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Incidence and Documentation of Cognitive Impairment Among Older Adults With Severe Mental Illness in a Community Mental Health Setting

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Abstract

Objective—Cognitive impairments among older adults are commonly linked to poor medical and psychiatric treatment adherence, increased disability, and poor health outcomes. Recent investigations suggest that cognitive impairments are frequently not recognized by healthcare providers and are often poorly documented in medical records. Older adults utilizing services at community mental health centers have numerous risk factors for developing cognitive impairment. Few studies have explored the incidence and documentation of cognitive impairments in this patient population.

Methods—Data were collected from 52 ethnically diverse older adults with severe mental illness who were participating in treatment at a large community mental health center. Cognitive impairment was diagnosed by neuropsychologists utilizing the Mattis Dementia Rating Scale-2 (DRS). Measures of depression severity and substance abuse history were also obtained. An age and education corrected DRS total score falling at or below the tenth percentile was used as the criteria for diagnosing cognitive impairment. A medical chart review was subsequently conducted to determine the documentation of cognitive impairments among this patient population.

Results—Cognitive impairment was exhibited by 60% of participants and documented in medical charts for 17% of the sample.

Conclusions—Preliminary data suggests that cognitive impairment is common in individuals with severe mental illness treated at community mental health centers, but these cognitive impairments are not well recognized or documented. The impact of cognitive impairment on psychiatric treatment and case management among community mental health patients is therefore poorly understood.

Keywords

Cognitive impairment; severe mental illness; depression; documentation; community mental health

Cognitive impairment can include both dementia and milder cognitive deficits that do not meet criteria for dementia.^{1,2} Estimates of the prevalence of dementia among community dwelling adults over the age of 65 range from 3%–6% with prevalence rates increasing with age.^{3–5} Mild cognitive deficits have been estimated to be approximately two to four times as

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common as dementia⁶ with prevalence rates among older adults in community samples ranging from 3%–20%.^{6,7} Cognitive impairment among older adults can be caused by a number of factors, including neurological disorders,^{7,8} psychiatric disorders,^{9–11} substance abuse,^{12,13} medical illness,^{14,15} and medication side effects.¹⁶ Cognitive impairment in older adults has been linked to poor medical and psychiatric treatment adherence,^{17–20} increased disability,^{21–23} and increased mortality.^{21,24} Additionally, cognitive impairment has been linked to decreased effectiveness of psychiatric interventions^{25–27} and poor utilization of outpatient mental health services.²⁸

Given the numerous links between cognitive impairment and poor health outcomes, the need for early detection of cognitive impairment is typically not disputed. However, recent investigations suggest that cognitive impairment is frequently not recognized by healthcare providers and is poorly documented in medical records. In one recent study evaluating physician recognition and documentation of cognitive impairment in women over the age of 75, cognitive impairment was found to be correctly identified in 81% of patients with dementia and in 44% of patients with cognitive impairment not meeting criteria for dementia.²⁹ Further, this study revealed that cognitive impairment was documented in medical records for 83% of the demented patients and for only 26% of individuals with cognitive impairments not meeting criteria for dementia. Similar rates of documentation of cognitive impairment are reported in other studies^{30–33} and suggest an increased need for accurate diagnosis and improved documentation in medical records.

Community mental health agencies typically offer psychological interventions and case management services to older individuals with severe mental illness. Individuals served at these facilities commonly have numerous chronic psychiatric illnesses, substance abuse histories, and significant medical comorbidities.^{34,35} Despite these risk factors for cognitive impairment, and the potential impact of cognitive impairment on psychiatric and substance abuse interventions, very little is known about the incidence of cognitive impairment in older adults receiving services in community mental health settings. Establishing the incidence of cognitive impairment among this vulnerable patient group is the first step in determining the impact of cognitive deficits on mental health interventions in these settings.

METHODS

Participants

This study represents a preliminary study conducted to determine the incidence and documentation of cognitive impairment in older adults with severe mental illness participating in treatment at a community mental health center. All study procedures received approval by an institutional review board for human research. Participants included older adults (ages 56 and older) recruited from a large community mental health agency in San Francisco. Of approximately 92 patients participating in day programming on a consistent basis, 52 participants volunteered to participate in this study. Twenty-five participants were men (48%); 64% were White, 14% were Asian, 14% were African American, 2% were Pacific Islanders, and 6% of participants identified as belonging to “other” ethnic groups. The mean age of the sample was 69.4 years ($SD = 7.4$) and the mean level of education was 13.4 years ($SD = 3.1$). Sixty-one percent of the sample lived independently, 28% lived in board and care facilities, and 12% lived in supportive senior centers.

Procedure

Study Design—Participation in this study was voluntary. Patients were provided information about the study by posting fliers in the lobby of the community mental health

facility and through brief announcements given by community mental health center staff at the beginning of day programming. Interested individuals discussed the project with community mental health center staff members and assessment appointments with research staff were subsequently scheduled for individuals interested in participating in the study. All participants provided informed consent for their participation in this project. Neuropsychologists, psychologists, or trained research assistants administered an assessment battery including measures of cognitive functioning, depression, and substance abuse history. All assessments were conducted at the community mental health agency facility. Information obtained during research evaluations was not included in patients' clinical record. Two identified staff members from the community mental health center conducted medical chart reviews for participants to obtain current psychiatric diagnoses and to determine if participants had documentation of cognitive impairments in their medical record. Not all participants completed all measures.

Measures

Mattis Dementia Rating Scale-2—The Mattis Dementia Rating Scale-2 (DRS)³⁶ is a measure of overall cognitive functioning for older adults and has been shown to be a valid and sensitive indicator of cognitive impairments among older primary care patients.³⁷ The DRS provides indices of cognitive functioning for the following cognitive domains: attention, initiation or perseveration (executive functioning), memory, construction (visuospatial processing), and conceptualization. The DRS has established psychometric properties for each cognitive domain scale referenced to age-matched peers.³⁶ In addition, age and education corrected scaled scores for the DRS total score³⁸ are also available and were utilized to calculate standard scores for the DRS total score for this study.

Clinical Dementia Rating Scale—The Clinical Dementia Rating (CDR) scale³⁹ is a screening measure utilized to assess functional declines in older adults to classify stages of dementia. For this study, ratings of functional status in six major domains of the CDR (memory, orientation, judgment plus problem solving, community affairs, home plus hobbies, and personal care) were rated by research clinicians based on the report of case managers working with each participant. From these ratings a total CDR score is obtained. The CDR total score is a 5-point scale with "0" denoting no cognitive impairment and the remaining 4-points correspond to various stages of dementia (0.5 = very mild or questionable, 1 = mild, 2 = moderate, and 3 = severe).

The Mini-Mental State Examination—The Mini-Mental State Examination⁴⁰ is a commonly used screening measure of cognitive function and consists of 21 items that assess orientation, attention, short-term memory, constructional abilities, and ability to follow instructions; scores range from 0 to 30.

Hamilton Rating Scale for Depression—The Hamilton Rating scale for depression (HAM-D)⁴¹ is a 17-item instrument yielding scores from 0 to 34; high scores indicated greater severity of depression. The HAM-D has been shown to be a valid and reliable measure of depressive symptoms.^{42–44}

CAGE Questionnaire—The CAGE questionnaire⁴⁵ is derived from the phrasing of four questions about the need to "cut down on your drinking," being "annoyed by people criticizing your drinking," having "felt bad or guilty about your drinking," and "ever having a drink first thing in the morning (eye-opener) to steady your nerves or get rid of a hangover." A point is scored for each positive response. This screening instrument assesses lifetime prevalence of alcohol problems; history of alcohol problems and current alcohol problems are not differentiated. The CAGE questionnaire has been shown to be valid⁴⁶ and

has been demonstrated to have good sensitivity and specificity in detecting history of alcoholism among individuals with a variety of mental illnesses.⁴⁷

Data Analytic Procedure

Cognitive impairment was defined as a total DRS score falling at or below the tenth percentile when referenced to age and education matched peers. DRS performance falling between the third and tenth percentile was classified as “mild cognitive impairment.” DRS performance falling at or below the second percentile was classified as “severe cognitive impairment.” Documentation of cognitive impairment was obtained through medical chart review by agency staff who did not know the results of participants’ cognitive test results. Any diagnosis of cognitive impairment (mild cognitive impairment, dementia) or reference to a patient exhibiting symptoms of cognitive impairment in the patient’s treatment summary was rated as “cognitive impairment documented in medical chart.” Multiple regression analyses were then conducted to determine if demographic variables (age, education, ethnicity), severity of depressive symptoms (HAM-D total score), and substance abuse histories (CAGE total score) were significant predictors of cognitive impairment. Logistic regression analyses were utilized to determine if ethnicity or psychiatric diagnosis were significant predictors of impaired performance on the DRS. To test for multicollinearity, we evaluated the tolerance of independent predictor variables. An alpha of 0.05 was used for all statistical tests.

RESULTS

Table 1 provides the primary psychiatric diagnoses of the sample obtained through medical chart abstraction. The majority of patients in this sample were diagnosed with major depression, schizophrenia, or schizoaffective disorder. Overall, 92% of the sample had a primary psychiatric diagnosis documented in their medical chart. The remaining 8% of the sample who did not have a primary psychiatric diagnosis specified utilized provisional psychiatric diagnoses or documentation of primary psychiatric diagnosis was unavailable. Table 2 provides the means and standard deviations for demographic variables and cognitive measures for the sample. Sixty percent ($N = 31$) of the sample demonstrated performance indicative of cognitive impairment based on the total DRS score. Of these, 35% demonstrated performance consistent with severe cognitive impairment and 25% demonstrated performance consistent with mild cognitive impairment. The proportion of the sample demonstrating mild and severe cognitive deficits on each subscale of the DRS is shown in Fig. 1. Seventeen percent ($N = 9$) of the total sample had documentation of cognitive impairment in their medical chart (Fig. 2). Twenty-six percent ($N = 8$) of cognitively impaired individuals had documentation of cognitive impairment in their medical record. Documentation of cognitive impairment among individuals with severe cognitive deficits was more common (32%) than documentation in individuals with milder deficits (17%). One cognitively normal individual had a diagnosis of cognitive impairment in their medical record.

The mean HAM-D score for the sample was 11.9 ($SD = 9.3$) and 22% of the sample reported experiencing significant depressive symptoms ($HAM-D > 19$) at the time of the cognitive evaluation. Forty-nine percent of participants reported symptoms suggestive of past or present substance abuse histories ($CAGE > 2$). The correlation between demographic variables, depressive symptoms, and substance abuse histories are provided in Table 3. After Bonferroni correction, age and total scores on the HAM-D and CAGE score were not significantly correlated with cognitive performance. Similarly, total score on the HAM-D, age, education, and CAGE scores were not significant predictors of cognitive impairment in this sample $F(4,48) = 0.449$, $p = 0.772$. Further, ethnicity and psychiatric diagnosis were

not found to be significant predictors of cognitive impairment in logistical regression analyses, $F(2,49) = 1.40$, $p = 0.264$.

CONCLUSIONS

This study was conducted as a preliminary study to determine the incidence and documentation of cognitive impairment among a sample of older adults with severe mental illness participating in treatment at a large community mental health center. The results of this study suggest that cognitive impairments in older adults receiving services at community mental health centers may be significantly higher than the rates found within community samples or among other medical populations. Further, these deficits are recognized and documented in less than a third of individuals with cognitive impairment. The poor documentation of cognitive impairments in our sample is largely consistent with the poor documentation of cognitive impairment in other clinical samples, particularly for individuals with cognitive impairment not meeting criteria for dementia.^{32,48} Nonetheless, given the significant medical and psychiatric treatment needs for this patient group, future studies conducted to determine the impact of cognitive impairment on mental health outcomes among community mental health patients are crucial.

Findings that deficits of executive functioning and memory were the most commonly observed deficits in our sample is not surprising given the well documented association of the types of cognitive deficits to depression, schizophrenia, and substance abuse. As even mild impairments of memory and executive dysfunction can have significant impact on mental health or substance abuse interventions, the incidence of these cognitive impairments further underscores the need to evaluate the impact of specific types of cognitive impairment on treatment outcomes in community mental health centers. Further, the variability in cognitive deficits manifested and the severity of cognitive impairments exhibited also suggests that neurodegenerative disorders, such as cerebrovascular disease and Alzheimer disease, are also likely contributing to the cognitive deficits identified. As such, the impact of neurodegenerative disease on community mental health outcomes should be explored in future studies.

This investigation was conducted to gather preliminary data for a larger study and several limitations of the present study should be highlighted with regard to our interpretation of this data. First, by design, our sample size was small and as such we may not have achieved a sample that was sufficient to generalize to the population. Additionally, our sample consisted of only one-half of the total number of individuals participating in day programming at the community mental health center. As such, our results may have been influenced by the participant self-selection biases, e.g., individuals aware of cognitive difficulties may have been less likely to participate in this study than cognitively intact individuals. However, because recruitment for this study was accomplished through announcements by community mental health center staff and posting of flyers in waiting rooms, we did not have contact with individuals who were not interested in participating in the study. As a result, we are not able to identify if there were significant clinical differences between volunteers and individuals who did not participate in the study. Further, our small sample may have obstructed our ability to identify specific factors predictive of cognitive impairment which could explain why our preliminary results did not establish an association between cognitive impairment and age, education, depressive symptoms, or substance abuse histories. Another significant limitation of this study was that we did not conduct a comprehensive neuropsychological evaluation, obtain a detailed medical history, or obtain an informant history of a decline in the patients' functional ability. All of these would be required for a formal diagnosis of dementia or mild cognitive impairment. However, our intent for this preliminary study was to determine if further investigation evaluating the

recognition and documentation of cognitive impairments in older adults receiving services at community mental health centers was warranted. As such, we utilized measures of cognitive and psychiatric status that have established psychometric properties that could be conducted in a relatively short period of time to minimize burden on volunteers for this study. The cognitive measure we selected for this preliminary evaluation has excellent normative data for age and education matched peers, a relatively short administration time, and has been shown to be less influenced by ethnicity than other commonly used measures of mental status.

These limitations notwithstanding, the results of this study suggest that cognitive impairments are common in older adults with severe mental illness receiving services at community mental health centers. Further, these cognitive deficits are likely under-recognized based on the rates of documentation in medical charts that we documented. Given the relationship of cognitive impairments and poor health outcomes in other patient populations, there is a need for further investigation on the impact of cognitive impairments on mental health interventions provided at community mental health centers.

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FIGURE 1.
Distribution of Specific Cognitive Deficits on Dementia Rating Scale (DRS) Subscales (n = 52)

FIGURE 2.
Rates of Medical Chart Documentation of Cognitive Impairments Compared With
Impairment on Neuropsychological Performance (n = 52)

TABLE 1

Primary Psychiatric Diagnoses for the Sample Obtained by Medical Chart Abstraction (n = 52)

	% of Sample
Primary psychiatric diagnoses	
Major depressive disorder	35
Bipolar disorder	12
Schizoaffective disorder	17
Schizophrenia	20
Obsessive compulsive disorder	2
Delusional disorder	6
No primary psychiatric diagnosis specified	8
Total	100
Clinical dementia rating scale	
Normal (0)	37
Questionable (.5)	34
Mild (1.0)	24
Moderate (2.0)	5
Severe (3.0)	0
Total	100

TABLE 2

Mean Cognitive Performance, Depression Severity, and Substance Abuse History Ratings for the Sample (n = 52)

	n	Mean	Standard Deviation
Dementia rating scale performance (scaled scores)	52		
Attention	52	10.0	3.2
Initiation/Perseveration	52	6.3	3.6
Construction	52	8.5	2.8
Conceptualization	52	7.9	2.6
Memory	52	7.9	3.6
Total DRS score	52	6.6	3.8
Mini-mental state examination	51	26.1	3.2
Hamilton depression scale	51	11.6	9.2
CAGE gateway questions	51	1.5	1.9
Clinical dementia rating scale	43	0.69	1.54

TABLE 3

Correlations of Cognitive Performance to Psychiatric Measures and Demographic Variables (n = 52)

	Age	DRS Att	DRS Mem	DRS Concept	DRS Const	DRS I/P	DRS Total	HAM-D	CAGE
Age	1.0								
DRS Att	0.259	1.0							
DRS Mem	-0.220	0.247	1.0						
DRS Concept	-0.195	0.508 ^a	0.598 ^a	1.0					
DRS Const	-0.064	0.329 ^b	0.330 ^b	0.491 ^a	1.0				
DRS I/P	-0.161	0.279	0.551 ^a	0.461 ^a	0.217	1.0			
DRS total	-0.109	0.507 ^a	-0.220	0.675 ^a	0.400 ^a	0.802 ^a	1.0		
HAM-D	-0.210	-0.037	-0.012	-0.155	0.221	-0.101	-0.087	1.0	
CAGE	-0.350 ^b	-0.182	-0.057	0.133	-0.054	0.021	-0.084	0.305 ^b	1.0

^a p < 0.01.^b p < 0.05.

DRS: Dementia Rating Scale; Att: Attention scale; Mem: Memory scale; Concept: Conceptualization scale; Const: Construction scale; I/P: Initiation/Perseveration scale; HAM-D: Hamilton Depression Scale; CAGE: CAGE questionnaire.