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Prefrontal cortical activation varies by walking task and is a marker of attentional demand. We compared prefrontal activation by functional near-infrared spectroscopy (fNIRS) to accelerometry-derived gait quality. We hypothesized greater activation with lower gait quality (greater step-time coefficient-of-variation, decreased cadence, smoothness, regularity, and signal variability). Participants ($n=114$; age 74.4 ± 6.0 years, 59.6% female) were independently ambulating individuals >64 years. Attentional (reciting every-other alphabet letter) and physical (uneven surface) challenges mimicked community mobility and provided four 15m walking conditions: even, uneven, ABC-even, and ABC-uneven. fNIRS data were referenced to quiet standing and averaged within left and right hemispheres. Gait metrics from a tri-axial accelerometer at the lower-back included cadence (steps/min), step-time coefficient-of-variation, signal variability (standard deviation), smoothness (harmonic ratio), and regularity (entropy). Associations between fNIRS and gait were quantified using Pearson correlations ($\alpha=0.05$). Results were consistent across hemispheres, gait axes, and robust to adjustment for age and gait speed; we report unadjusted coefficients for left hemisphere and anterior-posterior gait direction. Greater prefrontal activation was associated with slower cadence ($r=-0.220$, $p=0.019$), lower signal variability ($r=-0.228$, $p=0.015$), and reduced smoothness ($r=-0.194$, $p=0.039$) during ABC-even. No relation was observed for step-time coefficient-of-variation or regularity. Results were similar for the ABC-uneven condition, except there was no association with gait smoothness but was with step-time coefficient-of-variation ($r=0.25$, $p=0.007$). Prefrontal activation was not correlated to gait quality in non-ABC conditions. Our findings support our hypothesis only during the ABC challenge, suggesting that older adults may rely on prefrontal activation to complete attentional but not physical challenges during gait.

PREVENTING ELDER MALTREATMENT: IDENTIFICATION OF HIGH RISK FACTORS FROM LTC ADMINISTRATIVE DATA

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Elder maltreatment is a serious problem endangering physical, emotional, and material well-being of older persons, especially those with physical and cognitive impairment. However, detecting the incident of elder maltreatment is difficult and its prevalence has been seriously underestimated. This study explores how LTC use relates to elder maltreatment report, using government LTC service records in Taiwan. A total of 88,633 reported cases in adult protection system in 2019 were merged with 443,952 valid cases in LTC service system. Descriptive statistics were firstly performed to

examine the proportion and characteristics of repeated cases in both systems. Linear probability modeling was then used for analyses. 1. In 2019, 3,413 elder maltreatment clients can be identified in LTC service system, accounting for 27.3% of the elder maltreatment cases. 2. Older persons who used LTC service first and being reported as elder maltreatment cases later had a higher prevalence of being discovered by social workers and care attendants. 3. These group of clients also had higher proportion of being reported as neglected by others, abandonment, and self-neglected. 4. Characteristics in LTC service system, such as being older, low severity of disability, high cognitive impairments, low income status, and with a LTC service use record, were related to high probability of being detected with elder maltreatment problems. Characteristics in LTC service system could be effective indicators in discovering potentially abusive situations of disabled older persons. Training and education are essential for LTC service providers to enhance their literacy and ability of assessing elder maltreatment.

PSYCHOACTIVE SUBSTANCE USE AMONG MIDDLE-AGED AND OLDER ADULTS WITH VISUAL IMPAIRMENT

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Older adults with visual impairment may be at risk for developing substance use disorder (SUD) as psychoactive substance use is often used to cope with the stressors of vision loss. This study estimates the national prevalence and risk of psychoactive substance use among older adults with visual impairment. We analyzed data of respondents age ≥ 50 from the 2015-2019 National Survey on Drug Use and Health, an annual cross-sectional survey of a nationally representative sample of non-institutionalized individuals in the U.S. ($N=43,886$). We estimated and compared prevalence of past-year use of cannabis, cocaine, misuse of prescription opioids, sedatives, stimulants/tranquilizers, alcohol use disorder (AUD), any SUD, and nicotine dependence between adults with visual impairment to those without. Comparisons were conducted using chi-square and we used multivariable generalized linear models using Poisson and log link to estimate adjusted prevalence ratios (aPRs) for adults with visual impairment relative to those without, controlling for demographics and diagnosis of ≥ 2 chronic diseases. An estimated 6.1% experienced visual impairment. Those with visual impairment had higher prevalence of AUD, nicotine dependence, misuse of prescription opioids, tranquilizers, and stimulants, and SUDs. In adjusted analyses, vision-impaired adults had higher risk of AUD (aPR=1.71, 95% CI: 1.40-2.09), nicotine dependence (aPR =1.53, 95% CI:1.35-1.73), opioid misuse (aPR =1.54, 95% CI:1.26-1.90), and SUD (aPR=1.67, 95% CI:1.40-2.01). Psychoactive substance use adds unique health risks for older adults with vision loss, who may suffer significant psychological stress and loss of independence. Screening for substance use among all older adults with visual impairment should be considered.