As veterans age, chronic physical and psychiatric conditions increasingly challenge the Veterans Health Administration. We examine influences of age and diagnosis on health care utilization, within the context of the 1995 deinstitutionalization policy of the Veterans Health Administration. Veterans were hospitalized repeatedly over 5 years with diagnoses of schizophrenia, bipolar disorder, depression, or alcohol dependence (N = 7,719). Inpatient days decreased 14% from baseline while outpatient (OP) visits increased 63%, consistent with deinstitutionalization. In adjusted models, OP utilization greatly increased with age, but psychiatric visits—notably alcohol treatment—dropped sharply. Emergency visits rose after 1997, particularly for ethnic minorities. Individuals ages 35–49 and 50–64 years were the greatest consumers of OP care; these large, aging cohorts will continue to require additional services, taxing a burdened system. Utilization patterns evolve across the life course, requiring foresight to address changing demographic demands. Careful attention to mental health utilization patterns may help policy makers and providers understand psychiatric needs in older patients.

Introduction

Mental illness imposes a significant burden upon the individual patient, with tremendous overall costs at the societal level. Affecting ~8% of the population, major depression has direct and indirect costs totaling nearly $44 billion in 1993 dollars.1 Alcohol abuse and dependence affect ~8.5% of the U.S. adult population2 at an annual cost of $185 billion.3 Schizophrenia and bipolar disorder, whose prevalence rates are both around 1%, account for another $45 billion in total costs.4 In addition, individuals suffering from schizophrenia and affective disorders carry a greater risk of medical illness than the general population.5 Serious afflictions as society as a whole, these psychiatric conditions are especially oppressive to members of lower socioeconomic status.6–8 The presentation of mental illness is widespread among the 4.6 million veterans treated annually in the Veterans Health Administration (VA); the majority of these vulnerable individuals experience limited financial, social, and other support. In 2000, the VA released "The Changing Veteran Population: 1990 to 2020," a report on current demographics and a planning tool for future health services delivery within the organization.9 As of July 1999, 25.6 million people were classified as U.S. veterans—and 1.2 million (4.8%) of these were women—including approximately 3 million users of VA health care. Particularly significant, the mean age of all veterans was 58 years. The percentage of veterans over 65 is expected to rise to 51% by 2010, while those over age 85 will increase 8-fold to 1.3 million. A more recent report notes that these oldest, most vulnerable veterans are especially likely to require long-term care and substantial health care services in general. Current VA patients are not only older in comparison to the general population, but typically have lower incomes, less health insurance coverage, and greater disability or illness burden.10 These demographics represent a major force shaping the delivery of health care in the VA system. Furthermore, as the United States struggles to cope with aging baby boomers, it is projected that the lessons learned from VA's experiences in delivering health care to aging veterans will be of great importance to the entire nation.11

The VA's commitment to caring for its patients with serious mental illness intensified following Public Law 101 to 507 legislation in 1991, which mandated special attention to the ongoing treatment of these veterans.12 Guideline concordant diagnosis and substance abuse treatment, including appropriate screening, have long been components in quality monitoring. Numerous research efforts capitalized on comprehensive national data, and documented treatment and outcomes pertaining to veterans with psychiatric conditions.13–15 However, few of these studies were longitudinal in nature, and most drew from a fairly limited sample. Psychiatric problems generally contribute to a diminished quality of life but present a special concern as patients grow older. Psychiatric problems can adversely impact age-related developments such as multiple medical comorbidities16 and a loss of social support,17 both of which in turn can exacerbate psychiatric conditions. Higher medical needs and utilization with age have been well-documented,17–20 as has the influence on health services utilization by depression,21–26 schizophrenia,27–30 bipolar disorder,31–33 and alcohol abuse.34–36 Yet most of these studies controlled for age, ignoring the interaction between aging and psychiatric diagnosis. Two excellent studies did conduct subgroup analyses of multiple age cohorts in patients with schizophrenia, finding costs and mental health visits declined with age;37 however, these researchers did not report on medical care utilization. Life-course differences in medical versus psychiatric care-seeking behavior among patients with mental health conditions have received infrequent attention.

The current study focuses on the interaction between age and mental health diagnosis and its effect on the use of medical and psychiatric treatment within the VA, during and following a major policy change. It takes advantage of a large national sample of veterans to examine the effects of age (cohort), aging, and history—specifically the VA's deinstitutionalization policy of serious mental illness, aging, and utilization patterns among veterans.
1995. This massive reorganization process was intended to move VA from a primarily inpatient (IP)-based long-term care system to an outpatient (OP)-based system with hundreds of community-based OP treatment centers. We explore these shifts in care patterns with the analyses that follow.

Methods

Data were extracted from national VA databases of IP and OP records. Mortality information was obtained from IP records if the patient died while in VA care, and from the Beneficiary Identification and Records Locator System death records, files containing death data for all veterans for whom survivor benefits were claimed. This protocol captured ~95% of all VA patient deaths.

Sample

Patients included in the sample were ages 20–89 who were admitted and discharged in fiscal year (FY) 1995 with a diagnosis of alcohol abuse/dependence, major depressive disorder, bipolar disorder, or schizophrenia. Additional eligibility criteria were (a) receiving only one of these four diagnoses during the initial year and (b) rehospitalization in FY1997 and FY1999, for any reason. The sample was chosen to allow study of high-using psychiatric patients, a distinctly ill and vulnerable population. For comparison purposes, a group of patients with metabolic disorders was also described, although high mortality in this group precluded their inclusion in the longitudinal study. The baseline year and subsequent time periods were chosen to capture the ramifications of deinstitutionalization on service utilization patterns, a process initiated in 1995.48

Measures

The key independent variables were diagnosis and age. Diagnosis was assessed by an IP diagnosis of schizophrenia (International Classification of Diseases 295.xx excluding 295.5), bipolar disorder (296.0, 296.4, 296.5, 296.6, 296.7, 296.8), major depressive disorder (296.2, 296.3, 311), or alcohol abuse or dependence (303.9, 305.0). Age was calculated as of the first day of FY95 (October 1, 1994), and then categorized into four 15-year groups, reflecting both the sample distribution and appropriate life-course periods: 20–34, 35–49, 50–64, and 65–89. Demographic covariates included gender, marital status (married vs. other), ethnicity (Caucasian, African American, other), other insurance (major medical, Medicare, health maintenance organization, none), period of military service (World War II/post-World War II, Korea/post-Korea, Vietnam Era, other/none), and income (to nearest $5,000, rescaled 0–9).

Service connectedness, or the percentage of a patient’s condition directly attributable to his or her military service, was included to adjust for illness severity. This measure has been shown by Rosenheck and Massari49 to be a good proxy for VA illness severity, and a predictor of overall utilization. The pertinent cut points are 0–49%, 50–69%, and 70–100%, reflecting values associated with VA benefit eligibility. Also related to illness severity were measures of survival length and death. Survival in FY99, measured in days, adjusted for patients who did not live to the end of the study. It captures the concept of a censored final outcome period. An additional indicator of death in FY99 controlled for patients with a high-needs, end-of-life status.

Analysis

Descriptive statistics and χ2 analysis explored the bivariate relationships between age group or diagnosis and the utilization outcomes. Repeated measures analysis of covariance (multivariate analysis of covariance) is an analytic approach robust to distribution issues that accounts for intraclass correlations across time. Multivariate analysis of covariances assessed the impact of diagnosis and age group on health services utilization in FY95, FY97, and FY99, testing for interactions between diagnosis and age. Multivariate models controlled for the effects of gender, marital status, ethnicity, health insurance, period of service, income, service connectedness, and survival and death in FY96. For significant factors, post hoc tests inspected the adjusted means to determine the direction of effects. All analyses were conducted using SAS version 8.2 (SAS Institute, Inc., Cary, North Carolina).

Results

The primary psychiatric sample of 7,719 patients comprised 4,572 individuals with alcohol diagnoses (59%), 1,562 with schizophrenia (20%), 1,076 with major depression (14%), and 509 with bipolar disorder (7%). Three-fifths were ages 35–49 years and 21% were upper middle-aged (50–64), whereas only 8% were young (ages 20–34) and 12% were over age 65. Patients averaged 48.5 years old (SD = 11.5). There were few women (3.4%). About one-quarter of the sample was married (23%); 4% were widowed, 24% had never married, and 49% were divorced or separated. Average income was $9,098 per year.

The vast majority of these patients were from the Vietnam War era (73%), although 16% were from the Korean War era, and 9% were World War II veterans. Approximately 2% could not be classified precisely on service era and were recorded as "other or none." Service connection averaged 23%; one-quarter of patients were classified with 50% or higher service connection. Most patients reported no insurance coverage (81%) but 13% did have major medical and another 5% were covered by Medicare. Only 1% reported health maintenance organization coverage.

The first year, patients averaged 2 hospital admissions, 24 OP visit days, and 0.7 emergency visits. Among these patients, 467 (6%) died before the end of the study in 1999, compared with 43% of those in the metabolic condition group (1995 only). Among decedents with psychiatric diagnoses, survival averaged 194 days (SD = 99) of FY99. Diagnosis and age group were not independent in the χ2 analysis (χ2 = 214.2; df = 8; p < 0.0001),
primarily because patients ages 65–89 were much more likely to be diagnosed with major depression or bipolar disorder and much less likely to have an alcohol diagnosis than expected.

Baseline characteristics by diagnostic category are presented in Table 1. In comparison to veterans with mental health conditions, patients hospitalized in FY95 with metabolic disorders were older (65.4 years of age, SD = 11.7), less service connected (16% on average, SD = 12%), and higher functioning (average Global Assessment of Functioning score 55.2, SD = 11.2). Their use of IP care was less at 20.7 days (SD = 17.1) while medical OP care was greater (15.0, SD = 14.1; psychiatric OP care much less (1.5 stops, SD = 3.4), and AOD-related OP care negligible (0.6 stops, SD = 3.1).

Table II provides descriptive baseline characteristics by age group. Younger veterans included a greater percentage of women and ethnic minorities, had lower incomes, and were less likely to be married. Although there were minimal differences in overall OP visit days, younger patients did utilize fewer medical stops but a greater number of psychiatry and alcohol/drug stops, along with more emergency room visits.

**Multivariate Results**

**IP Utilization**

The repeated measures analysis of variance for IP stays found a significant interaction between age group and diagnosis. This effect was caused by schizophrenia patients ages 50–64 using more IP days than others, especially relative to older alcoholic patients. Generally speaking, days of stay decreased after FY95, consistent with deinstitutionalization efforts (see Table III). The adjusted means, those on which the statistics are based, increased from FY97 to FY99, after dropping from FY95 levels. Overall, patients with schizophrenia had more hospital days than patients with other diagnoses. In the follow-up years, IP days for the alcohol group were indistinguishable from the major depression group, and stays for the schizophrenia group were similar to the bipolar group.

Other factors associated with increased length of stay were never being married and service connection over 50%. Those who died in FY99 had significantly more hospital days during that year. Figures 1 and 2 present selected outcomes by diagnosis and age group.

**OP Utilization**

Overall OP utilization steadily and sharply increased over time, with no interaction between age or diagnosis. Patients with alcohol disorders visited VA OP clinics slightly less often than patients with the other three conditions. Generally speaking, the oldest group of patients used the fewest OP stops. Women used more care than men, with the gap widening over time from 62 versus 50 total stops at baseline to 101 versus 74 in FY99. Never-married persons also used more OP care than married veterans. Service connection below 50% was associated with relatively fewer OP visits the first year, but not thereafter.

Medical OP stops, however, showed a significant interaction effect of age by diagnosis. Depressed patients ages 50–64 and 65–89, along with bipolar patients aged 50–64, used more medical OP stops than did other subgroups, while younger patients used fewer medical OP stops than older patients. Individuals with schizophrenia used the least care, moving from 10.3 to 14.0 over time, while those patients with depression received the most medical services, rising from 16.2 to 22.1 stops. In addition, utilization increased over time, females used relatively more services, as did married persons and holders of major medical insurance. Finally, those who died in FY99 used more medical services in both FY95 and FY99 compared to surviving patients. Survival days were negatively correlated with medical OP use in years FY95 and FY97, but positively correlated in FY99.

Psychiatric OP stops exhibited no interaction between age and diagnosis. All patients used significantly more OP psychiatric care over time, with the greatest increase occurring between FY95 and FY97. Increasing age was significantly associated with decreasing utilization. Those with alcohol disorders had the fewest stops and those with schizophrenia the most, more than double. In addition, women had much higher means.

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**TABLE I**

<table>
<thead>
<tr>
<th>Variable</th>
<th>ALL (N = 7719)</th>
<th>MDD (n = 1076)</th>
<th>BP (n = 509)</th>
<th>SCH (n = 1562)</th>
<th>ALC (n = 4572)</th>
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<tr>
<td>Age (years)</td>
<td>48.5</td>
<td>51.8</td>
<td>50.7</td>
<td>47.6</td>
<td>47.6</td>
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<tr>
<td>Income ($)</td>
<td>9.098</td>
<td>11.782</td>
<td>11.969</td>
<td>11.177</td>
<td>7.436</td>
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<tr>
<td>Percent female</td>
<td>3.4</td>
<td>7.2</td>
<td>8.4</td>
<td>4.9</td>
<td>1.4</td>
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<tr>
<td>Percent ethnicity</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Caucasian</td>
<td>65.2</td>
<td>75.6</td>
<td>79.1</td>
<td>58.2</td>
<td>63.4</td>
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<td>African American</td>
<td>29.5</td>
<td>20.0</td>
<td>16.3</td>
<td>35.6</td>
<td>31.5</td>
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<td>Other</td>
<td>5.3</td>
<td>4.4</td>
<td>4.6</td>
<td>6.3</td>
<td>5.5</td>
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<tr>
<td>Percent married</td>
<td>23.2</td>
<td>41.5</td>
<td>32.8</td>
<td>17.7</td>
<td>19.8</td>
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<td>Service connection, (%)</td>
<td>22.5</td>
<td>25.4</td>
<td>34.0</td>
<td>52.5</td>
<td>10.4</td>
</tr>
<tr>
<td>Total OP days</td>
<td>33.0</td>
<td>33.1</td>
<td>34.3</td>
<td>47.2</td>
<td>28.0</td>
</tr>
<tr>
<td>No. OP visit days</td>
<td>24.0</td>
<td>29.4</td>
<td>28.5</td>
<td>27.7</td>
<td>21.0</td>
</tr>
<tr>
<td>No. total OP stops</td>
<td>45.5</td>
<td>56.3</td>
<td>55.5</td>
<td>50.9</td>
<td>40.0</td>
</tr>
<tr>
<td>No. medical OP stops</td>
<td>7.6</td>
<td>12.5</td>
<td>9.3</td>
<td>5.8</td>
<td>6.6</td>
</tr>
<tr>
<td>No. psychiatric OP stops</td>
<td>13.6</td>
<td>16.0</td>
<td>21.9</td>
<td>22.5</td>
<td>9.1</td>
</tr>
<tr>
<td>No. alcohol and drug OP stops</td>
<td>5.66</td>
<td>4.76</td>
<td>2.67</td>
<td>2.04</td>
<td>7.45</td>
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<td>No. emergency room stops</td>
<td>0.73</td>
<td>0.76</td>
<td>0.57</td>
<td>0.65</td>
<td>0.77</td>
</tr>
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MDD, major depression; BP, bipolar disorder; SCH, schizophrenia; ALC, alcohol abuse or dependence.
TABLE II
BASELINE MEANS (FY99), BY AGE GROUP

<table>
<thead>
<tr>
<th>Variable</th>
<th>All (N = 7719)</th>
<th>20-34 (n = 612)</th>
<th>35-49 (n = 4570)</th>
<th>50-64 (n = 1633)</th>
<th>65-89 (n = 904)</th>
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<tbody>
<tr>
<td>Income ($)</td>
<td>9.098</td>
<td>8.504</td>
<td>8.719</td>
<td>9.437</td>
<td>10.802</td>
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<tr>
<td>Percent female</td>
<td>3.4</td>
<td>11.1</td>
<td>3.3</td>
<td>1.2</td>
<td>2.8</td>
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<tr>
<td>Percent ethnicity</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Caucasian</td>
<td>65.2</td>
<td>52.2</td>
<td>59.7</td>
<td>75.6</td>
<td>82.7</td>
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<tr>
<td>African American</td>
<td>29.5</td>
<td>41.9</td>
<td>34.7</td>
<td>19.2</td>
<td>13.9</td>
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<tr>
<td>Other</td>
<td>5.3</td>
<td>5.9</td>
<td>5.6</td>
<td>5.2</td>
<td>3.4</td>
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<tr>
<td>Percent married</td>
<td>23.2</td>
<td>18.9</td>
<td>26.3</td>
<td>26.5</td>
<td>35.3</td>
</tr>
<tr>
<td>Service connection, (%)</td>
<td>22.5</td>
<td>23.1</td>
<td>23.3</td>
<td>18.3</td>
<td>26.3</td>
</tr>
<tr>
<td>Total IP days</td>
<td>33.0</td>
<td>35.3</td>
<td>33.6</td>
<td>31.9</td>
<td>30.4</td>
</tr>
<tr>
<td>No. OP visit days</td>
<td>24.0</td>
<td>23.5</td>
<td>24.6</td>
<td>22.9</td>
<td>23.4</td>
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<tr>
<td>No. total OP stops</td>
<td>45.5</td>
<td>44.4</td>
<td>46.1</td>
<td>45.0</td>
<td>44.0</td>
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<tr>
<td>No. medical OP stops</td>
<td>7.6</td>
<td>5.0</td>
<td>6.3</td>
<td>9.6</td>
<td>12.0</td>
</tr>
<tr>
<td>No. psychiatric OP stops</td>
<td>13.6</td>
<td>15.0</td>
<td>14.7</td>
<td>12.2</td>
<td>9.8</td>
</tr>
<tr>
<td>No. alcohol and drug OP stops</td>
<td>5.7</td>
<td>6.8</td>
<td>7.2</td>
<td>3.6</td>
<td>1.1</td>
</tr>
<tr>
<td>No. emergency room stops</td>
<td>0.73</td>
<td>0.84</td>
<td>0.75</td>
<td>0.68</td>
<td>0.67</td>
</tr>
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</table>

TABLE III
RAW UTILIZATION MEANS OVER TIME, TOTAL SAMPLE (N = 7719)

<table>
<thead>
<tr>
<th>Variable</th>
<th>FY95</th>
<th>FY97</th>
<th>FY99</th>
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<tbody>
<tr>
<td>Total IP days</td>
<td>33.0</td>
<td>27.2</td>
<td>21.6</td>
</tr>
<tr>
<td>No. OP visit days</td>
<td>24.0</td>
<td>32.0</td>
<td>33.7</td>
</tr>
<tr>
<td>No. total OP stops</td>
<td>45.5</td>
<td>65.8</td>
<td>72.7</td>
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<tr>
<td>No. medical OP stops</td>
<td>7.6</td>
<td>10.6</td>
<td>11.0</td>
</tr>
<tr>
<td>No. psychiatric OP stops</td>
<td>13.6</td>
<td>20.8</td>
<td>20.7</td>
</tr>
<tr>
<td>No. alcohol and drug OP stops</td>
<td>5.7</td>
<td>9.7</td>
<td>9.6</td>
</tr>
<tr>
<td>No. emergency room stops</td>
<td>0.73</td>
<td>1.0</td>
<td>1.2</td>
</tr>
</tbody>
</table>

on this variable, a difference that sharpened over time as they increased from 19 to 35 stops versus 13 to 19 for men. Higher use was also associated with Caucasian ethnicity, never-married status, and higher service connectedness.

For AOD OP clinic stops, there was an interaction effect of diagnosis by age group. Older patients with alcohol diagnoses used less OP AOD care than did younger alcohol patients, while the reverse was true for patients with schizophrenia: more AOD care for older patients. In FY95, patients with alcohol disorders were indistinguishable from depressed patients on this measure, while in FY97 they were identical to patients with bipolar disorder. In other results, African American and other non-Caucasian patients had higher adjusted means on this measure compared to Caucasian patients.

ED stops were analyzed. Although no statistically significant effects by age group or diagnosis were observed for this measure, a gradual increase was noted over time, especially during FY99. These visits varied by gender and ethnicity, as women and African American veterans averaged more overall, and non-Caucasian frequented emergency rooms more in later years. There was a main effect of dying in FY99, and both interaction and main effects of survival, as patients who died earlier tended to have more emergency encounters: shorter survival periods correlated with greater use. Finally, Medicare patients had fewer ED stops in the VA in FY97 and FY99 than uninsured patients.

Discussion

Interactions between age and diagnosis wrought a dynamic effect on selected types of health service utilization among severely ill patients with mental illness during a critical transitional period in the VA health care system. In 1995, Dr. Kenneth Kizer, then VA director, released a report outlining the VA’s intention to shift treatment emphasis away from hospitals and into OP settings, detailing this transformation in a follow-up article.6,43 During the study period of 1995-1999, an organizational restructuring to a primarily OP treatment mode was accomplished with remarkable decisiveness. Accordingly, use of OP services increased sharply while hospital days simultaneously dropped, most noticeably between FY95 and FY97, with a modest increase in FY99. There were variations in this general effect by age and diagnosis, with age group representing a more significant predictor of utilization.

Community-based studies yield significant evidence that improved access and early treatment for mental health conditions can result in long-term benefits to the individual treated,41,42 along with modest cost offsets for the health care system.43,44 As such, it would appear that improved access through a more widely disseminated treatment delivery system, in the form of community-based treatment at numerous OP clinics, could ultimately result in a healthier VA patient population. Outreach efforts for new veterans are currently operating on this model: provide early and comprehensive treatment for mental health problems to prevent greater problems later. For the oldest mentally ill veterans currently using the system, our findings here provide slightly inconclusive information in determining whether a beneficial result was obtained. It is puzzling that, overall, the older patients with chronic mental illnesses used less total OP care than younger ones. This lesser use of OP care did not appear to be offset by IP use, which was greatest not among the oldest patients but among middle-aged patients with schizophrenia (ages 50-64). Possibly, the elderly patients had achieved Medicare eligibility and were seeking care elsewhere as well as in the VA.45,46

In the arena of IP care, veterans’ health services used varied by age and diagnosis; as noted, patients with schizophrenia aged 50-64 were hospitalized the most days and patients with alcohol diagnoses the least. This interaction effect persisted across all three time periods. No such blanket interaction between age and diagnosis was evident in total OP care. Only upon delving
into types of OP care could differential effects be perceived: patients aged 50-64 with depression or bipolar disorder and depressed patients aged 65+ used the most medical OP care, compared to other age-diagnosis groups, a longitudinally consistent effect. Patients with schizophrenia were the biggest users of OP psychiatric care, regardless of age. A general tradeoff between the use of psychiatric care by younger patients and of medical care by older patients could be observed here; this is consistent with abatement of psychiatric symptoms among aging psychiatry patients, or what might be termed "burn-out" of their illness severity. It would be of more concern were the patients dropping out of care altogether, given the well-established correlation between poor psychological health and service utilization, mortality, worse physical outcomes, and lower overall quality of life. Many of the negative ramifications of psychiatric conditions on physical health might be attributed to poor treatment adherence and detrimental lifestyle behaviors. This interplay between mental illness and physical health is frequently exacerbated by aging or lower socioeconomic status, traits common to the VA patient population. Many of the negative ramifications of psychiatric conditions on physical health might be attributed to poor treatment adherence and detrimental lifestyle behaviors. This interplay between mental illness and physical health is frequently exacerbated by aging or lower socioeconomic status, traits common to the VA patient population.55:

Patients with schizophrenia have been observed using less medical care than other mental health patients. Perhaps it is due to the severity of this condition, resulting in an inability to recognize health needs and pursue treatment. As people with all psychiatric conditions age, they might seek care more hesitantly, a response validated in other studies.56 Alternatively, this may be caused by a superabundance of issues demanding provider time, resulting in prioritizing the more visible or disruptive (psychiatric) conditions above more subtle or asymptomatic physical conditions.57 However, it should be noted that lower OP utilization among older patients is not equivalent to a lack of need, nor necessarily to system deficiencies in resource allocation or capacity. Failure to recognize treatment needs and pursue care can be attributed to both patient and provider behavior, particularly with regard to mental health services. We again note that within the VA, like many organizations, care providers are not homogeneous; instead, diagnosis and treatment is offered by persons with a diverse range of clinical skills and training. This potentially complicates not only integrated treatment, but also the context and interpretation of our results. Elderly individuals may not place a premium on pursuing treatment for psychological or substance abuse issues in light of numerous other health problems. Likewise, and perhaps more importantly given their professional capacity, providers might also neglect or shift priorities away from mental health needs in favor of medical concerns. This is understandable given the "competing demands" upon a physician's time during a patient provider encounter.58
example is the diagnosis and treatment of depression in the elderly, an often dramatically unrecognized or appreciated problem, where depression is often viewed as "normal." Alternatively, the mental health problems and symptoms could be genuinely diminished, thus occasioning the decreased use of mental health services. Mental health problems gradually take a less prominent place amid the pantheon of health issues over the life course. Serious mental illnesses tend to be conditions of younger patients, in terms of typical onset age, florid expression, and personal consequences. Since 34% of our sample had a diagnosis of either schizophrenia or bipolar disorder, somewhat dampered utilization patterns by age group would be expected within this overall population. Although contradicting some studies involving veterans with mental health conditions, the greater utilization of OP services by women seen here is not surprising and simply adds to the convincing research regarding different patterns by gender. As the percentage of women in the armed forces continues to grow, the VA should be prepared to meet their increased post-service health care needs. This is particularly true for the diagnosis and treatment of depression, where the prevalence rate for women is twice that of men.

One final issue raised by our results concerns the finding of increasing emergency room utilization, especially for certain subgroups; this rise mirrors the overall trend nationwide during the past decade. In other studies, better access to OP primary care, one objective of deinstitutionalization, has been found to reduce dependence on ED services. One possible explanation is that patients wish to avoid regular mental health treatment, preferring instead to medicalize or validate their condition through the emergency room. The ethnic and gender effects coupled with the Medicare effect are also notable and present a potentially disturbing question: if Medicare patients use fewer ED services because they have greater access to routine care, are minority patients and women encountering urgent health situations at younger ages than Caucasian and male veterans? Two recent studies of veterans and their experiences with emergency services revealed greater utilization among women, as well as among patients with both schizophrenia and depression. Berren et al. suggest that higher emergency care utilization among patients with serious mental illness may be the result of access problems or poor integration with a usual source of care. The same has been determined for ethnic minorities and older patients, who may rely on emergency care due to insurance limitations or restricted treatment options. Berren et al. suggest that higher emergency care utilization among patients with serious mental illness may be the result of access problems or poor integration with a usual source of care. The same has been determined for ethnic minorities and older patients, who may rely on emergency care due to insurance limitations or restricted treatment options.

The VA is a highly integrated health system, as it embarked upon a deinstitutionalization policy, has ramifications for other health care delivery organizations. The baseline comparison of utilization differences between veterans with psychiatric disorders and those with a primary medical condition also enables providers and health delivery planners to place our results within a better context. Other vulnerable patient populations, such as community mental health patients and the disabled, may show similar patterns of use and require close attention in meeting their needs during times of budgetary restrictions.

**Limitations**

The analysis here focused only on individuals seeking treatment through the VA system. Therefore, patients who either obtained no services or sought care outside the system were not included in this sample. Few VA patients with serious mental illnesses pursue non-VA treatment, especially those needing IP or psychiatric care. Restricting the sample to extremely sick and frequently hospitalized veterans limits the ability to generalize the findings, as does IP and OP utilization among patients with co-occurring mental health disorders (e.g., depression and substance abuse). This analysis is a necessary preliminary study to exploring the effects of more complex case histories, and provides a basis of comparison for future studies. Such efforts will incorporate medical and psychiatric comorbid conditions, where age and the need for coordinated treatment on multiple fronts combine to put pressure on a health care system as it strives to provide optimal care for an aging patient population.

Finally, a closer examination of other factors associated with utilization is warranted. As noted, we specifically addressed service connection and mortality in the analytical models, both of which have been demonstrated to be decent proxies for illness severity. Recognizing that the entire study population here was extremely ill by inclusion criteria, three hospitalizations over 5 years, omitting other markers for comorbid illness appears minor for this preliminary analysis of utilization patterns by age and diagnosis.

**Conclusions**

Few studies, VA or otherwise, seek to disentangle the multifaceted influences of age and psychiatric conditions across multiple IP and OP utilization measures. Individuals with chronic mental health disorders are clearly not homogeneous in their health care utilization patterns. Differences existed in use of services across the four diagnostic groups, in patterns that fluctuated across the life course. In addition, time itself played a substantial role, over and above the marked historical effect of the 1996 deinstitutionalization policy. The goal to move patients away from hospital care into community treatment appears to have been largely successful, partially demonstrated by lower IP and higher OP utilization. At least this outcome is reflected in the utilization of medical services. However, given the substantial drop in mental health and alcohol/drug treatment with age, uncertainty arises as to whether older veterans are receiving adequate care for their psychiatric problems, or whether their need for psychiatric care had simply diminished. Using national data, Demmler noted that older patients have been gradually using more OP psychiatric care recently, a trend which will certainly challenge the ability of most health systems to appropriately treat these patients but may result in better outcomes. The VA's central mission of total care provision for its most vulnerable patients depends on the ability to plan appropriately for mental care as well as medical health care needs.
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References


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