Does increasing vocal loudness affect hearing perception in persons with Parkinson's Disease

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People with Parkinson's disease (PD) have speech and voice characteristics that affect their communication abilities, and perceptual characteristics such as reduced loudness and pitch variability have been well documented [see 2&3]. However, descriptive variables of these characteristics, such as self-perception of speech and voice are not well understood. At present, research supports a need for mandated audiological care within the Parkinsonian community in order to identify those affected by the co-morbid presentation of hearing loss and Parkinson's disease, and to better understand the relationship of PD and age-related peripheral hearing impairment and impaired speech discrimination [6,7]. Yet, it is unclear whether the auditory deficits are intrinsic to Parkinson's disease or secondary to a more complex impaired processing of sensorial inputs occurring over the course of illness [8]. Moreover, the relationship of these auditory deficits to patients' speech volume during reading and conversation is not fully understood, raising the question as to whether impaired speech production is driven by a basic perceptual fault or whether perception is abnormal as a consequence of impaired mechanisms involved in the generation of quiet speech. Clark, Adams, Dykstra, Moodie, & Jog [1] found a speech loudness perception deficit in patients with PD involving an abnormal perception of externally generated and self-generated speech intensity. Kwan & Whitehill [4] reported similar deficits were found across studies in patients' perception of their own speech loudness and also reported differences in the perception of verbal emotional prosody. De Keyser *et al.*, [4] comparing persons with PD and healthy controls found that auditory perception of speech and speech intensity was different in the PD group ,which they claim could influence speech production in this population. However, explanations of the nature and causes of these perceptual deficits are still limited. To better understand perceptual deficits of patients with PD, this study will compare loudness perception tasks with a magnitude estimation procedure involving perception and production of spoken utterances at varying speech pressure levels for patients with PD and compare it to audiological measurements of speech intelligibility. Further, these parameters will be measured at two times over a month of Loud Crowd therapy developed by Samantha Elandary at the Parkinson Voice Project. Loud Crowd is a trademarked group speech therapy for PD patients that works on the principle of increased effort in speech production that results in increased vocal intensity.

Citations

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