Sigma's 30th International Nursing Research Congress

Cognitive Deficits Among Older Adults With Schizophrenia

Seol Ju Moon, MSN[1]
Heeyoung Lee, PhD, APRN-BC[1]
Kyeongra Yang, PhD, MPH, RN, CNE[2]
(1)School of Nursing, University of Pittsburgh, Pittsburgh, PA, USA
(2)School of Nursing, Rutgers, The State University of New Jersey, Newark, NJ, USA

Purpose: The purpose of this study was to examine the cognitive profiles of older adults with schizophrenia and/or schizoaffective disorders, with the goal of developing tailored interventions deliverable by nurses in order to help this population attain improved outcomes. Cognitive impairments are the core feature of schizophrenia, and they impede the treatment and recovery of people with schizophrenia. Cognitive impairments typically begin early among individuals—before behavioral symptoms are developed and consistently observed in the context of aging. Treating these impairments generally involves antipsychotic medication, but this treatment has not been effective. Prior studies addressing the improvement of cognitive impairments have targeted the effect of premorbid cognitive functioning on functional outcomes early in life. Few studies in the literature have targeted cognitive functioning in older adults with schizophrenia.

Methods: Eighteen older adults (i.e., age ≥ 50 years) diagnosed with schizophrenia or schizoaffective disorders were drawn from a randomized controlled trial that was designed to test the effect of aerobic activity on the cognitive functioning of older adults with schizophrenia. The cognitive function of these older adults was measured by the Wechsler Abbreviated Scale-II of Intelligence (WASI-II) and the Montreal Cognitive Assessment (MoCA). The WASI-II computed a full-scale intelligence quotient (IQ) and two composite quotients for two indices: verbal comprehension index (VCI) and perceptual reasoning index (PRI). A total MoCA score was computed. A MoCA cutoff score of less than 26 suggests cognitive impairment. Descriptive statistics, t-tests, and Pearson correlations were used to analyze this data, collected at baseline, with the SPSS statistical package for Windows.

Results: Among the 18 older adults with schizophrenia, six (33.3%) were male, and 12 (66.7%) were female. Their mean age was 60 years (SD = 8.02) at first entry. Nine (50%) of these older adults had either completed high school or obtained their GED. Their average IQ was 94.22 (SD = 10.68), which indicates average to low-average IQ. The PRI and VCI were 88.89 (SD = 11.99) and 100.06 (SD = 11.18), respectively. The mean MoCA score was 26.11 (SD = 1.81). Seven (39%) of the older adults scored below the cutoff for cognitive impairment (i.e., MoCA < 26). The relationship between the MoCA score and current IQ was not statistically significant ($r = 0.105$, $p = 0.678$). Moreover, the MoCA and IQ scores did not differ in a statistically significant fashion with respect to gender, education, and age.

Conclusion: Our results demonstrate the cognitive impairment of sample of older adults with schizophrenia and/or schizoaffective disorders indexed by IQ and MoCA scores. Two scores (i.e., PRI and VCI) suggest that the nonverbal deficit was greater than the verbal deficit among our participants. These results warrant further investigation of clinically appropriate cognitive measures. Moreover, nurse researchers can—and should—develop interventions tailored to the cognitive functioning of specific individuals with schizophrenia and/or schizoaffective disorders—especially those who are older adults—to help them better manage their illness and recovery. Indeed, 39% of our participants exhibited cognitive impairment based on their MoCA scores. Therefore, in light of the global burden of a growing, aging population, nurses and other

clinicians should screen the progression of cognitive impairment among older adults with schizophrenia.

Title:
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Keywords:
Cognitive functioning, Cognitive impairment and Schizophrenia

References:
Alves, L., Simões, M. R., Martins, C., Freitas, S., & Santana, I. (2013). Premorbid IQ influence on screening tests' scores in healthy patients and patients with cognitive impairment. *Journal of Geriatric Psychiatry and Neurology, 26*(2), 117-126. doi:10.1177/0891988713484194
Bradshaw, J., Saling, M., Hopwood, M., Anderson, V., & Brodtmann, A. (2004). Fluctuating cognition in dementia with Lewy bodies and Alzheimer's disease is qualitatively distinct. *Journal of Neurology, Neurosurgery, and Psychiatry,* 75(3), 382-387. doi:10.1136/jnnp.2002.002576
Cecato, J., Martinelli, J. E., Aprahamian, I., & Yassuda, M. (2011). MoCA contributions to differential diagnosis among normal controls, mild cognitive impairment and Alzheimer's disease in Brazil. *Alzheimer's & Dementia: The Journal of the Alzheimer's Association,* 7(4), S535-S535. doi:10.1016/j.jalz.2011.05.1508
Clark, C. N., Nicholas, J. M., Gordon, E., Golden, H. L., Cohen, M. H., Woodward, F. J., . . . Warren, J. D. (2016). Altered sense of humor in dementia. *Journal of Alzheimer's Disease,* 49(1), 111-119. doi:10.3233/jad-150413
Karantzoulis, S., Novitski, J., Gold, M., & Randolph, C. (2013). The repeatable battery for the assessment of neuropsychological status (RBANS): Utility in detection and characterization of mild cognitive impairment due to Alzheimer's disease. *Archives of Clinical Neuropsychology, 28*(8), 837-844. doi:10.1093/arclin/act057
Kendler, K. S., Ohlsson, H., Sundquist, J., Sundquist, K., Allmänmedicin, p. e. o. m., Family medicine, c. e., . . . Allmänmedicin, k. e. o. l. (2015). IQ and schizophrenia in a Swedish national sample: Their causal relationship and the interaction of IQ with genetic risk. *American Journal of Psychiatry, 172*(3), 259-265. doi:10.1176/appi.ajp.2014.14040516
Kenneth Martin, A., Robinson, G., Reutens, D., & Mowry, B. (2014). Cognitive and structural neuroimaging characteristics of schizophrenia patients with large, rare copy number deletions. *Psychiatry Research: Neuroimaging, 224*(3), 311-318. doi:10.1016/j.pscychresns.2014.10.006
Musso, M. W., Cohen, A. S., Auster, T. L., & McGovern, J. E. (2014). Investigation of the Montreal Cognitive Assessment (MoCA) as a cognitive screener in severe mental illness. *Psychiatry Research, 220*(1), 664-668. doi:10.1016/j.psychres.2014.07.078
Nasreddine, Z. S., Phillips, N. A., Bédirian, V., Charbonneau, S., Whitehead, V., Collin, I., . . . Chertkow, H. (2005). The Montreal Cognitive Assessment, MoCA: A brief screening tool for mild cognitive impairment. *Journal of the American Geriatrics Society, 53*(4), 695-699. doi:10.1111/j.1532-5415.2005.53221.x
Rademeyer, M., & Joubert, P. (2016). A comparison between the Mini-Mental State Examination and the Montreal Cognitive Assessment Test in schizophrenia. *South African Journal of Psychiatry, 22*(1), 5-e5. doi:10.4102/sajpsychiatry.v22i1.890

Wechsler, D. (2011). *Wechsler Abbreviated Scale of Intelligence* (2nd ed.). Bloomington, MN: Pearson.
Weston, P. S. J., Nicholas, J. M., Henley, S. M. D., Liang, Y., Macpherson, K., Donnachie, E., . . . Fox, N. C. (2018). Accelerated long-term forgetting in presymptomatic autosomal dominant Alzheimer's disease: a cross-sectional study. *The Lancet Neurology, 17*(2), 123-132. doi:10.1016/S1474-4422(17)30434-9
Wu, C., Dagg, P., & Molgat, C. (2014). A pilot study to measure cognitive impairment in patients with severe schizophrenia with the Montreal Cognitive Assessment (MoCA). *Schizophrenia Research, 158*(1), 151-155. doi:10.1016/j.schres.2014.07.006
Wu, C., Dagg, P., & Molgat, C. (2017). Measuring stability of cognitive impairment in inpatients with schizophrenia with alternate forms of the Montreal Cognitive Assessment during acute hospitalization. *Psychiatry Research, 258*, 299-304. doi:10.1016/j.psychres.2017.08.065
Yang, Z., Abdul Rashid, N. A., Quek, Y. F., Lam, M., See, Y. M., Maniam, Y., . . . Lee, J. (2018). Montreal Cognitive Assessment as a screening instrument for cognitive impairments in schizophrenia. *Schizophrenia Research, 199*, 58-63. doi:10.1016/j.schres.2018.03.008
Zhou, Y., Ortiz, F., Nuñez, C., Elashoff, D., Woo, E., Apostolova, L. G., . . . Ringman, J. M. (2015). Use of the MoCA in detecting early Alzheimer's disease in a Spanish-speaking population with varied levels of education. *Dementia and Geriatric Cognitive Disorders, 5(*1), 85-95. doi:10.1159/000365506

Abstract Summary:
This study examines the cognitive profiles of older adults with schizophrenia and/or schizoaffective disorders indexed by intelligence quotient (IQ) and the Montreal Cognitive Assessment (MOCA). Of our participants, 39% exhibited cognitive impairment and results suggest that the nonverbal deficit was greater than the verbal deficit.

Content Outline:
I. Introduction
A. Purpose to examine the cognitive profiles of older adults with schizophrenia
B. Cognitive impairments (Montreal Cognitive Assessment) as the core feature of schizophrenia
C. Cognitive functioning (Intelligent Quotient)
II. Body
A. Method
1. Sample of 18 older adults with schizophrenia or schizoaffective disorder
2. Design of Randomized controlled trial
3. Cognitive function measurement
4. Cognitive impairment measurement
5. Statistical analysis
B. Results
1. Of the 18 participants, 33.3% were male and 66.7% were female with the mean age of 60.
2. Participants' average IQ was 94.22 and mean MoCA was 26.11
3. No statistical difference between IQ and MoCA scores
C. Discussion
1. Nonverbal deficit was greater than the verbal deficit among the participants
2. Need for further investigation of clinically appropriate cognitive measures
III. Conclusion

A. Nurse researchers should develop interventions tailored to the cognitive functioning of individuals with schizophrenia
B. Nurses and other clinicians should screen the progression of cognitive impairment among older adults with schizophrenia

First Primary Presenting Author
Primary Presenting Author
Seol Ju Moon, MSN
University of Pittsburgh
School of Nursing
PhD Student
Pittsburgh PA
USA

Author Summary: Seol Ju (Esther) Moon is a PhD nursing student at University of Pittsburgh whose research interest is in psychiatric mental health issues and substance abuse.

Second Secondary Presenting Author
Corresponding Secondary Presenting Author
Heeyoung Lee, PhD, APRN-BC
University of Pittsburgh
School of Nursing
Associate Professor
Pittsburgh PA
USA

Author Summary: Heeyoung Lee is a nurse researcher and practicing psychiatric mental health nurse practitioner whose research interest is implementing behavioral intervention programs based on strategies aimed at improving physical and mental health outcomes for individuals with serious mental illness (SMI).

Third Author
Kyeongra Yang, PhD, MPH, RN, CNE
Rutgers, The State University of New Jersey
School of Nursing
Associate Professor
Newark NJ
USA

Author Summary: Dr. Yang is an Associate Professor at Rutgers, The State University of New Jersey in New Jersey, USA. Her research focuses on areas such as physical activity, fall prevention, mind-body intervention, prediabetes and diabetes, disease prevention and management, acculturation, community health nursing, and middle-aged and older adults. The findings from that work have been published in various journals and the majority of them are data-based and peer-reviewed