Psychiatric History and Cognitive Impairment in a Subpopulation of Older Adults in a Psychiatric Hospital

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LITERATURE REVIEW

The number of individuals aged 65 years and older in the United States is projected to increase from 58 to 88 million between 2021 and 2050 (Alzheimer's Association Report, 2022). Population-based research in the United States estimates that of adults 65 years and older, 11% of them have dementia. The American Psychological Association estimates that 20% of the geriatric population experiences depression (APA, 2018), an estimate that does not include the myriad of other mental health diagnoses that individuals may suffer from. The relevance of ongoing research into the growing ageing population, mental health, and dementia cannot be overstated. However, there is a general dearth of scientific literature regarding the older adult population in psychiatric hospital settings.

One of the known risk factors for developing late-life dementia is a prior psychiatric history (Onyike, 2016). While a mental health diagnosis alone does not warrant a psychiatric hospitalization, heightened severity of symptoms may lead to inpatient treatment. Kessing and Andersen demonstrated that there was a significant increase in risk of dementia with increasing number of hospitalizations (2004). An older adult unit (OAU) embedded within a private psychiatric hospital provides a unique opportunity to further describe the neurocognitive functioning in an older adult population presenting with cognitive concerns or behavioral changes within a psychiatric inpatient facility.

METHOD

PURPOSE:

Therefore, the purpose of this study is to describe the neuropsychological profile, demographic information, and health history of an OAU subpopulation who have been referred for a neuropsychological consultation and determine whether past psychiatric hospitalizations (PH) and longstanding psychiatric history (LPH) are associated with severity of cognitive impairment (mild vs. major neurocognitive disorder; NCD).

Data Analysis

- This is a retrospective exploratory study conducted via review of medical records and utilizing descriptive statistics and chi-square tests of independence with Bonferroni correction

Participants

- 72 patients who were admitted to the Older Adult Unit in 2018-2019 at a private psychiatric hospital in the Midwest and referred for a neuropsychological consultation; only patients who met criteria for a NCD were included
  - 65.3% Female, 34.7% Male
- Age:
  - Range: 56-93 years
  - Average: 75.4 (*SD* = 8.2)
- Education:
  - Range: 8-20 years
  - Average: 12.8 (*SD* = 2.4)
- Ethnicity: 81.9% White, 5.6% Black, 2.8% LatinX
- Marital Status:
  - 43.1% Married
  - 29.2% Divorced
  - 25% Widowed
  - 2.8% Single, never married

RESULTS

Psychiatric History and NCD Diagnosis

Severity of cognitive impairment (i.e., mild/major NCD) was not significantly associated with number of past psychiatric hospitalizations (i.e., none/1 or more):

$$X^2\,(1, N = 72) = .005,\ p = 0.945$$

Severity of cognitive impairment was not significantly associated with longstanding psychiatric history (i.e., present/absent):

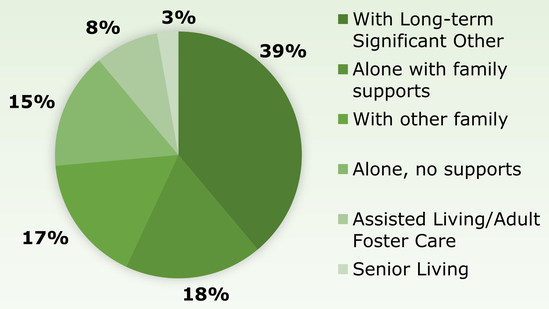
$$X^2\,(1, N = 72) = .604,\ p = 0.437$$

Reasons for Admission

In the sample of patients who were admitted to the OAU and referred for a neuropsychological consult,

- 11 patients (15%) had a known history of dementia noted in their intake note
- An overlapping but different set of 11 patients (15%) had poor self-care/decline in activities of daily living as part of their reason for hospitalization
- 15 (21%) had changes in cognition as part of their reason for hospitalization (e.g., "confusion," "disorientation," "changes in memory"), excluding those with a history of dementia
- 45 (63%) presented with a mood disturbance (e.g., depression, mania)
- 37 (51%) presented with psychotic symptoms (i.e., delusions, hallucinations, or both)

Living Situation at Time of Admission



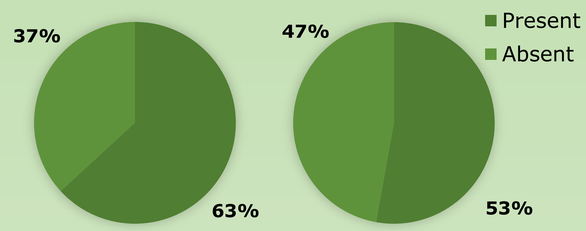
Health History

Medical Condition	N (% of sample)
Recent UTI	N=19 (26.4%)
History of CVA	N=14 (19.4%)
Hyperlipidemia	N=42 (58.3%)
Hypertension	N=59 (81.9%)
History of TBI	N=29 (40.3)
History of seizures	N=9 (12.5)
Evidence of abnormal B12 level	N=3 (4.2%)
History of hypothyroidism	N=15 (20.8%)
Diabetes (Type 1 & 2)	N=27 (37.5%)
Sleep disorder (diagnosed only)	N=15 (20.8%)

Note: UTI = urinary tract infection, CVA = cerebrovascular accident, TBI = traumatic brain injury; transient ischemic attacks were included in CVA

RESULTS

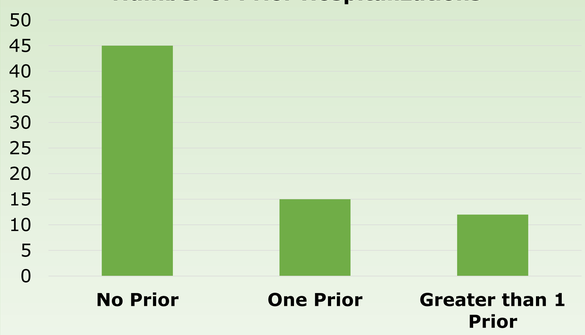
Longstanding Psychiatric History for Patients Diagnosed with a Neurocognitive Disorder



Note: Mild NCD on left, Major NCD on right; Participants were considered to have longstanding psychiatric history if there was clear evidence of this in their chart, i.e., records documenting mental health difficulties prior to the year before hospitalization (e.g., mood disorder, psychotic disorder)

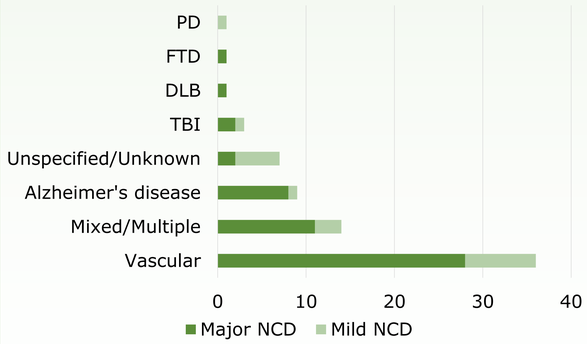
Interestingly, 53% (N=38) did not endorse significant levels of depression on the Geriatric Depression Scale at time of testing.

Number of Prior Hospitalizations



Note: In chi-square analysis, the groups of individuals with one prior and greater than one prior hospitalizations were combined into the same group.

Neurocognitive Disorder Diagnosis Etiology



Note: PD = Parkinson's disease-related cognitive decline, FTD = frontotemporal dementia, DLB = dementia with Lewy bodies, TBI = traumatic brain injury-related cognitive decline

RESULTS

Neuropsychological Test Data *M* (SD)

Test	Mild NCD	Major NCD
MoCA Total	18.7 (5.3)	14.7 (4.7)
WASI-II FSIQ-2 (SS)	91.6 (14.8)	79.6 (10.0)
WASI-II Vocab (T)	48.7 (6.8)	41.1 (6.9)
WASI-II MR (T)	42.3 (13.2)	35.5 (7.2)
RBANS Immediate Memory (SS)	81.5 (16.6)	64.8 (15.3)
RBANS Delayed Memory (SS)	77.0 (19.0)	62.3 (14.6)
RBANS Visuospatial/ construction (SS)	68.1 (9.7)	61.1 (8.9)
Clock Drawing (X/3)	1.6 (1.0)	1.3 (0.9)
RBANS Language (SS)	87.3 (15.8)	78.0 (14.4)
Boston Naming Test (T)	45.3 (10.3)	40.8 (9.3)
WRAT-5 Reading (SS)	95.2 (7.9)	89.0 (13.3)
RBANS Attention (SS)	74.4 (16.2)	72.3 (15.1)
FAS (T)	40.4 (7.4)	36.5 (8.7)
Animals (T)	41.1 (11.9)	32.8 (8.2)
TMT A (T)	42.8 (10.8)	34.5 (10.0)
TMT B (T)	40.6 (9.1)	29.8 (10.1)

Note: SS = Standard Score, T = T-score, MR = Matrix Reasoning, TMT = Trail Making Test

DISCUSSION

- The majority of individuals referred for a neuropsychological consultation on the Older Adult Unit of a private psychiatric hospital were diagnosed with a major neurocognitive disorder (N=53, 73.6%), had no prior psychiatric hospitalizations (N=45, 63%), and had evidence of psychosis upon admission (N=37, 51%).
- Vascular-related brain changes were the most common etiology for cognitive changes.
- There was a significant difference between patients' performances on neurocognitive measures based on NCD diagnosis, confirming utility of test data in clarifying the severity of cognitive and functional decline.
- Performances on delayed memory tasks, visuospatial/construction tasks, and attention tasks were consistently in the below average to extremely low range.
- Unexpectedly, results suggest that prior psychiatric history (including history of psychiatric hospitalizations) may be associated with late life cognitive impairment but not severity of cognitive impairment.
- Possible explanations for these findings include limitations with the study and/or sample (e.g., no control group, small sample size), unexplored confounding variables, and possible test limitations (e.g., possible floor effect).
- While the present sample is biased (i.e., individuals who were referred evidenced symptoms warranting the request for a consultation), the fact that most individuals referred were diagnosed with a major NCD in this subpopulation demonstrates the clinical utility of a neuropsychological consultation for diagnostic clarification.
- Future studies should include a larger sample with a control group of individuals on the OAU who were not referred for a neuropsychological consultation.

REFERENCES

Alzheimer's Association (2022). *2022 Alzheimer's disease facts and figures.* https://www.alz.org/media/documents/alzheimers-facts-and-figures.pdf

American Psychological Association (2018). *Growing mental and behavioral health concerns facing older Americans.* https://www.apa.org/advocacy/health/older-americans-mental-behavioral-health

Kessing, L. V., & Anderson, P. K. (2004). Does the risk of developing dementia increase with the number of episodes in patients with depressive disorder and in patients with bipolar disorder? *Journal of Neurology, Neurosurgery, and Psychiatry*, 75(12), 1662-1666. doi: 10.1136/jnnp.2003.031773

Onyike, C. U. (2016). Psychiatric aspects of dementia. Continuum: Lifelong Learning in Neurology, 22(2 Dementia), 600-614. doi: 10.1212/CON.0000000000000302