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Commentary

Not only loud but also intelligible

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Speech difficulties are common issues in the management of people with Parkinson's disease (PD), and become more so with progression of the disease. Problems with speech can be variable, and include a reduction in the volume of speech (hypophonia), accompanied by a hoarse and breathy voice, mono-loud and monotone speech or loss of the quality of articulation (dysarthria) [1].

Medications and surgical approaches for PD have limited benefits and can even make the situation worse. There is some evidence supporting the use of speech therapy interventions for PD [2–4], however good quality trial data are sparse, therefore additional data from well conducted randomised controlled trials of interventions for speech difficulties in PD are welcome. In EClinical Medicine, Levy et al. [5] report the results of a randomised controlled trial of 64 participants with PD and hypokinetic dysarthria, who were randomly allocated to receive 1 of 2 forms of speech therapy or to no treatment.

The gold standard speech therapy for PD involves a technique called Lee Silverman Voice Treatment termed LSVT LOUD. This approach trains people to increase the amplitude of their vocal motor output and re-calibrates their perception of vocal loudness. Previous trials have documented that this treatment program can lead to significant objective changes in speech amplitude (loudness) and pitch variation. Furthermore secondary gains have been identified for articulation, swallowing and hypomimia.

The current trial set out a different aim, to explore whether objective measures of speech intelligibility may be significantly impacted by the use of LSVT LOUD in comparison to an equivalent time exposed to speech therapy specifically focusing on articulation (LSVT-ARTIC). The authors hypothesised a-priori that both interventions would improve speech intelligibility compared with a 3rd group of people with PD who had no treatment.

They adopted an objective measure of speech intelligibility-using multiple blinded raters to transcribe sentences recorded from participants before and after the therapy to allow quantification of transcription accuracy. They were careful to use self-generated narrative speech as this is more likely to reflect day to day speech intelligibility rather than read or repeated sentences. Furthermore, the listeners had to transcribe sentences adjusted to be of equal loudness at baseline and follow up this excluding the possibility that any change in intelligibility resulted purely due to speech becoming more audible.

All participants had PD and dysarthric speech. Both active treatment groups received 16 one- hour sessions of LSVT which fits with the existing recommendations for LSVT.

57/64 participants had complete data collection. The authors report that those individuals receiving "LSVT LOUD" had a significant (31%) improvement in intelligibility compared to baseline and also compared to the "no treatment" and the "LSVT ARTIC "groups which is highly likely to reflect a clinically meaningful improvement in speech. Surprisingly, there was no significant improvement in intelligibility from baseline among people who had LSVT ARTIC, focussed on articulation. This result adds to the evidence that LSVT LOUD not only improves the amplitude of speech but also its intelligibility, further supporting its clinical value. This obviously has important clinical consequences for effective communication.

While the failure of LSVT ARTIC to improve intelligibility is surprising, this result adds certainty that the effects seen with LSVT LOUD are not simply placebo effects due to the additional attention from speech clinicians, but that the therapy itself has a clear impact on intelligibility. This said, it would be unwise to conclude that LSVT focusing on articulation has no value. While it would appear to have less impact than LSVT LOUD, the modest mean improvement of 6.8% may conceal more meaningful improvements among subgroups of patients. Additionally we cannot be sure whether therapy that encompasses both Speech amplitude (LSVT LOUD) as well as articulation (LSVT ARTIC) might be of greater value that either of these alone.

The existing trial only reports the immediate benefits seen with LSVT LOUD. Other trials have previously confirmed long term benefits on speech amplitude and the authors indicate that data regarding the long-term benefit of LSVT LOUD on intelligibility should become available. Nevertheless, the take home message from this trial is that LSVT LOUD works at improving both speech amplitude AND intelligibility and therefore there is all the more evidence that

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it should be made available to all people with PD with hypokinetic dysarthria.

Declaration of Competing Interest

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