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## Neuropsychiatric and cognitive subtypes among community-dwelling older persons and the association with DSM-5 mild neurocognitive disorder: Latent class analysis

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**Background:** Neuro Psychiatric Symptoms (NPS) have been shown to increase the risk of Neurocognitive Disorders (NCD), leading to the recently-published criteria of Mild Behavioral Impairment (MBI) to identify pre-dementia using NPS alone. However, MBI drew concerns about over-diagnosing subclinical psychiatric disorders.

**Objective:** We hypothesized that the specificity of NPS in predicting NCD may be improved by considering NPS together with various domains of cognitive deficits. We tested this hypothesis by identifying subtypes based on the combination of NPS and cognitive deficits among community-dwelling older persons and evaluating how the identified subtypes were associated with mild NCD.

**Method:** Our participants were from a community-based cohort study. They completed assessments such as Geriatric Depression Scale (GDS), Geriatric Anxiety Inventory (GAI) and Montreal Cognitive Assessment (MoCA). Those with possible cognitive impairment underwent further evaluations for mild NCD. Latent class analysis was conducted using GDS, GAI and MoCA domains. Logistic regression was performed to investigate the association between the latent-classes and mild NCD.

**Result:** We included 825 participants and identified four distinct subtypes: Subtype-1 (no NPS or cognitive deficits); subtype-2 (NPS alone); subtype-3 (cognitive deficits alone) and subtype-4 (both NPS and cognitive deficits). Subtype-1 and 2 had low risk of prevalent mild NCD (OR 0.92-1.00), while subtype-3 conferred a moderate risk (OR 4.47-4.85) and subtype-4 had the highest risk (OR 7.95-8.63).

**Conclusion:** We demonstrated the benefits of combining NPS and cognitive deficits to predict those at highest risk of prevalent mild NCD. Our findings highlighted the relevance of subclinical psychiatric symptoms in predicting NCD and indirectly supported the need for longer durations of NPS to improve its specificity.

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