Predictors of Length of Stay Among Older Veterans With Schizophrenia Living in VA Community Living Centers

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The resources and budgets of VA community living centers are already challenged. Now these centers are facing a growing, aging population of veterans with schizophrenia who live there and have no place to go for the long term. This author's study may provide a solution.

The VA operates 134 nursing homes, known as community living centers (CLCs), nationwide. The VA data source for fiscal years (FYs) 2005 and 2006 indicated that about 3,000 CLC residents had been admitted with a projected length of stay (LOS) of 90 days or less and at least 1 assessment indicating a diagnosis of schizophrenia. However, of these 3,000 residents, 485 (16.1%) had an LOS of 90 days or more (J. Bryan, BS, personal communication, November 17, 2007).

A growing challenge in today's VA CLC setting is the ever-increasing number of residents with significant psychiatric or behavioral diagnoses and comorbid medical conditions. Men and women as young as their mid-40s into their early 60s may have complex medical and psychiatric conditions, a well-established, placement-failure track record, and no place else to go.

Veterans are admitted to a CLC as a last-resort placement, when their clinicians can no longer gain approval or commitment from less restrictive care settings. These veterans are burdened with the stigma of mental illness and the problems of advanced aging. A decline in their functional health, a reduction in social and family support, poor social skills, eccentric behaviors, and resistance to engaging in self-care management can adversely affect successful placement into a less restrictive setting.

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BACKGROUND

Individuals 55 years of age and older with schizophrenia have been overlooked by researchers, health care providers, and policy makers for some time. Most research interest has focused on the general population of individuals with severe mental disorders or on health service needs of the young population with schizophrenia. Consequently, the most basic data describing the type of service use by older individuals with schizophrenia, their sources of care, and associated costs are lacking. Approximately 2% of the population older than 54, or about 1 million people, have a chronic mental illness other than dementia. Over the next 3 decades, as the baby boomer generation ages, this number will double, and these people will need to navigate health and social service systems that are sorely unprepared to help them.[1]

Many elderly people with mental illness are housed in nursing homes where they may encounter challenges, such as limited resources and lack of preparation for their special psychiatric needs.[2] In the aftermath of mental hospital deinstitutionalization, nursing homes assumed a prominent role in the mental health care for aging adults. However, nursing homes are not designed for treating mental health problems; most residents are physically dependent and primarily need help with self-care activities.[3] Nevertheless, patients are being referred to nursing homes and assisted living facilities at an unprecedented rate. The aging of the baby boomer population, along with continuing governmental efforts to reduce the number of patients at mental hospitals, are thought to be causing this trend.[4]

The number of people with schizophrenia who are older than

55 is increasing rapidly, and costs associated with their treatment are becoming a burden. Developing efficient and accessible services for this population is a paramount need. Health care planners and policy makers require an understanding of the utilization patterns of older patients with schizophrenia to make decisions about resource allocation and program development.[5] At a time of high sensitivity to cost-effectiveness in health care arenas, those practices lacking demonstrated effectiveness may perish.[6] Comprehensive, research-based strategies designed to use resources as efficiently as possible are needed.[7]

Schizophrenia is an expensive disease[8]; the economic burden imposed by this disease needs to be examined as a single entity and in relation to other chronic conditions. High rates of medical comorbidity and excess mortality are associated with chronic mental illness, especially schizophrenia.[9] At a time when good progress has been made in pharmacotherapy and rehabilitation of individuals with schizophrenia, medical comorbidities remain an area least improved by recent treatment breakthroughs. For instance, poor coping skills can prevent patients from obtaining needed health care services, and the psychosis of schizophrenia may impair a patient's ability to recognize an emerging medical illness or respond to interventions. Therefore, chronic poor nutritional habits, smoking, drinking, lack of attention to health maintenance, and ignoring early warning signs of disease have profound consequences as people with schizophrenia age.[9-11] Severely mentally ill patients may also have "disorders that interfere with their functional capacities in relation to such primary aspects of daily life as self care."[12]

No definitive data are available about the clinical characteristics and utilization of services by individuals with schizophrenia who reside in VA nursing homes. Many veterans with schizophrenia are admitted to VA CLCs with the goal of a short-term stay (defined as ≤ 90 days), a sufficient time to permit clarification of resources and give attention to deficits in self-care needs that affect the ability to live in a noninstitutional setting.

An essential area of inquiry is the identification of the psychiatric, medical, and nursing care needs of this population as well as exploration of the most efficient and cost-effective ways to meet their needs.

The structure and function of the VA CLC provide an environment where the veteran with schizophrenia can be supported to accomplish the goal of self-care and be successfully discharged to a community setting. However, a significant dilemma arises when veterans admitted with schizophrenia fail to make the transition successfully to a community setting and become long-term care (LTC) residents.

It is not known why certain individuals fail to make this transition successfully. However, strong speculation exists that veterans who have a prevailing overusage of the CLC compared to their levels of disability have certain unmet needs. When such individuals become nested in settings that are not an appropriate match, discharging them to settings that provide a lower level of care becomes very challenging.

The nursing profession has failed thus far to address this important practice dilemma, in both nursing research and clinical practice. As a leader in geriatric nursing and mental health care for veterans, the VA is primed to set the best example for advancing the care of individuals with serious mental illness and thereby serve as a model of practice for the care of aging individuals with schizophrenia.

The purpose of this study was to determine the predictors associated with health care utilization (LOS) in VA CLCs by those individuals who have a diagnosis of schizophrenia and a projected LOS of 90 days or less. Given the rising number of aging veterans and the increase in the number of older persons with schizophrenia,[13] greater demand for LTC services within this population is projected. An essential area of inquiry is the identification of the psychiatric, medical, and nursing care needs of this population as well as exploration of the most efficient and cost-effective ways to meet their needs.[13]

METHODS

This was a descriptive cohort study using a database sample of VA patients living in VA CLCs throughout the United States during FY 2005 and FY 2006. The study hypotheses were tested using a logistic regression model. Categorical and continuous variables were incorporated into the model; predictors were used to un-

derstand the extent of their effect on health service use (LOS) by examining odds ratios (OR) derived from the model. The target population consisted of individuals with schizophrenia admitted to VA CLCs for a projected LOS of 90 days or less.

The aim of this study was to determine which factors, predisposing characteristics (age group, gender, race/ethnicity, marital status, prior living environment, and current medical conditions), enabling resources (service connection percent, customary routine, caregivers and resources, education, and CLC locality), and health status needs (baseline cognitive status, cognitive skills for daily decision making, baseline activities of daily living [ADL] status, behavior status, psychological well-being, and medications) were associated with an unanticipated LOS of more than 90 days.

All study protocols were approved by the properly constituted committee or committees responsible for approving clinical studies. The University of California in Los Angeles Institutional Review Board and the Greater Los Angeles VA Institutional Review Board provided written, signed approval letters and/or forms containing approval of the designated investigator and the protocol.

A completed VA Geriatrics and Extended Care/Strategic Healthcare Group (GEC/SHG) Data Use Agreement (DUA) form was completed and submitted to the GEC/SHG approving official. All data were obtained through the VA office via the Freedom of Information Act (FOIA) and coded by subject number to protect personal privacy before being issued as a de-identified data set on a compact disc. The de-identified database file remains in the sole custody of the principal investigator and statistical support services. FOIA regulations permit the principal investigator to have permanent ownership of the data set.

Statistical analysis was conducted using SPSS for Windows, version 15.0 (International Business Machines Corporation, Armonk, New York). The logistic regression model included all identified independent (predictor) variables; the model is reported using both regression coefficients and ORs. The fit of the model was evaluated using the (chi-square) Wald test and pseudo R^2 statistical tests. After a determination of the appropriate variables was completed for the statistical model, logistic regressions were run for each of the 3 constructs. The logistic regression models provide the probability of health service use by individuals with schizophrenia, although probabilities were converted to ORs. The final data set did not include any items with missing data.

Sample

The sample consisted of individuals with a diagnosis of schizophrenia admitted to VA CLCs between October 1, 2004, and September 30, 2006, and projected to have a LOS of 90 days or less. According to the Minimum Data Set (MDS) database for the VA FY 2005 and 2006, an estimated 3,000 people with schizophrenia were admitted to 134 VA CLCs during this period (J. Bryan, BS, personal communication, 2007).

Inclusion and exclusion criteria

The study sample included veterans of all ages, both male and female, with a diagnosis of schizophrenia, who were admitted for a projected LOS of 90 days or less during FY 2005 and 2006. This study excluded persons with end-stage disease who had 6 months or fewer to live.

Sampling plan and rationale

Most of the data for this study were extracted from an MDS 2.0 database. There are distinct advantages to using existing secondary data. Positive aspects include the convenience of collecting and analyzing a large sample size; the data are readily available and offer more latitude for statistical significance.[14] However, Mor[15] described negative aspects of using secondary data, such as the MDS, including miscoding of diagnosis, incorrect diagnosis, subjectivity of patient assessments, and inconsistency of interval assessments.

Sample size and justification

The original data set of about 3,000 subjects was reduced to 1,244 subjects after removal of duplicated admissions. Subjects with fewer than 6 months to live were subtracted from the total, leaving a revised sample size of 1,174. One hundred twenty-two residents who had 20% or more missing data were removed from the sample. Of the final sample of 1,052, 184 subjects had a LOS ≥ 90 days. A logistic regression of dichotomized LOS on any of the binary independent variables with this sample size achieved a power of 99% ($P = .05$) to detect an OR of 2.0 or greater assuming that all other independent variables accounted for 15% of the variance. The power for any continuous variable was 1.0 (PASS, Power Analysis and Sample Size 2.0, NCSS Statistical Software, Statistical Data Analysis and Graphic Software, 2004).

MDS as data source instrument

The Resident Assessment Instrument/Minimum Data Set (RAI/MDS) was developed in response to a 1986 U.S. Institute of Medicine (IOM) study recommending a standardized resident assessment instrument for nursing homes.[16] The RAI serves to enhance clinical care by implementing a comprehensive and holistic ap-

proach to assessment and helping staff better understand the underlying causes and contributing factors for specific problems.

It consists of 2 parts: the MDS and the Resident Assessment Protocols (RAPS). The MDS is a core set of screening elements that form the basis of the comprehensive assessment. RAPS are problem-oriented frameworks for organizing MDS information that enable staff to focus additional assessment on the "triggered" condition. There are 18 RAPS that cover such domains as ADL, mood state, nutritional status, and psychosocial well-being. Some RAPS are oriented toward the identification and treatment of a condition; others focus on prevention of a problem.

The MDS contains demographic information such as age, race, gender, numbers of prescribed medications, and comorbid diseases in addition to providing a wide variety of information about ability to perform activities within the nursing home setting.[17] It is used by investigators in health service research, outcomes research, and performance improvement to identify patients with select conditions, monitor outcomes, and process measures.[18]

The MDS has been evaluated in numerous studies in which established research or clinical tools have been applied and then compared with either a specially conducted MDS assessment of relevant items or existing MDS assessment data in nursing home residents' charts.[15] It has had repeated testing for interrater reliability by skilled nurse assessors in nursing homes of all sizes nationwide, for-profit and voluntary, and has been found to have excellent interrater and test-retest reliability in key areas of functional status such as cognition, ADL, and continence, when completed by research nurses.[19] Results revealed high-average levels of reliability as measured by kappa.[20] A modified version of the MDS was designed in 1985 and was found to have improved reliability, especially in the mood and behavior domains.[21] The 3 constructs include the following predictors: (1) *predisposing characteristics* (age group, gender, race/ethnicity, marital status, prior living environment, and active medical conditions); (2) *enabling resources* (service connection percent, customary routine, caregivers and resources, education, and CLC locality); and (3) *health status need* (baseline cognitive status, cognitive skills for daily decision making, baseline ADL status, mood status, behavior status, psychosocial well-being, and medications).

Results of the logistic regression model indicated statistical significance for 2 of the predictor variables:* prior living environment and customary routine *(P < .5).

RESULTS

The average age for veterans in both groups (LOS ≤ 90 days and LOS > 90 days) was 62. Most residents were male (95.6%), unmarried (82.3%), and had, on average, 2.7 current medical conditions; 44% used tobacco daily, but only 10% used alcohol. The 3 most frequently occurring medical conditions were hypertension (55%), diabetes (34%), and emphysema or COPD (27%). Despite these chronic and progressive medical conditions, these young-elderly veterans had higher levels of independence than did older, frail CLC residents who are commonly found in this care setting.

A hierarchal logistic regression model with a total of 24 predictor variables within 3 main constructs was used. The predictor variables were extracted from the MDS Version (2.0) and linked with 3 additional predictor variables (duration of stay, service connection percent, and CLC locality). The proper statistical diagnostics were used to validate the assumptions of the model.

Results of the logistic regression model indicated statistical significance for 2 of the predictor variables: *prior living environment* and *customary routine* ($P < .5$). Prior living environment was a dichotomous variable that identified *where* the resident was prior to admission to the nursing home. This variable had an OR of 1.516, indicating that a resident admitted from an institution was 52% more likely to have a LOS > 90 days than a resident not admitted from an institution. Customary routine (AC1S) was a dichotomous variable that indicated whether a resident had daily contact with relatives or close friends. This variable had an OR of .651, indicating that a resident who had little to no daily contact with relatives or close friends was 65% more likely to have a LOS > 90 days than a resident who did not have this support.

DISCUSSION

Results of the logistic regression outcome reveal that within the construct *baseline predisposing characteristics*,

the predictors of age, gender, race, ethnicity, and marital status and the number of current medical conditions were not found to be significant. Why they were not found significant may be the result of several factors. However, these predictors are revealing and have clinical significance, helping to explain why this population had difficulty achieving the goal of a LOS ≤ 90 days. For example, male veterans with schizophrenia who are unmarried and have few chronic medical conditions, yet require a CLC admission, may have unusual difficulties. Their dependency may have less to do with physical need and more to do with the underlying need to remain in a LTC setting that provides ample help and services and, by doing so, fosters dependency needs. Health service use becomes a proxy for satisfying unmet needs in this population of schizophrenics.

The predictor variable *prior living environment* was found to be significant for residents admitted from an institution who were found to be 52% more likely to have a LOS > 90 days than residents not admitted from an institution. This finding is statistically significant and has clinical significance in the LTC environment. Veterans arriving from institutions who are accustomed to living within the confines of a structured/restrictive setting may find being admitted to a CLC a surprisingly pleasant experience. A CLC may impose fewer restrictions on personal activities than a more structured institutional setting. In CLCs, the motivation to achieve discharge goals may be unwittingly undermined by the good intentions of staff, who promote dependence while attempting to promote independence. There was speculation that the totality of baseline predisposing characteristics would affect health service use; instead, the analysis reveals that being admitted from an institutional setting has the greatest effect. Discharge to a lower level of care becomes even more challenging, driving health service use beyond the projection established at time of admission.

The next construct in the logistic regression analysis, *enabling resources,* revealed that veterans' service connection percent, caregivers, resources, educational level, and location of the CLC did not show statistical significance in relation to health service use. However, the predictor variable *customary routine* was significant for those residents who lacked daily contact with relatives and close friends. They had a 65% more likely chance of having a LOS > 90 days than did residents who had this support.

Results from this study highlight the importance of recognizing that veterans with schizophrenia whose prior living environment is an institutional care setting and who lack involvement with relatives and friends are likely to be unable to successfully meet discharge goals in the CLC. Providing intensive case management to these veterans will serve to deter unnecessary health service use by setting expectations related to the goals of care. The results suggest that CLC care for this population of veterans may adversely impact health service use. Until such time that alternative care settings are established, VA nurses caring for these veterans should practice increased vigilance and target basic self-care needs that will enhance independence in these residents. VA nurses must focus on the residents' goals of care and be taught specific strategies to effectively manage these individuals to avoid unnecessary health service use.

CONCLUSION

Health service use (LOS) was evaluated for 3 major predictive constructs: baseline predisposing characteristics, enabling resources, and health status need. This study examined to what extent predictors within these constructs affected health service use defined as length of stay. The results indicated that veterans with schizophrenia who were admitted from an institutional setting and lacked daily contact with relatives or close friends were significantly more likely to have a LOS > 90 days than the projected LOS of ≤ 90 days.

Elderly people with schizophrenia who reside in long-term settings are known to experience significant disabilities, especially those that affect motivation and the ability to perform basic activities of daily living independently.[22] Barry and colleagues[6] emphasized that knowing the utilization patterns of older patients with schizophrenia can properly educate health care planners and policy makers. The results of this study and their predictive value in determining factors that lead to a prolonged LOS in VA CLCs indicate that a setting that provides a lower level of care is the obvious alternative to a CLC.

Utilization of resources can be more easily brought into alignment in a non-CLC environment, as services would be in accordance with the actual needs of the residents. Alternative housing and involvement of a mental health team of professionals, which includes psychiatrically trained nurses and advanced-practice nurses, would be an excellent model for intensive case management. This model of care would aim to address the care needs of those veterans who require close monitoring and early detection of problems to offset the need for hospitalization and placement in a CLC.

At a time when the VA health care system is aiming to maximize access to health care for all veterans, aligning

a veteran with appropriate resources is essential. Veterans with schizophrenia, who are functionally independent but need regular attention to medication and chronic disease management, such as difficult-to-control hypertension and diabetes, must be provided alternative housing as a means to control cost of care and achieve satisfactory outcomes of care. Where there is a dearth of nursing specialists, implementation of mental health continuing education training and an emphasis on select staff serving as resource nurses for these residents are needed.

Consideration for a VA-based assisted living facility with a focus on caring for veterans with serious mental illness would be an ideal solution and superior alternative to utilizing LTC resources. This would benefit those veterans whose placements are anticipated to be medically and/or psychiatrically complex at time of admission to the CLC through early intervention and collaboration. Future studies should include a pilot project aimed to formalize attention to this highly important matter. ●

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