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NATIONAL TRENDS IN EMERGENCY DEPARTMENT VISITS BY ADULTS WITH MENTAL HEALTH DISORDERS

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☐ **Abstract—Background: Although mental health disorders (MHDs) affect as many as 1 in 4 adults in the U.S., the national trends in emergency department (ED) use for adults who have MHD comorbidities are unknown. Objective: To evaluate the role of mental health disorder co-morbidities for adults who use the ED and how this utilization differs by insurance type. Methods: This is a retrospective analysis of the National Emergency Department Survey (NEDS) dataset of adults 18 to 64 years of age that was conducted from 2006 to 2011. We defined individuals with MHD comorbidities by applying the MHD Clinical Classification Software groupings to any of the 1 to 15 diagnostic fields available in the NEDS. We further evaluated ED visits made for a primary diagnosis of MHD by applying the same aforementioned codes to the primary diagnosis. We constructed ED visit rates using the U.S. Census Bureau's Current Population Survey. We used descriptive statistics and tested for differences in trends in visits and visit rates by payer using an ordinary least squares regression. Results: The number of ED visits increased by 8.6% from 2006 to 2011. The number of ED visits made by adults primarily for MHDs and with MHD comorbidities increased by 20.5% and 53.3%, respectively ($p < 0.0001$); ED visits made adults without MHDs decreased by 1.1% ($p = 0.72$) for the same time period. When accounting for the population growth rate, ED visit rates made by adults with MHD comorbidities increased for all insurance types, but decreased for those without MHD comorbidities. Conclusion: MHD comorbidities play a significant role in the increasing number of ED visits, regardless of insurance coverage. Additional studies are needed to understand the role of patients with MHDs and ED use.** © **2016 Elsevier Inc. All rights reserved.**

☐ **Keywords—emergency department visits; mental health; trends**

INTRODUCTION

Mental health disorders (MHDs) affect as many as one in four adults in the United States (1). When compared with those without MHD comorbidities, individuals with MHD comorbidities have higher rates of hospital use, not just for MHD, but also for exacerbations of other co-occurring chronic diseases (2–4). In fact, rates of avoidable hospital admissions are higher for vulnerable populations who have MHD comorbidities when compared with those who do not have MHD comorbidities (5,6).

Previous studies evaluating trends in avoidable emergency department (ED) use focused on adult ED visits related to ambulatory care–sensitive conditions (ACSCs) and differences in ED use by insurance type (7,8). Studies evaluating the role of MHDs for patients using the ED focused on describing trends in MHD-related ED visits for adults, such as visits to the ED made primarily for an acute exacerbation or new diagnosis of a mental health disorder (9–11). However, those studies did not evaluate

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trends in ED visits made by adults who have MHD comorbidities. The latter is important to understand because individuals with MHD comorbidities do not just seek health care for MHD-related issues, but also for physical conditions that are exacerbated by having MHD comorbidities, such as a patient with chest pain that is caused by anxiety. Yet many ED-based care coordination programs highlight the need to incorporate behavioral health treatment for patients at risk for repetitively using the ED (12–14).

Emergency medicine is an evolving field, and as we expand access to behavioral health services, the ED may be the ideal place to conduct MHD screening or provide behavioral health interventions for individuals who suffer from MHDs—regardless of the reason for their ED visit. Understanding adult ED use patterns over time for those with MHD comorbidities by insurance type have important clinical and policy implications. Therefore, in this study we describe national trends of ED visits made by adults who use the ED primarily for a MHD diagnosis and who have MHD comorbidities, and how they differ by insurance type using the National Emergency Department Sample (NEDS).

METHODS

We conducted a retrospective analysis of the NEDS ED visits, the largest all-payer claims database in the United States, by adults 18 to 64 years of age during the years 2006 to 2011. We defined ED visits made by adults with MHD comorbidities by applying the MHD Clinical Classification Software (CCS) groupings (i.e., 650–652, 656–659, 662, and 670) to any of the 15 diagnostic fields available in NEDS (15). All ED visits were stratified by age, sex, and insurance status. To determine the percent of ED visits made primarily for MHD, we used the same aforementioned CCS codes and applied them to the primary diagnosis. We categorized the primary and secondary payer sources based on previously published hierarchical algorithms, and included only ED visits covered by the following four insurance types: Medicare, which includes the dual eligible; Medicaid; private insurance; and uninsured (16). ED visits listing MHD comorbidities were defined as an ED visit by a patient with one or more MHD CCS diagnosis, as described above.

We assessed ED visit rates using the U.S. Census Bureau's Current Population Survey. We calculated rates of ED visits by insurance type from 2006 to 2011. We used descriptive statistics and tested for differences in trends in visits and visit rates by payer using weighted chi squared tests and ordinary least squares regression. Linear regression was used to evaluate the trend in ED visits listing MHD comorbidities versus ED visits not listing MHD comorbidities. To determine national estimates, we used the weights supplied in the Healthcare Utilization Project/NEDS data and used the SURVEY command in Stata software (version 13; StataCorp, College Station, TX) for all analyses. Statistical significance was noted at $p = 0.05$. The study was reviewed by our institutional review board and was determined to be exempt.

RESULTS

There were an estimated (weighted) 66.3 million and 72.0 million ED visits made by U.S. adults in 2006 and 2011, respectively, resulting in an overall 8.6% increase in ED visits ($p < 0.0001$; Appendix Table 1). ED visits covered by Medicaid insurance had the largest increase from 2006 to 2011 (38.2%; $p < 0.0001$), followed by those covered by Medicare (30.4%; $p < 0.0001$; Appendix Table 1). We did not find a statistically significant trend for visits covered by either private insurance or those without insurance.

There were an estimated 12.0 million and 18.4 million ED visits for 2006 and 2011, respectively, for adults with MHDs, resulting in an increase of 53.3% ($p < 0.0001$). The percentage of ED visits by adults with MHD comorbidities rose from 17.5% (95% confidence interval 16.2–20.3%) of all ED visits in 2006 to 25.6% (95% confidence interval 23.0–28.4%) in 2011. Adults seeking ED care primarily for MHDs increased by 16.5% ($p < 0.05$). Over the same time period, ED visits made by adults without MHD comorbidities decreased by 1.1% ($p = 0.72$; Appendix Table 1).

Most importantly, when accounting for the population growth rate, ED visit rates made by adults with MHD comorbidities increased for all insurance types (Table 1). However, ED visit rates made by adults without MHD comorbidities either remained stable or decreased for all insurance types (Table 1). ED visit rates made by adults with MHDs and covered by Medicare and Medicaid were significantly higher than those who were uninsured or privately insured (Table 1).

DISCUSSION

We found that in 2011, one in four ED visits in the United States were made by adults with MHD comorbidities. This MHD comorbidity rate is similar to that of the U.S. population. More importantly, when accounting for the population growth rate, while ED visit rates made by all adults with MHD comorbidities increased from 2006 to 2011, regardless their insurance status, ED visit rates did not increase over the same period of time for adults without MHD comorbidities. Our results based on all conditions are consistent with the Agency for Healthcare Research and Quality's analysis of the Healthcare Utilization Project/NEDS data (17).