## Evaluation of speech amplification devices in Parkinson's disease

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## **Abstract**

One of the most prevalent and distinctive speech impairments in idiopathic Parkinson's disease (PD) is hypophonia (low speech intensity), which may be exacerbated by increased contextual demands. Typically, speech produced in background noise has a lower speech-to-noise ratio (SNR) than speech produced in quiet environments, and a reduced SNR corresponds to reduced intelligibility. Speech amplification devices are a potential solution to this problem; however, despite the availability of a broad range of devices, no previous studies have systematically investigated their efficacy in PD. This study compared the effectiveness of seven devices (ADDvox, BoomVox, ChatterVox, Oticon Amigo, SoniVox, Spokeman, and Voicette) to unamplified speech for eleven PD participants during a conversational task in the presence of 65-decibel (sound pressure level) multi-talker background noise, using the outcome measures of the speaker's experience, SNR, and intelligibility. Device effectiveness varied across outcome measures, and experience ratings did not always predict effectiveness according to the device hierarchies for SNR and intelligibility. Future research is needed to determine which outcome measures will predict long-term device acceptance in PD.