Background: Common acute medical conditions among older adults with dementia in skilled nursing include falls, delirium, and pneumonia. This study utilized a sensor technology to examine how motor behaviors may predict these acute events.

Methods: Radio frequency identification (RFID) technology continuously measured time and distance travelled, gait speed, and continuous walking with little/no breaks (paths) across 3 long-term facilities for up to 1 year (N=51). Change point analysis estimates the probability of whether a sudden change occurred and provides the location of the change point (in days prior to the event) in a time series model.

Results: Gait speed had very low probability to detect a change point across all events (22 falls, 10 delirium and 8 pneumonia). Sensitivity estimates ranged from 63% (number of paths) to 90% (distance travelled) for a fall; 37.5% (number of paths) to 100% (rest of the motor behaviors) for pneumonia. Except for gait speed, all other motor behaviors had high probability (100%) to detect a delirium change point. There was intra-individual variability in the location of the change points (mean of 10 days). Linear regression models for time and distance travelled using baseline predictors of age, ethnicity, gait and balance explained 89% and 90% of the variance in change point locations.

Conclusions: Prior to an acute event there is a significant change in motor behavior, suggesting these are an early signal that may be used to prevent a fall or provide for the earlier recognition and treatment of delirium and pneumonia.

PRELIMINARY EFFICACY OF AN MHEALTH MINDFULNESS INTERVENTION WITH CAREGIVERS OF OLDER ADULTS WITH MCI OR DEMENTIA

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Decades of research have documented the negative effects of caregiving on unpaid caregivers. Caregivers are more likely to suffer from high levels of stress and anxiety, and caregivers of older adults with dementia are at especially high risk. Mindfulness Therapy (MT) is a promising, non-pharmacological technique with proven efficacy and effectiveness in managing stress and anxiety in diverse populations. Mindfulness Coach is an m-health delivered mindfulness therapy intervention developed by the Veterans Affairs National Center for PTSD. The objective of this paper is to report the preliminary efficacy of an 8-week pilot trial of mHealth-delivered mindfulness therapy to alleviate anxiety and caregiver stress in caregivers of persons with dementia. Sixty caregivers of patients with mild cognitive impairment or dementia were recruited to participate in this single group pre-post design study. After receiving an orientation to using the app, participants were instructed to use the app daily to learn about and practice mindfulness skills. At the end of the 8 weeks, there was a significant reduction between baseline anxiety on the Hospital Anxiety and Depression Scale Anxiety subscale (mean = 14.45, SD = 3.36) 15.42, SD = 3.12) and 8 weeks (mean = t(55)=2.6, p=.012) and perceived stress measured by the perceived stress scale at baseline (mean = 23.59, SD = 3.99) and 8 weeks (mean = 21.12, SD = 3.09), (t(56)=5.94, p<.001). This study offers preliminary evidence that mHealth Mindfulness Therapy strategies may help caregivers manage the stress and anxiety associated with caregiving.