The Effects of Group Singing on the Vocal Parameters of Adults with Mild-Moderate Stage Parkinson’s Disease

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Introduction

- Parkinson’s Disease (PD) is a progressive neurological disorder characterized by motor, cognitive and speech difficulties.
- Most individuals with PD will experience a voice or speech disorder at some point in the disease progression, with individuals commonly experiencing reduced vocal loudness.
- Treatment often involves a combination of pharmacological intervention, physical therapy and speech therapy.
- The Lee Silverman Voice Treatment (LSVT) is the most common, evidenced based voice therapy for this population. It emphasizes high phonatory-respiratory effort to improve vocal intensity.

Study Rationale

- The majority of LSVT research is conducted by its authors or associated groups. Outside research has demonstrated its efficacy but not the long-term maintenance of improvements.
- A few research studies have begun to investigate the effectiveness of using group singing therapeutically for the PD population.
- The principal investigators founded the "Neuro Notes Parkinson’s Choir" as a collaboration between the departments of Music and Communication Sciences and Disorders (CSCD). All participants were recruited from the choir.
- The primary aim of this pilot study is to investigate the effects of group singing on vocal frequency and intensity. Additional investigations involve changes in acoustic measures of dysphonia, self-reported voice handicap, PD symptom severity and the influence of personality traits on improvement.
- A parallel study investigates the impact of group singing in other populations.

Methods

Participants

- Participants were recorded producing 3 pitches on an /a/-/ lowest pitch, habitual pitch and highest pitch - at their minimum and maximum intensities, as well as reading "The Rainbow Passage". The recordings were analyzed using PRAAT and Analysis of Dysphonia in Speech and Voice.
- Voice Handicap Index-10 (VHI-10) a 10-question survey used to assess voice related quality of life.
- Parkinson’s Disease Questionnaire - 39 (PDQ-39) is a self-report questionnaire which assesses PD health related quality of life over the last month.
- Big Five Index – assesses personality across 5 dimensions: openness, conscientiousness, extraversion, agreeableness and neuroticism.

Results

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Conclusions

- Group singing may provide benefits for the perception of a voice impairment and the vocal parameters of adults with PD.
- This study provides some evidence indicating group singing can affect the vocal parameters of frequency and intensity for people with PD.
- Contrary to previous studies, there was an inverse relationship between VHI-10 and CSID values.
- The majority of participants self-reported improved feelings regarding their vocal handicap.
- Randomized controlled trials with larger sample sizes are necessary to compare group singing to current evidence-based therapeutic interventions.

References