, this interaction was moderated by Gender, with significant increases from pre- to post-treatment for men but no significant difference for women in the LSVT group. There was no significant differences observed pre- to post-treatment for ARTIC or from baseline to 4-5 weeks following for the UPD and HC group. In terms of predictive findings, demographic, clinical, cognitive, and affective variables did not predict facial improvements in LSVT participants, suggesting that this treatment is robust to individual differences and may be helpful for a wide range of individuals with PD.