

## Association of Parkinson's disease progression and gastrointestinal dysfunction in the Hawai'i population

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Parkinson's disease (PD) is a progressive disorder of dopaminergic neurons in the brain, resulting in symptoms such as tremor, muscle rigidity, bradykinesia, and cognitive impairment. Clinical indicators of PD progression include changes in motor function (using the Unified Parkinson's Disease Rating Scale, UPDRS), drug dosage (Levodopa Equivalent Daily Dose, LEDD) and impairment of daily living activities (dementia, falling). This study evaluated the relationship between PD and GI dysfunction in the Hawai'i population. A retrospective medical chart review of 193 patients diagnosed with Parkinson's disease at Hawaii Pacific Neuroscience between June 2010 and July 2020 was conducted. Results show a positive correlation between PD progression and GI symptoms for all 193 patients ( $r = 0.21$ ,  $p = 0.01$ ).

Women appeared to have a stronger positive correlation ( $r = 0.30$ ,  $p = 0.01$ ). Positive correlation between speech/facial expression and diarrhea, hand movement and diarrhea, and leg movement and diarrhea ( $p = 0.05$ ,  $0.0001$ ,  $0.0004$ ) were also observed. Of patients with worsening motor symptoms, there appeared to be additional positive correlations between tremor and diarrhea, gait/balance and diarrhea, and gait/balance and swallowing ( $p = 0.056$ ,  $0.007$ ,  $0.012$ ). Results show that as PD symptoms progress,

GI-related issues tend to be more frequent and/or severe. These findings on the Hawai'i population support current literature correlating progression of gastrointestinal symptom severity and PD severity in the continental US. Correlations between diarrhea and individual motor symptoms appeared to be particularly strong and should be considered in future studies.

### Biography

The team is composed of undergraduate students, graduate students, and physicians at their respective clinics and universities listed above. The presenting author is majoring in Public Health. Dr. Liow is the PI at the Clinical Research Center. Dr. Viereck is the academic director and each has more than 30 papers published in clinical and scientific journals.