General Hospital Psychiatry 44 (2017) 61–66

Contents lists available at ScienceDirect

General Hospital Psychiatry

journal homepage: http://www.ghpjournal.com

Research paper

Severe mental illness and emergency department service use nationally in the Veterans Health Administration

Stephanie V. Ng [a,*], Robert A. Rosenheck [b]

[a] Yale University School of Medicine, 300 George St, Suite 901, New Haven, CT, USA 06510
[b] VA New England Mental Illness, Research, Education, and Clinical Center, Yale University School of Medicine, VA Connecticut Health Care System, 950 Campbell Ave. Building 35, West Haven, CT, USA 06516

ARTICLE INFO

Article history:
Received 18 July 2016
Revised 14 November 2016
Accepted 15 November 2016
Available online xxxx

1. Introduction

Patients with psychiatric diagnoses have been reported to have greater numbers of ED visits than other health system users [1]. Studies have shown that patients diagnosed with schizophrenia, bipolar disorder [2], major depressive disorder [3,4], posttraumatic stress disorder [5], anxiety disorder [4], and substance use disorders [6,7] have all been found to have high rates of ED use. Whether this greater level of ED use reflects additional needs, poor access to medical or psychiatric services, or unaddressed psychosocial needs, has not been systematically examined. One national study of ED use in the Veterans Health Administration (VHA) in Fiscal Year (FY) 2012 (October 1, 2011–September 30, 2012) found that exceptionally high ED use (more than 20 visits/year) was associated with substance use disorders, psychiatric diagnoses, and most strongly with the diagnosis of schizophrenia (among other factors) [1]. Whether the association with elevated ED use is especially strong with serious mental illness (SMI) or with mental illness in general, and the reasons for such use have not been established.

While ED services provide essential and often life-saving care for patients with urgent health needs, there has been widespread concern that high levels of ED use may indicate inappropriate or excessive use that can lead to a number of problems, including fragmentation of care, increased costs, and even poorer health outcomes [8]. Frequent ED use has also been thought to potentially reflect barriers to more appropriate and routine primary or preventive care. Since VHA ED users in the previously cited study [1] also showed higher use of almost all other types of inpatient and outpatient health services than veterans who used fewer ED services, it seemed unlikely that their high levels of ED use reflected limited access to other more routine medical or mental health services. On the other hand, mere attendance at primary care or specialty clinics does not necessarily indicate effective service delivery or timely resolution of medical or psychiatric needs. Better integration of physical and mental health care for people with SMI has been proposed as a potentially valuable step towards improving overall health. In view of the high rates of medical co-morbidities and well-documented risk of premature death in this population; such integration may be relevant to addressing high levels of ED use [9–11]. Examination of specific diagnoses associated with ED use among people with psychiatric diagnoses may illuminate areas of unmet need. Some previous studies have examined patterns of ED use among people diagnosed with SMI and other mental illnesses to better understand what drives their frequent ED use, but they have focused on limited combinations of medical and psychiatric conditions (e.g. diabetes and schizophrenia [12]) or specific comorbid medical conditions that may contribute to increased use of ED services (e.g. respiratory illness, recent injury [13]; heart disease or skin problems [14]). To our knowledge, however, there has been no single study that directly compared the overall level of ED use among patients with SMI, patients with other mental illnesses (OMI) and patients with no mental illness (NMI); or that further compared these groups on the use of ED services for medical as contrasted

* Corresponding author.
E-mail addresses: s.ng@yale.edu (S.V. Ng), robert.rosenheck@yale.edu (R.A. Rosenheck).

http://dx.doi.org/10.1016/j.genhosppsych.2016.11.003
0163-8343/

with psychiatric or substance use disorders; or even more specifically that examined the use of ED services for selected medical and psychiatric diagnoses.

Administrative records from VHA, the largest integrated national health system in the US, provide a unique opportunity to compare patterns of ED service use among patients with mental health and medical disorders because VHA data document all types of medical and psychiatric service use, and enrolled veterans face relatively few insurance barriers compared to the general population. In this study we use national VHA administrative data to compare ED use among veterans with SMI diagnoses (defined here as including schizophrenia, bipolar disorder, as well as major depressive disorder (MDD) or PTSD if associated with a psychiatric hospitalization during FY2012); veterans with OMI, and veterans with NMI. We also compare ED use across these three groups for medical, psychiatric and substance abuse diagnoses, both as three broad diagnostically defined classes of services use and for selected diagnoses within each class. Understanding the illnesses for which people with SMI and other mental illnesses are most likely to seek ED care may provide a useful step towards elucidating the needs that drive their frequent ED use and towards developing clinical and health system interventions that may improve care for this vulnerable population.

2. Methods

2.1. Sample, sources of data and subgroup definition

This study is based on an analysis of national VHA administrative databases that include data on all 5.4 million VHA veteran services users for FY 2012. Sociodemographic and diagnostic data were obtained from the Outpatient Encounter File (which contains data on all VHA outpatient clinic and ED visits nationwide) and the Patient Treatment File (which documents all episodes of VHA inpatient care). Patient data were linked across databases with unique scrambled social security numbers, which ensured accurate data matching.

VHA service users were classified into 3 groups, veterans with: serious mental illness (SMI), other mental illness (OMI), and no mental illness (NMI). Veterans with SMI were defined as those who had a diagnosis in *any* inpatient service or outpatient clinic (including the ED) during FY 2012 for any of the following: schizophrenia (ICD 9 codes 295.xx, 297.xx-299.xx), bipolar disorder (296.0x, 296.1x, 296.40–296.89), or major depressive disorder (MDD) (296.2–296.39) or posttraumatic stress disorder (PTSD) (309.81). The latter two diagnoses were categorized as SMI only if associated with a FY 2012 psychiatric hospitalization. Veterans classified as having other mental illness (OMI) consisted of veterans with no SMI diagnosis who were given any other diagnoses of mental illness at any visit during FY2012 (290.00–312.99 or 310.xx or 331.xx excluding 305.1). The remainder of the sample was classified in a third group as having no diagnosis of mental illness.

In an initial set of analyses we examined ED use among all VHA service users. In a further series of analyses, we examine patient characteristics and specific services used by veterans who had used any VHA ED services in FY2012 (N = 488,463). Data were extracted on diagnoses specifically recorded during ED visits in this sub-group.

2.2. Measures

2.2.1. Demographics

The following demographic information was identified for each veteran: age, gender, race (i.e. white, black, unknown/other/mixed), ethnicity (i.e. Hispanic or not), residential location (i.e. urban vs. rural), level of service-connected disability (<50% or ≥50%), receipt of a non-service connected VA pension (the means-tested VA disability program), and homelessness. Residential location was determined based on individual zip code data and the Rural-Urban Commuting Area codes developed in 1998 at the University of Washington (depts.washington.edu/uwruca). Homelessness was identified through a combination of specialized VA homeless program service use codes in FY2012 and/or a V60.0 ICD-10 diagnostic code that reflected lack of housing.

2.2.2. Diagnoses

Diagnoses were based on current clinical diagnoses as recorded in the VA Computerized Patient Record System (CPRS) in FY2012.

Data on psychiatric diagnoses included all ICD-9 codes 290.00 through 319.99. These were grouped as schizophrenia (ICD 9 codes 295.xx, 297.xx-299.xx), bipolar disorder (296.0x, 296.1x, 296.40–296.89), major depressive disorder (MDD) (296.2–296.39), posttraumatic stress disorder (PTSD) (309.81), dementia (290.00–290.99; 294.10, 331.00), alcohol dependence (303.xx or 305.00), drug dependence (292.01–292.99 or 304.xx or 305.20–305.99), other depression including dysthymia (300.4x, 296.9x, 311.xx, 301.10–301.19), anxiety disorder (300.xx excluding 300.4), adjustment disorder (309.xx excluding 309.81), personality disorder (301.0x or 301.2x to 301.99), and "other psychiatric disorder" (290.00–312.99, excluding 305.1 (nicotine dependence) and the 11 diagnoses classified previously).

Specific non-psychiatric medical disorders were selected according to their inclusion in the Charlson comorbidity index [15], which was originally developed to predict one-year mortality and are identified from standard ICD-9 diagnostic codes. Additionally, several other medical problems not included in the Charlson index but common among people with psychiatric disorders are included (i.e. seizures, insomnia, narcolepsy, and pruritus), as well as some pain-related diagnoses (presented in Table 4).

2.2.3. Health service use

Measures of health service use quantified outpatient mental health specialty care visits, substance abuse clinic visits, medical-surgical visits and emergency department visits, identified by standard VHA clinic stop codes. Patients who experienced a psychiatric hospitalization during the year were identified through relevant bed section codes. ER visits were classified into levels of 0 visits, 1 visit, 2–4 visits, or >4 visits.

2.3. Analysis

Analysis proceeded in five principal steps. First, we examined general patterns of ED use among all FY 2012 VHA service users based on mental health diagnostic group by comparing the proportion of veterans in each diagnostic group in each of five categories of ED use (any ED visit, 0 visits, 1 visit, 2–4 visits, or>4 visits).

Second, we compared ED users in the three diagnostic groups broadly on socio-demographic measures and service use characteristics other than ED use.

Third, among the subgroup who used any ED services in FY 2012, we compared the three groups on the average number of total ED visits, average ED visits for medical diagnoses, average ED visits for all mental health diagnoses, first considering psychiatric and substance abuse together, then each type of ED use separately.

Fourth, within the subgroup of ED users we compared the three diagnostic groups on the proportions with any visits for selected individual medical and psychiatric diagnoses.

In the analysis of large samples such as this, p values would be oversensitive and not likely to reflect clinically relevant differences. Thus, risk ratios (RR) were used to compare the three diagnostic groups on dichotomous variables, with a RR ≥ 1.5 or ≤0.66 used as the threshold for substantial effect sizes.

Continuous variables were compared using Cohen's d (the difference in means divided by the pooled standard deviation). A Cohen's d of at least 0.2 was taken to denote an effect size that was considered to represent at least a small difference [16].

Finally, to identify the extent to which selected measures may mediate differences between groups in total ED use, a series of analyses of