2. Duke University, Morrisville, North Carolina, United States

Our estimates showed significant gaps in mortality rates between the West and East parts of the U.S. when these rates are based on death certificate data. These geographic disparities were persistent over time and could not be fully explained by differences in demographic and socioeconomic characteristics, comorbidities, and differences in AD coding between these regions. However, incidence and incidence-based mortality rates based on Medicare data do not reproduce these geographic disparities. Death certificate-based patterns hold for the subset of the population with breast cancer, e.g., for subpopulation for which breast cancer was listed as a secondary cause of death. Therefore, SEER-Medicare data, which contains both death-certificate records and Medicare administrative claims for the same individuals can be used to resolve this inconsistency in findings. Analysis of breast cancer patients from two SEER registries in NJ and WA states in SEER-Medicare data (2000-2013) showed that the fraction of deceased individuals with an underlying cause AD among those who had a Medicare diagnosis of AD is 2.5-3.5 times (depending on the Medicare ascertainment algorithm) higher in WA comparing to NJ (p<0.0001). The odds ratio of not-having AD as an underlying cause is 1.3 for WA vs. NJ and increases with age, for non-white races, and unmarried individuals. Our findings do not support the hypothesis of higher rates of AD in WA state but show that AD is likely underrepresented in death certificate in NJ and possibly other East coast states.

NEIGHBORHOOD DEPRIVATION AND INCIDENT ALZHEIMER’S DISEASE: A REGIONAL COHORT STUDY OF ELECTRONIC MEDICAL RECORDS

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The prevalence of Alzheimer’s disease (AD) is anticipated to increase drastically. Neighborhood socioeconomic position (SEP) has been related to multiple processes of health. Understanding whether SEP is related to AD can inform who is at greatest risk of developing this disease. We analyzed electronic medical records of 394892 patients from the two largest health systems in Northeast Ohio to evaluate the relationship between Ohio Area Deprivation Index quintiles (defined at the census tract level) and hazard for a composite outcome of AD diagnosis or primary AD death. We included residents of Cuyahoga and neighboring counties, and used the first outpatient visit beyond age 60 occurring between 2005 and 2015 as study baseline. Outcome data were censored at the earlier of A) the beginning of any 3-year time period without visits or B) non-AD death. We estimated a Cox proportional hazards regression model, adjusting ADI quintile effects for the interaction between age at baseline, sex and race as well as birth year. We used quadratic terms for continuous predictors. After adjusting for these factors, ADI quintile was significantly related (χ2 = 83.0 on 4 d.f.; p < 0.0001) to the composite time-to-event outcome. Compared to the lowest-deprivation quintile, ADI quintiles 4 (adjusted hazard ratio [95% confidence interval]: 1.18 [1.10, 1.26]) and 5 (1.37 [1.28, 1.47]) had significantly higher hazard for the composite outcome. In conclusion, neighborhood deprivation may be a risk factor for AD independent of demographic factors. Preventive efforts should target individuals living in neighborhoods with high levels of deprivation.

RACIAL DIFFERENCES IN THE EFFECT OF ALZHEIMER’S DISEASE ON ADHERENCE TO MEDICATION THERAPY FOR CHRONIC DISEASES

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Multiple dementia (the presence of one or more types of dementia in a single individual) and multi-morbidity (the presence of multiple chronic diseases in an individual) present a major challenge to the U.S. healthcare system. The reduction in cognitive function associated with neurocognitive disorders such as Alzheimer’s Disease (AD) and Related Dementias (ADRD) reduce the ability of the affected individual to take care of him/herself. This can manifest as reduced adherence to medication regimens designed to manage other chronic conditions, in reduced ability to engage in healthy behavior such as exercise, or in other ways. The result is an increase in the probability of otherwise avoidable adverse health outcomes and related healthcare costs. In this study, we showcase two high impact chronic conditions common in the elderly: hypertension and type 2 diabetes mellitus (T2D). Using a 5% sample of the total Medicare population we identify groups of individuals with AD/ADRD and i) hypertension, ii) T2D or iii) both. Each group is then propensity-score-matched to similar individuals with AD/ADRD and mortality. The primary explanatory variable of interest is the medication possession ratio (MPR) calculated at 1-year intervals for prescribed diabetes and/or hypertension medications. MPRs were compared between the two groups using t-tests and standardized differences each year after baseline and until death/censoring. A Cox proportional hazard model was then used to estimate differences in survival between these two groups and across race/ethnicity-related strata. Reduced adherence with time and notable race/ethnicity-related differences were identified.

Session 1235 (Symposium)

EMBODYING THE AGING EXPERIENCE: HOW VIRTUAL REALITY IS TRANSFORMING MEDICAL AND NURSING EDUCATION

Chair: Marilyn Gugliucci
Co-Chair: Pamela Saunders
Discussant: Erin Washington

Virtual reality (VR) has long been standard in healthcare education. Recent advances in VR hardware and software applications have coalesced to allow for higher fidelity, more highly-realistic simulations that are also deployable at scale -- not just in highly specialized, single location simulation applications have coalesced to allow for higher fidelity, more highly-realistic simulations that are also deployable at scale -- not just in highly specialized, single location simulation
In the midst of rapid transfers to online teaching for experiential learning opportunities in nursing clinical labs this past spring due to the pandemic, nursing simulations with immersive virtual reality (VR) in VR headsets were deemed impossible. In partnership with Embodied Labs, nursing faculty pivoted to facilitating VR using remote learning approaches in groups. In this new VR approach nursing students engaged in active learning, critical discourse, and reflection guided by faculty delivered VR scenarios remotely with in-session debriefing during discussion pause points. Complex scenarios focused on patient or family perspectives (e.g. during end-of-life care or navigating community and healthcare needs as a LGBTQ individual). These were valuable online learning opportunities for undergraduate nursing education. Student feedback was positive, and faculty perceptions indicated using VR remote learning offers rich, engaging discussion through complex topics important to nursing clinical practice.

Impact of Virtual Reality on Healthcare Provider Empathy for Older Adults With Sensory Impairment
Suzanne Dutton, Sibley Memorial Hospital/Johns Hopkins, Washington, District of Columbia, United States

Virtual reality (VR) is an innovative technology that can simulate dual sensory impairment so that healthcare providers and others can experience this affliction common in older adults. This study investigated whether VR simulation could increase empathy among healthcare workers. Healthcare providers experienced a 7-minute scenario from the viewpoint of “Alfred”, a 74-year-old with macular degeneration and high frequency hearing loss on a commercial VR headset (Oculus Rift). Using a one-group pre/post-test study design, we measured knowledge, changes in empathy, and assessed participants’ self-reported behavior change. Results showed that participants increased their knowledge and that 9 of 14 empathy items had statistically significant increases. Additionally, 97% of participants agreed or strongly agreed that they would utilize the information learned in their work with patients. In conclusion, evidence suggests VR is an effective intervention to increase empathy and positively change behavior to support persons with sensory impairment.

Remote Delivery of Virtual Reality Patient Simulations for Nursing Education
Jaime Hannans, California State University Channel Islands, Simi Valley, California, United States

Virtual reality (VR) is an innovative technology that can simulate dual sensory impairment so that healthcare providers and others can experience this affliction common in older adults. This study investigated whether VR simulation could increase empathy among healthcare workers. Healthcare providers experienced a 7-minute scenario from the viewpoint of “Alfred”, a 74-year-old with macular degeneration and high frequency hearing loss on a commercial VR headset (Oculus Rift). Using a one-group pre/post-test study design, we measured knowledge, changes in empathy, and assessed participants’ self-reported behavior change. Results showed that participants increased their knowledge and that 9 of 14 empathy items had statistically significant increases. Additionally, 97% of participants agreed or strongly agreed that they would utilize the information learned in their work with patients. In conclusion, evidence suggests VR is an effective intervention to increase empathy and positively change behavior to support persons with sensory impairment.

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