

DEVELOPING MULTIMODAL IOMT MONITORING SYSTEM OF GERIATRIC DEPRESSION: A FEASIBILITY STUDY

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The Internet of Medical Things (IoMT) is a promising tool to monitor depression and relevant symptoms. However, the multimodal IoMT monitoring system has been rarely developed considering the characteristics of older adults, particularly living in the community. Therefore, it is necessary to know how to develop multimodal IoMT monitoring systems tailored for older adults and evaluate the feasibility for research and practice. We developed a multimodal IoMT monitoring system that included a smartphone for facial and verbal expressions, smartwatch for activity and heart rates, and ecological momentary assessment (EMA) application. A convenience sample of 21 older Korean adults aged over 65 years was recruited from a community center, and 19 participants completed it. The data were collected in four weeks using self-report questionnaires, IoMT devices, and semi-structured interviews between July and December 2020 and were analyzed in mixed methods. Based on the Geriatric Depression Scale-Short Form scores, eight participants were classified in the depressive group (38.1%) and 13 in the non-depressive group (61.9%). A total of 1,505 (70.72%) EMA data were collected, and 1,277 (60.00%) were analyzed. Furthermore, 1,421 (66.78%) facial expression data were collected and labeled, including anger, happiness, neutral, sadness, surprise, and exception. Voice dialogues were transformed into 5,264 scripts. The depressive group showed lower user acceptance relative to the non-depressive group. However, both groups experienced positive emotions, had regular life patterns, and increased their self-interest. Thus, our multimodal IoMT monitoring system is a feasible and useful measure for acquiring mental health information in older adults' depression.

IMPLEMENTING BEHAVIORAL HEALTH SOCIAL WORKERS' INCREASED MENTAL HEALTH CARE AMONG OLDER ADULTS

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Depression is underdiagnosed and undertreated among older adults. Health systems can screen patients to identify depression, but systemic linkages to treatment are required to ensure care. We used a retrospective stepped-wedge study to identify the impact of implementing behavioral health social workers (BHSWs) on receipt of treatment after a new depression diagnosis. We included adults over 65 years of age with a primary care visit between 2016 and 2019 at a large integrated health system. We excluded patients who were diagnosed with or treated for depression in 2015. Patients were categorized into control (diagnosed before implementation) and intervention (diagnosed after implementation) groups. From our electronic health record, we collected prescriptions for pharmacotherapy and behavioral health visits.

Patients were considered treated if they received pharmacotherapy or had a behavioral health visit within 30 days of diagnosis. We used multilevel logistic regression models to identify the association between implementation period (pre versus post) and treatment, adjusted for demographic variables and clustering within site. Our population included 4,475 people. The percent of patients that received treatment increased from 47% to 54% after implementation and the percent of patients with ≥ 1 behavioral health visit within 30 days increased from 3% to 8% ($p < 0.01$, respectively). The adjusted odds ratio of receiving treatment (AOR: 4.13, 95%CI: 2.84-6.01) and having a behavioral health visit (AOR: 3.12, 95%CI: 2.31-4.24) was significantly higher in the post-implementation period. In conclusion, implementation of BHSWs was associated with increased treatment for older patients with depression.

LITHIUM RECEIPT AND RISK OF DEMENTIA IN OLDER VETERANS WITH BIPOLAR DISORDER IN THE VA HEALTH SYSTEM

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Older adults with bipolar disorder are at increased risk of developing dementia. The literature suggests lithium treatment may reduce the incidence of dementia. This study sought to inform clinical practice in the Veterans Affairs (VA) health system by estimating the effect of past year lithium receipt on dementia incidence among Veterans with bipolar disorder. Divalproex receipt was used as a comparison. Using VA medical records, 121,094 Veterans aged 50 and older with a diagnosis of bipolar disorder but no dementia diagnosis were identified in fiscal years 2005-2019. Follow-up continued until dementia diagnosis, 36 months from the index date, death, or the end of fiscal year 2020, whichever came first. 4347 (3.6%) were diagnosed with dementia during follow-up. Time-varying indicators of receipt of lithium and divalproex in the prior 365 days were calculated for each day, categorized as 301-365, 61-300, 1-60, or 0 days of receipt. Unadjusted Cox proportional hazards regression analyses indicated reduced dementia incidence with 301-365 (HR=0.86, 95% Confidence Interval [95%CI] 0.75-0.99) and 61-300 (HR=0.75, 95%CI 0.65-0.87) days of lithium receipt, compared to 0 days. For divalproex, 301-365 (HR=1.34, 95%CI 1.23-1.47) and 61-300 (HR=1.13, 95%CI 1.03-1.23) days of receipt were each associated with increased dementia incidence. Lithium effects were not statistically significant after adjusting for age, sex, race, ethnicity, medical comorbidities, and antidepressant, antipsychotic, and anxiolytic medication receipt. Divalproex effects remained statistically significant. Past year divalproex, but not lithium, receipt was significantly associated with dementia incidence among VA patients with bipolar disorder when adjusting for demographics and medical comorbidities.