

fitness variables (grip strength, lung capacity, gait speed, BMI), and global cognition. Multiple logistic regression was used to examine prospective relationships between predictors and longitudinal cognitive status (maintainers versus decliners). Control variables in all models included age, gender identity, and a chronic disease index score.

Results: Cross-sectional relative importance analyses identified years of education and gait speed as important predictors of global cognition. The cross-sectional hierarchical regression model explained 33% of variance in baseline global cognition. Education was the strongest predictor of cognitive performance ($\beta = 0.48$, $p < 0.001$). Holding all other variables constant, gait speed was significantly associated with baseline cognitive performance and accounted for a significant additional amount of explained variance ($\Delta R^2 = 0.01$, $p = 0.032$). In a prospective analysis dividing the sample into cognitive maintainers and decliners, a single additional year of formal education increased chances of being classified as a cognitive maintainer (OR = 1.30, 95% CI = 1.17-1.45). There were no significant relationships between rate of change in health-related fitness and rate of change in cognition.

Conclusions: Education, a proxy for cognitive reserve, was a robust predictor of global cognition at baseline and was associated with increased odds of maintaining cognitive ability at 4-year follow up in Black/African American older adults. Of the physical performance metrics, gait speed was associated with cognitive performance at baseline. The lack of observed association between other fitness variables and cognition may be attributable to the brief assessment procedures implemented in this large-scale study.

Categories: Aging

Keyword 1: aging (normal)

Keyword 2: cognitive functioning

Keyword 3: cognitive reserve

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47 Mind-Wandering in Older Adults: Implications for Fluid Cognition and Perceived Psychological Quality of Life

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Objective: Mind-wandering is defined as a spontaneous shift of attention away from the external environment to inner thoughts. With mind-wandering being a ubiquitous phenomenon, there has been increasing interest in examining the role these spontaneous, and often unintentional, thought processes may have for metrics of cognitive and psychological health. However, much of this literature is mired with inconsistencies, potentially stemming from the use of variegated experimental methods and quantification of mind-wandering through different metrics. For example, mind-wandering has been investigated through endorsement of self-report probes embedded in tasks of sustained attention, with participants asked to endorse whether they were engaging in task-unrelated thoughts or task-related, but evaluative thoughts about the task (task-related interference). Other studies have instead focused on behavioral metrics of task performance, like omission and commission errors, the variability in response time (RTCV), and speeding or slowing prior to errors to quantify mind-wandering. In this study, employing a large sample of older adults, and implementing the novel technique of partial least squares regression, we examined the combined and simultaneous effect of different mind-wandering metrics in explaining variance in fluid cognition and psychological health in older adults.

Participants and Methods: One hundred and fifty older adults with normal cognition or mild cognitive impairment were administered a Go/No-Go Task (GNG) with embedded mind-wandering probes, the Conners CPT-3, the NIH Toolbox-Cognition Battery, and the WHO Quality of Life Assessment Brief Version at baseline in a clinical trial examining the impact of two mind-body interventions on aging. Based on previous research, the following variables were considered behavioral measures of mind-wandering: quantity of omission and commission errors, RTCV, pre-error speeding, and post-error slowing. Percentage of self-reported task-related interference (i.e. evaluating current

performance) and task-unrelated thoughts were included as self-report measures of mind-wandering. These mind-wandering measures, along with demographic variables (age, sex, and education), were regressed using Partial Least Squares Regression to determine the impact of mind-wandering measures on fluid cognition (NIHT-CB) and perceived psychological well-being (WHOQOL-BBREF). Validation tests were completed to assess model fit.

Results: A single latent factor explained 26% of the variance in fluid cognition ($p=0.0001$). Higher levels of age, errors of omission on both tasks, and task-related interference were all associated with worse fluid cognition, whereas task-unrelated thoughts were associated with better fluid cognition.

A two-factor latent model explained 12% of the variance in perceived psychological well-being ($p=0.0004$). Age and task-unrelated thoughts were positively associated with psychological well-being. In contrast, errors of omission on both tasks, response time variability on the CPT, and task-related interference were negatively associated with perceived psychological well-being.

Conclusions: Mind-wandering is associated with fluid cognition and perceived psychological well-being in older adults. Select behavioral measures were better than self-report measures at linking mind-wandering to fluid cognition and perceived psychological well-being. Interestingly task-unrelated thoughts, but not task-related interference, was positively associated with fluid cognition, supporting the cognitive resource-based account of mind-wandering. The result of our study provides novel insights into differential relationships between various metrics of mind-wandering and cognitive and psychological health.

Categories: Aging

Keyword 1: aging (normal)

Keyword 2: attention

Keyword 3: fluid intelligence

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48 Variable Sleep Hours and Restfulness Ratings Across Days Predict Daily Functioning in Community-Dwelling Older Adults

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Objective: Certain contextual factors, including non-restorative sleep (Niermeyer & Suchy, 2020), sleep deprivation (Lim & Dinges, 2010), burdensome emotion regulation (Franchow & Suchy, 2017), and pain interference (Boselie, Vancleef, & Peters, 2016) have been shown to contribute to temporary declines in executive functioning (EF). Contextually-induced decrements in EF in turn have been associated with temporary decrements in performance of instrumental activities of daily living (IADLs) among healthy older adults (Brothers & Suchy, 2021; Suchy et al., 2020; Niermeyer & Suchy 2020). Furthermore, some evidence suggests that higher variability in levels of contextual factors across days (i.e., deviations from routine) may contribute to IADL lapses above and beyond average, albeit high, levels of these contextual burdens (Bielak, Mogle, & Sliwinski, 2019; Brothers & Suchy, 2021). Taken together, these findings highlight the importance of accounting for transient contextual burdens when assessing EF and IADL abilities in older adults.

Poor sleep quality has been associated with poor IADL performance (Fung et al., 2012; Holfeld & Ruthing, 2012) when assessed in a single visit. However, the potential contributions of variable sleep quantity and quality on IADL performance have not been assessed in healthy older adults using longitudinal methods. Accordingly, the aim of this study was to examine the impact of fluctuations in sleep quantity and quality, assessed daily, above and beyond average levels, on at-home IADL performance across 18 days in a group of community-dwelling older adults.

Participants and Methods: Fifty-two non-demented community-dwelling older adults (M age = 69 years, 65% female) completed 18 days of at-home IADL tasks, as well as daily ecological momentary assessment (EMA) measures of EF, sleep hours, and restfulness questions. An 18-day mean EMA EF score was computed controlling for practice effects. Mean levels of and variability in EMA sleep hours and EMA restfulness ratings were computed. IADL scores were computed for timeliness and accuracy across the 18 days.