

**Results:** The monthly cost of dementia per individual increases with the syndrome's progression (Table 2). Indirect costs, primarily associated with informal care provided by family or friends, constitute at least 73% of total expenses, irrespective of dementia stage and adopted perspective. For Brazil in 2019, dementia's total annual cost stood at US\$18 billion, with indirect costs comprising 78%.

**Conclusions:** The average expenses per individual escalate with the advancement of dementia in Brazil. The pronounced prevalence of indirect costs accentuates the pivotal role that family caregivers assume in dementia care. Moreover, estimating the direct and indirect costs related to dementia, considering the reality of Brazil in its geographical diversity, is essential to understanding the reality of health resource allocation and, therefore, (re)direct resources to meet better the needs of people with dementia and their families.

### **P32: Association between pain behaviors and sleep impairment among people living with cognitive impairment**

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**Objectives:** To examine pain behaviors and sleep impairment by sex, race/ethnicity, education, and cognition in people living with cognitive impairment (PLwCI).

**Methods:** Participants (N = 210) in the Healthy Patterns Study, aimed at improving sleep-wake disorders in PLwCI, were included for analysis and were comprised of Black: 135 (64%), Hispanic/Latino: 41(19.5%), white: 34(16%), and primarily female: 140 (67%) individuals. The primary independent variable was PROMIS Pain Behavior 7a. Outcome variables were PROMIS Sleep-Related Impairment 8a, Pittsburgh Sleep Quality Index (PSQI), and actigraphy. Higher scores indicate worse symptoms. Descriptive analysis used t-tests, Mann-Whitney U-tests, and Chi-square tests based on data distribution and variable type. Multiple regression models explored pain behaviors and sleep quality, adjusting for age, gender, education, race, and Clinical Dementia Rating (CDR). Data analysis was conducted using R (v3.5.1).

**Results:** Descriptive analysis showed those with a high school education had higher pain behaviors than those with some college ( $p = 0.00703$ ) and individuals with CDR of  $\geq 1$  had higher pain behaviors than those with CDR of 0.5 ( $p < 0.001$ ). For PROMIS Sleep, males had higher scores than females ( $p = 0.00307$ ), those with CDR of  $\geq 1$  had higher scores than those with CDR of 0.5 ( $p < 0.001$ ), and there were race/ethnicity differences ( $p < 0.001$ ) with Hispanics having higher scores. Individuals with less education had higher PSQI scores ( $p = 0.0277$ ). For Objectives sleep (actigraphy), total sleep time differed by race/ethnicity ( $p = 0.0173$ ), with Blacks having slightly shorter sleep. Those with CDR of 0.5 had shorter total sleep time than those with CDR of  $\geq 1$  ( $p = 0.0114$ ). Regression analysis showed PROMIS pain score was associated with PROMIS Sleep score ( $\beta = 0.30$ ;  $SE = 0.06$ ,  $p < 0.001$ ), indicating that every unit increase in PROMIS pain score increased PROMIS Sleep score by 0.30. PROMIS pain score was also associated with PSQI ( $\beta = 1.04$ ;  $SE = 0.28$ ,  $p < 0.001$ ), indicating that every unit increase in PROMIS pain score raises PSQI score by 1.04.

**Conclusions:** This study identified pain behaviors and sleep quality differences by sex, race/ethnicity, education, and cognition, with worse sleep associated with more pain behaviors. This interplay of demographics, pain behaviors, and sleep emphasizes the need for tailored interventions in PLwCI.