

Categories: MCI (Mild Cognitive Impairment)

Keyword 1: mild cognitive impairment

Keyword 2: neurocognition

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84 Utilizing the DSM-5 Cross Cutting Measure to Characterize the Neuropsychiatric Correlates of Subjective and Objective Cognition

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Objective: Historically, psychiatric conditions and neurodegenerative diseases have been considered differential diagnoses in older adults with cognitive impairment. However, recent evidence has shown that neuropsychiatric symptoms may be prodromal for neurodegenerative disease. Subjective Cognitive Decline (SCD) is a potential marker for pre-clinical Alzheimer's Disease (AD) that is frequently related to mood disturbances.

Delineating the relationship between neuropsychiatric symptoms, SCD, and cognitive impairment will help to define both the independent and combined utility of SCD and neuropsychiatric symptoms as markers of pre-clinical AD. This abstract uses the DSM-5 Cross-Cutting Measure (DSM-5 CC), a novel comprehensive screening tool for psychiatric symptoms, to examine the relationship between objective and subjective measures of cognition as they relate to neuropsychiatric symptoms.

Participants and Methods: 27 community dwelling, cognitively diverse older adults (78% female, mean age 71.9 ± 7) were enrolled in the Concerns about Memory Problems (CAMP) study. Inclusion criteria included the expressed concern about memory functioning by participants on a 5-item screener, while exclusion criteria were defined as previous diagnosis of neurodegenerative diseases and/or major stroke. All participants completed

neuropsychological testing and study surveys including the DSM-5 CC. Participants completed Level 1 and all Level 2 (L2) forms of the DSM-5 CC. Spearman two-tailed non-parametric correlations and independent samples t-tests were conducted to examine the relationship between the DSM-5 CC and the 5-item subjective cognition screener, as well as the DSM-5 CC and objective cognition results.

Results: Subjective measures of cognition, as measured by answers to the 5-item screening measure, were significantly associated with DSM-5 CC measures. Question 1 on the SCD screener which asks, "Compared to others your age, do you have difficulty with memory or thinking abilities?" was associated with anger ($p=.033$) and depression ($p=.018$) L2 forms. Question 3, "Do any difficulties with memory or thinking abilities make it difficult for you to do things in daily life?" was associated with the L2 forms for somatic symptoms ($p=.016$) and repetitive thoughts and behaviors ($p<.001$). Objective measures of cognition from neuropsychological testing also correlated with DSM-5 CC sub-scores. Digits Backwards Length (DBL) correlated with DSM-5 CC Level 1 Sum ($r=-.57$, $p=.002$). DBL ($r=-.59$ $p=.001$) and Digits Backwards Total Correct (DBTC) ($r=-.47$, $p=.013$) associated with somatic symptoms L2 and sleep L2 (DBL: $r=-.45$ $p=.019$; DBTC: $r=-.39$, $p=.044$). Category Naming (animals) was also associated with anxiety L2 ($r=-.42$, $p=.030$).

Conclusions: Subjective and objective measures of cognition were each related to sub-scores of the DSM-5 CC. Interestingly, the associations were largely non-overlapping. These results highlight the importance of considering a wide range of neuropsychiatric symptoms in the assessment of SCD and cognitive impairment. Findings contribute to the growing body of literature suggesting that neuropsychiatric symptoms should be studied in conjunction with cognitive symptoms among older adults as co-occurring phenomena. Future directions will need to include longitudinal studies that can examine the prodromal nature of SCD and neuropsychiatric symptoms for Alzheimer's and other neurodegenerative disorders.

Categories: MCI (Mild Cognitive Impairment)

Keyword 1: aging disorders

Keyword 2: mild cognitive impairment

Keyword 3: memory complaints

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85 Predicting Conversion to Mild Cognitive Impairment in Parkinson's Disease: a Random Forest Machine Learning Model Based on Parkinson's Progression Markers Initiative Dataset.

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Objective: Mild cognitive impairment (MCI) is common in Parkinson's disease (PD). Recent scientific advances show that MCI in PD could also be impacted by neuropsychiatric symptoms (such as apathy, anxiety, depression), dopaminergic deficiency (more striatal denervation associated with MCI) and certain genotypes such as in APOE E4, MAPT H1 or SNCA C/C carriers. We used a python-based random forest machine-learning algorithm (scikit-learn) in order to evaluate the factors that are mostly involved in the MCI conversion over a 5-year follow-up period.

Participants and Methods: Baseline data of healthy individuals and participants with Parkinson's disease were extracted from the PPMI dataset. All participants also had the evaluations of their cognitive status, neuropsychiatric symptoms (hallucinations, anxiety, apathy, depression, sleepiness, impulse control disorders and rapid eye movement behaviors), dopaminergic uptake (DaT-Scan) and genetic status (APOE, MAPT and SNCA) at baseline and after 5 years. Baseline demographic (age, sex, education years) and clinical values (duration of disease, age of onset) were also included in the model. The algorithm defined (1) the most important variables in predicting MCI, (2) the threshold values to distinguish "converting" vs. "non-converting" subgroups.

Results: The algorithm showed that (1) age onset of disease, (2) dopaminergic uptake, (3)

age, (4) anxiety, and (5) years of education were the most important factors in predicting MCI over 5 years. Among the factors involved in predicting conversion to MCI, a lower number of years of education associated with lower dopaminergic uptake in the right putamen increased the risk of conversion. Individuals with more years of education are at higher risk of conversion if they have symptoms of depression, anxiety, and lower right striatal dopamine uptake. Other factors that were involved in increasing the risk, were the presence of sleepiness and the presence of rapid eye movement disorders. Interestingly, the genetic factors were of negligible importance and were not considered by the algorithm. Finally, the model showed an accuracy of classification of participants (converters vs. non-converters) of 92.53%.

Conclusions: Random forest algorithm shows that (1) depression and anxiety are probably important factors for MCI conversion; (2) years of education influences the conversion; (3) presence of sleepiness and rapid eye movement increases the risk of conversion to MCI. Since the algorithm considers the disease's age onset, but not the diagnosis of individuals, it would be necessary to generate a model for each group (Healthy on the one hand, Parkinson's on the other).

Categories: MCI (Mild Cognitive Impairment)

Keyword 1: mild cognitive impairment

Keyword 2: Parkinson's disease

Keyword 3: neuropsychiatry

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86 Dementia Caregiver Burden associated with COVID-19 quarantine: A South American Cohort Study

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Objective: The objective of this study is to explore the impact on the mental health of caregivers of people with dementia during the period of mandatory preventive social isolation