A pause is defined as a silent interval or temporary cessation in speech and can result from motoric, prosodic, linguistic, or cognitive processes. As such, pausing plays a critical role in examining respiration, articulation, and prosody of clinical populations.

Previous work has used a number of different criteria for measuring pauses. Past studies have defined pause as a silent interval in speech lasting at least 40 milliseconds (Gaudet & Sénéchal, 2008), at least 50 milliseconds (Goberman, Coelho, & Robb, 2005), or at least 200 milliseconds (Barton & Kianti, 2008).

Relative to pause in Parkinson disease (PD), various studies have found different results. For example, previous literature has shown that individuals with PD typically exhibit longer pause durations than control speakers (Goberman et al., 2005; Goberman & Elmer 2005; Qu et al., 2002). Other studies have examined breath and pause independently, and have found shorter pause durations in individuals with PD compared to controls (Huber et al., 2012).

The purpose of the current study was to find categories linguistic and phonetic features and then examine the relative frequency and duration of these silent intervals in the speech of participants with and without PD.

**RESULTS**

Intervals containing an inspiratory breath:
- **Interval Duration**
  - Silent intervals at major syntactic boundaries were significantly longer than all other boundary types, *p* < 0.01 for all comparisons.
  - Silent intervals at appropriate and inappropriate boundaries were significantly longer for speakers with PD than controls, *p* < 0.05 for both comparisons.
- **Number of intervals**
  - There were significantly more pauses at major boundaries than all other boundary types, *p* < 0.01 for all comparisons.
  - No differences were observed between the number of silent intervals before speakers with and without PD for any boundary type, *p* > 0.05.

Intervals without an inspiratory breath:
- **Interval Duration**
  - Silent intervals at major syntactic boundaries were significantly longer than all other boundary types, *p* < 0.01 for all comparisons.
  - For all boundary types, no differences in the duration were observed between speakers with PD and controls, *p* > 0.05 for all comparisons.
- **Number of intervals**
  - For all speakers, there were significantly more pauses at inappropriate boundaries all other boundary types, *p* < 0.01 for all comparisons.
  - No differences were observed between the number of silent intervals between speakers with and without PD for any boundary type, *p* > 0.05.

**CONCLUSIONS**

Individuals with PD exhibited longer pause breaths at prosodically appropriate and inappropriate boundaries. This may reflect bradykinesia, or slowness of movement during inspiration or difficulty initiating speech.

A few individual participants exhibited longer pause durations at syntactically inappropriate pause boundaries. These longer durations at between-boundary boundaries unrelated to syntax may result from a number of causes, including stuttering-like disinfluences or a break down in phoneme-to-phoneme transitions. These data suggest that overall differences in the duration and frequency of silent intervals between speakers with and without PD may result from production, rather than linguistic deficits.