

Neuropsychiatric Symptoms as a Distinguishing Factor Between Memory Diagnoses

BACKGROUND

With a growing older adult population, identifying risk factors for cognitive impairment is of great interest. Recent research on this topic has suggested that the presence of neuropsychiatric symptoms (NPS) might be a risk factor for cognitive impairment. This is because they are often present before a diagnosis of cognitive impairment, and may also be able to determine which disorder someone may have. The goal of the study was to: (1) investigate whether NPS can differentiate people who are cognitively healthy from those with mild cognitive impairment (MCI) or dementia; and (2) investigate if certain NPS are associated with being diagnosed with amnesic MCI (MCI-A), non-amnesic MCI (MCI-NA), and dementia.

STUDY METHOD

Measures. The data utilized in this study was derived from the Florida Alzheimer's Disease Research Center. The study included 613 participants, 286 of whom were cognitively healthy, 213 who had an MCI diagnosis, and 114 who had a dementia diagnosis. Of the 213 participants with an MCI diagnosis, 149 had MCI-A (i.e., cognitive deficits primarily in memory) and 64 had MCI-NA (i.e., cognitive deficits primarily in attention, executive function, language, or visuospatial abilities). The primary outcome variable in this study were the individual NPS, which were examined using the Neuropsychiatric Inventory Questionnaire. This assessment included questions investigating the presence or

absence of 12 NPS, which were delusions, hallucinations, agitation, depression, anxiety, elation, apathy, disinhibition, irritability, aberrant motor behavior, sleep and nighttime behavior disorders, and appetite changes.

Analytic method. A multinomial logistic regression was used to evaluate the relationships between each NPS and a three-level cognitive outcome variable (cognitively healthy, MCI, dementia). Following this, a binary logistic regression was completed to individually examine the likelihood of each NPS being associated with each diagnosis of MCI-A, MCI-NA, and dementia. This regression also examined cognitive impairment in general. This binary regression compared all of these individuals to those who were cognitively healthy. Both the multinomial and binary regressions were computed with a hierarchical analysis in order to control for the influence of the demographic variables of age, gender, race, and education.

FINDINGS

The first major finding from this study indicated that NPS were able to differentiate those who were cognitively healthy from those with MCI and dementia. The NPS that were able to differentiate people who were cognitively healthy and those with MCI were anxiety, apathy, and appetite changes. The NPS that were able to differentiate those with dementia from those who were cognitively healthy were aberrant motor behaviors, anxiety, apathy, appetite changes, and delusions. For both MCI and dementia, the NPS

that was able to predict group membership the strongest was apathy.

The second major finding from this study was that specific NPS are independent predictors of cognitive impairment, and all of the individual diagnoses. People were more likely to have cognitive impairment if they presented with apathy, delusions, appetite changes, or anxiety. The NPS that predicted a diagnosis of MCI-A were anxiety, appetite changes, apathy, and disinhibition. Appetite changes and apathy more than tripled the likelihood of this diagnosis, where anxiety and disinhibition more than doubled it. The NPS that predicted a diagnosis of MCI-NA were apathy and agitation. Apathy increased the likelihood of this diagnosis by almost 6-fold and agitation increased it by almost 5-fold. Finally, the NPS that predicted a diagnosis of dementia were aberrant motor behavior, apathy, appetite changes, delusions, and anxiety. Aberrant motor behaviors increased the likelihood of this diagnosis by almost 25-fold, apathy increased it by over 20-fold, appetite changes increased it by 11-fold, delusions increased it by more than 8-fold, and anxiety by almost 3-fold. Additionally, one NPS, nighttime behavior disorders, was found to be less likely in people with dementia. Specifically, this NPS was found to reduce the odds of this diagnosis by 70%. The NPS that did not have a relationship with any of the diagnoses of cognitive impairment, and therefore were unsuccessful in distinguishing the cognitively impaired from the cognitively healthy were hallucinations, depression, elation, and irritability.

POLICY IMPLICATIONS

As revealed through this study, the predictive nature of NPS can aid in determining which, if any, cognitive impairments may arise. In this study, the particular NPS capable of distinguishing between

cognitively healthy participants and participants with MCI were anxiety, apathy, and appetite changes. In addition to these three NPS, delusions and aberrant motor behaviors were found successfully differentiate those who were cognitively healthy from those with dementia. This study also found that individual NPS were able to predict the different cognitive impairment diagnoses. Specifically, appetite changes and anxiety predicted MCI-A and dementia, disinhibition predicted MCI-A, agitation predicted MCI-NA, and aberrant motor behaviors and delusions predicted dementia. Apathy was found to be the only NPS predictive of all three diagnoses. Policymakers should provide incentives for physicians to regularly assess for the presence of NPS among older adults, even when no cognitive complaint is present. They should also provide more information to the community about the importance of these non-cognitive symptoms in older adults. This preventative step could potentially result in earlier diagnoses of cognitive impairment and therefore earlier intervention.

Original Article

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This policy brief was written by M. Torres, H. Rouse, and B. Small of the University of South Florida, School of Aging Studies and Florida Policy Exchange Center on Aging.

For further information contact author H. Rouse via email at hrouse@usf.edu