

# JITTER AND SHIMMER AS POTENTIAL ACOUSTIC MARKERS OF DYSARTHRIA IN PARKINSON'S DISEASE: A PILOT STUDY

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## Background:

Dysarthria is a frequent symptom in neurodegenerative disorders, particularly Parkinson's Disease (PD). However, neurologists still lack objective tools to quantify its severity or predict its progression. Based on previous literature, we explored the role of jitter and shimmer—acoustic measures of frequency and amplitude perturbation, respectively—as potential outcome markers of dysarthria. (1,2)

## Objective:

To evaluate whether jitter and shimmer differ between PD patients and healthy controls, and to assess their correlation with automatic transcription accuracy as a proxy for speech intelligibility.

## Methods:

We enrolled 16 participants: 8 with clinically diagnosed PD and 8 age- and sex-matched healthy controls, all without known vocal disorders. Participants read a standardized passage aloud. Recordings were analysed using PRAAT software to extract jitter and shimmer values.

Transcription was performed using the built-in Dictate function of a commercial speech-to-text software, and the number of transcription errors was recorded.

## Results:

Transcription errors were significantly higher in the PD group ( $P = 0.03$ ). Both jitter and shimmer values were significantly lower in PD patients compared to controls (jitter:  $P = 0.002$ ; shimmer:  $P = 0.02$ ). A significant inverse correlation was found between acoustic variability (jitter and shimmer) and transcription accuracy ( $P = 0.003$ ).

## Conclusions:

Reduced jitter and shimmer values were associated with poorer speech recognition, suggesting their potential role as sensitive acoustic markers of dysarthria in PD. These findings support the development of objective, practical tools to monitor vocal impairment. Further research on larger cohorts and other neurodegenerative diseases is warranted to validate jitter and shimmer as clinical outcome measures. (3)

## REFERENCES

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