Sensor-Guided Psychopharmacology in Alzheimer's Disease

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MassAITC AD/ADRD Focus Pilot Core

Massachusetts AI & Technology Center for Connected Care in Aging & Alzheimer's Disease

Project Overview

- Antipsychotics and mood stabilizers are used to treat Alzheimer's Disease and other Related Dementias (ADRD) for behavioral and psychological symptoms of dementia (BPSD), but come with many unanticipated side effects
- We will utilize a Garmin device to extract data (heart rate, movement, sleep patterns, etc.) from 40 ADRD patients in McLean's Geriatric Psychiatry Outpatient Program at baseline and following a change in their medication status
- We will compare this data to ground truth EMA survey results provided by caregivers (GAD-7, QoLS, MBI-C, PHQ-8, CMAI, PAS, UCLA-LS, DEQ)
- Prescribing clinicians will receive patient data in a virtual dashboard to assess patient treatment

Aims:

1. To demonstrate feasibility and clinical validity of wearable sensors to detect antipsychotic and mood stabilizer effects in older adults with ADRD
2. To evaluate whether wearable sensor data can impact clinical decision-making

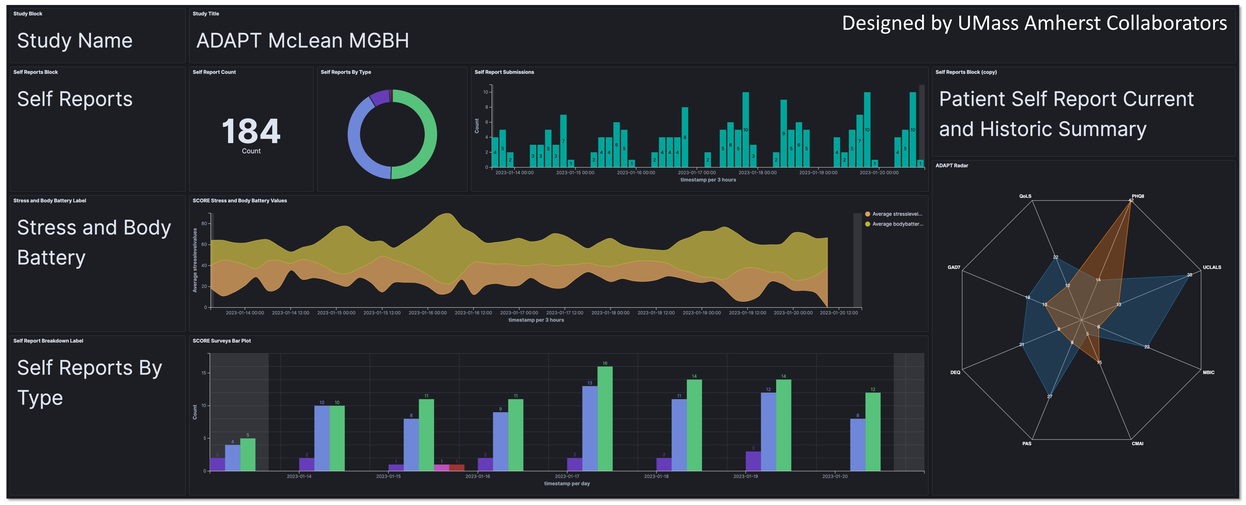
Future Directions

- Determine which wearable metrics are most impactful at enhancing clinical decision-making for patients with ADRD
- Integrate our wearable/dashboard protocol into clinical workflows to support clinical outcomes

Study Workflow

Baseline Measurement	Medication Change	2-Week Data Acquisition	Data Parsing	Dashboard & Data Analysis
Dementia patients are given a Garmin device to wear for 1 week Caregivers fill out baseline surveys every day	Patients remove Garmin device Patients are monitored for 6 months until their medication status changes	Following medication change, patients wear device for 2 weeks Caregivers fill out surveys every day	Garmin data is continuously extracted by our UMass Amherst collaborators and processed	Clinician receives patient's data during the 2 monitored weeks Following the study, final data analysis occurs at McLean Hospital

Clinical Dashboard Prototype



Following the 2 monitored weeks, prescribing clinicians fill out the McLean Collateral Information & Clinical Actionability Scale (M-CICAS) to determine their willingness to use electronic data and whether they found the data clinically useful

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