The Association Between Behavior Disorders and Return Visit to the Emergency Department

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Abstract

Overcrowding of emergency departments (EDs) by behavior disorder patients is prevalent. The purpose of this quantitative study was to address whether a relationship exists between psychotic and/or substance abuse disorders and repeated ED visits within 72 hours. The cross-sectional archival data from the 2016 National Ambulatory Medical Care Survey was analyzed by univariate tests and multiple logistic regression analysis. The primary independent variables were statistically significant in unweighted univariate analyses. These findings were not confirmed by weighted multivariate analyses. Results should be treated with caution but suggest a need for outpatient interventions targeted at persons with psychotic and/or substance abuse disorders. (Health Care Management Research Digest, Vol 1 (2020-2021)

Introduction

In the United States, as many as one in four adults have behavior disorders (Capp et al., 2016). Patients with behavior disorders use the emergency department to treat other comorbidities that are exacerbated by their behavior disorders. The comorbidities that are exacerbated by the patients with behavior disorders include anxiety, homelessness, and substance abuse (Capp et al., 2016). The youth and adolescent population with behavior disorders experience a high rate of repeated emergency department use and suffer from lack of insurance and poverty (Gill et al., 2016).

Extensive empirical research supports the prevalence of emergency department overcrowding due to mental health patients and outcomes related to their treatments (Nok et al., 2016). However, there is minimal empirical research showing the correlation between specific behavioral disorders and the repeated use of the emergency department. Patients who suffer from behavior disorders such as substance abuse, mental health disease, and alcoholism show repeated use of the emergency department as a primary care source (Nok et al., 2016). That patient population is seen in the emergency department so frequently that their care is being mishandled or goes unnoticed (Soril et al., 2015). According to Gill et al. (2016), more than 76% of patients, both youth and adults, have their first contact with the emergency department due to the lack of access to outpatient facilities to treat their behavior disorder. According to the Substance Abuse and Mental Health Services Administration (SAMHSA; 2016), 93% of people with behavior disorders and mental health disorder conditions are aged 12 years or older go without the proper treatment.

My purpose in this study was to establish if a relationship existed between psychotic and substance abuse disorders repeated emergency department visits within

the last 72 hours after controlling for age, gender, race/ethnicity, insurance coverage, homelessness, and rural/urban areas (Lam et al., 2016; Lee et al., 2017; Soril et al., 2015).

The theoretical framework for the analysis was the Andersen Behavioral Model of healthcare use (Andersen, 1995). Andersen stated that there exist patterns of use dependent on factors such as illness levels, age or sex composition, presence or absence of health facilities, and income. In the model, Andersen further stated that there are three determinants of healthcare use: predisposing, enabling factors, and perceived need factors. The Andersen Behavioral Model of Health Care supported my study by aiding the connection between specific behaviors disorders and repeated emergency room use. Among those behavior disorders, this study reviewed the following covariates: age, gender, race/ethnicity, insurance coverage, homelessness, and rural/urban areas (Lam et al., 2016; Lee et al., 2017; Soril et al., 2015). The covariates that fell within the predisposing factor were gender, age, and race/ethnicity. The covariates deemed to be enabling factors were homelessness, insurance coverage, and rural/urban areas. Need factors were the psychotic and substance abuse diagnoses.

Literature Review

A national survey reported 93% of people with behavior disorders and mental health disorders aged 12 years or older went without proper mental health treatment through outpatient facilities, which resulted in emergency department visits (SAMHSA; 2016). Many patients with behavior disorders had other contributing factors such as homelessness, substance abuse, insurance issues, and demographic limitations that contribute toward increased emergency room visits (Bharel et al., 2017).

Duseja et al. (2015) attempted to address revisit rates to the emergency department or hospitals after an index emergency department visit. They used secondary data from the Healthcare Cost and Utilization Project (HCUP), State Emergency department Database (SEDD), and State Inpatient Database (SID) to measure the rate of revisits to the emergency department for adults who were discharged to their homes after an index emergency department visit. The results provided from the study showed that the revisit rate within 3 days or 72 hours was 8.2% with a 29% of the revisits involving an admission and 32% of revisits occurred at a different hospital from the index emergency department visit (Duseja et al., 2015). Duseja et al. further stated that cost of revisits were greater than the index visit costs of patients with and without revisits by 117.7%. The findings of this study showed that revisits are expensive and seemed to be twice as frequent as the index emergency department visit.

Gill et al. (2016) examined whether behaviors disorders increase use of the emergency department. The focus was on a tri-level of areas based on several different aspects. The first level investigated whether or not patients with specific behavior disorders tended not to receive treatment in an outpatient facility. The second level investigated whether patients with particular behavior disorders resorted to using the emergency department due to the location. The final area identified what the causes were for the patients with specific behavior disorders, ultimately using the emergency department as a source for primary care (Gill et al., 2016). The findings of this study

showed that patients with behavior disorders felt that the emergency department was necessary method for treatment.

Smith, Stocks, and Santora (2014) sought to understand what caused hospital readmission and emergency department revisits amongst community hospitals in 12 states. The covariates used were patient demographics (age, gender, socioeconomic, and race/ethnicity), insurance type, number of prior year hospital stays, and diagnoses. The primary data source was from the HCUP, along with data analyzed from the State Inpatient Databases, and the SEDD. The conclusion of this study showed that a high rate of hospital readmissions and emergency department revisits were more likely to occur when certain diagnosed conditions existed, such as alcohol or drug dependence, dementia, psychotic disorders, autism, impulse control disorders, and personality disorders. This was the only prior study found that tested behavioral disorders as predictors of emergency department revisits.

Sangil et al. (2017) established the multiple risk factors associated with patients returning early to the emergency department and inpatient admissions. Sangil et al. used the Optum Labs Data Warehouse database that used patient discharge data. This study used covariates of age, sex, the number of chronic conditions using Hwang index (0,1,2,3,4,5+), race/ethnicity, non-mental health-related emergency department use, and primary mental health and substance abuse diagnoses (MHSA). This study also analyzed more than 350,000 emergency department patients treated for mental health diagnosis. The study concluded that the lack of inpatient psychiatric bed capacity contributed to higher services use by patients with mental health diagnoses.

The study conducted by Capp et al. (2016) evaluated adults with mental health disorder comorbidities that frequently presented to the emergency department and does the population differed based on insurance type. Capp et al. stated that the study consisted of evaluating primary and secondary insurance payers by isolating age groups from 18 to 64 years. Capp et al. (2016) used secondary data from the U.S. Census Bureau's Current Population Survey to ascertain statistical significance between payer types. The findings of the study showed that Medicaid and Medicare covered patients with mental health disorders were significantly higher users of services (Capp et al., 2016).

Sirotich, Durbin, and Durbin (2016) established the prevalence of repeated emergency department use for mental health reason among those individuals enrolled in an intensive care management program and experiencing sociodemographic, diagnostic, and service needs in a cross-sectional study of 2611 patients

Castner et al. (2015) examined the correlation between behavioral health diagnoses (psychiatric and substance abuse) and frequent emergency department use. Castner et al. used four cohorts that consisted of healthy, at risk, chronic, and system failure. The dependent variables used in this study were low, moderate, or frequent emergency department use. The independent variables used were psychiatric diagnoses, substance abuse, smoking, age, gender, and number of non-emergency department outpatient visits. The authors determined that Medicaid patients with psychiatric diagnosis and had a substance abuse disorder were at higher risk of having frequent treat and release use of the emergency department (Castner et al., 2015).

Methods

Data from the National Hospital Ambulatory Medical Care Survey 2016 (NHAMCS) were used for this study. The archived data set initially was comprised of 19,410 weighted patient records. A total of 281 records were not included due to incomplete or missing data. The G*Power analysis required a minimum sample size of 347 and a two-tailed test total of 1.95 (Power = 0.80, Alpha = 0.05, and Odds Ratio = 2.0). The study was approved by the university IRB.

The independent variables were psychosis disorder diagnosis and substance abuse disorder. Both were scored as yes or no. The dependent variable was whether or not there are repeated visits to the emergency department within 72 hours of the first ED visit (yes or no). Covariates age, gender, race/ethnicity, insurance coverage, homelessness, and rural/urban areas.

After cross-tabulation to test for univariate associations, multiple logistic regression analysis in SPSS was used to test for associations between the two independent variables and return to the ED while controlling for covariates. Two random samples were selected and the models were estimated separately for both to validate the findings.

Findings

Tables 1 through 3 present the descriptive statistics of weighted samples. In A total of 256 patients had psychotic disorders in Random Sample 1, (2.6% out of a weighted total of 9,699 observations) and in Random Sample 2, 267 patients had psychotic disorders (2.7% out of a total of 9,711). In Random Sample 1, 165 patients had substance abuse disorders (1.7%) and Random Sample 2, 183 patients had substance abuse disorders (1.9%). As noted in table 3, a total of 287, or 3%, of survey participants were seen repeatedly in the ED within 72 hours in Random Sample 1 and in Random Sample 2, a total of 291 survey participants were seen repeatedly in the ED within 72 hours (3%).

Table 1

Frequency Distribution of Psychotic Disorder Demographic Variables Among Study Subjects (N=19,410)

	Random Sample 1		Random Sample 2	
Variable	Frequency	%	Frequency	%
Psychotic Disorder (*N=19,410)*				
No = .00	9445	97.4	9444	97.3
Yes = 1.00	254	2.6	267	2.7

Table 2

Frequency Distribution of Substance Abuse Disorder Demographic Variables Among Study Subjects (N=19,410)

	Random Sample 1		Random Sample 2	
Variable	Frequency	%	Frequency	%
Substance Abuse Disorder (*N=19,410)*				
No = .00	9534	98.3	9528	98.1
Yes = 1.00	165	1.7	183	1.9

Table 3

Frequency Distribution of Seen in ED within 72 hours Demographic Variables Among Study Subjects (N=19,410)

	Random Sample 1		Random Sample 2	
Variable	Frequency	%	Frequency	%
Seen in ED within 72 hours (*N=19,410)*				
No = .00	9412	97.0	9420	97.0
Yes = 1.00	287	3.0	291	3.0

The analysis also included age, gender, race/ethnicity, insurance coverage, homelessness, and rural/urban areas. The most common age group was ages 25 to 44 years. The sample was over fifty-percent female. Over 90 percent reported living in a private. Medicaid was the most common payer at 36 percent. About 59 percent were Non-Hispanic White. About 34 percent were located in the south. Finally, over 85% were located in metropolitan areas.

Psychotic disorder was significantly associated with return visits only in the second sample in unweighted tests (*p*-value=.021, Table 4). Substance abuse disorder also was significant in sample 2 (*p*-value=.023). Also significant was geographic region (*p*-value=.032). Not significant were age, gender, ethnicity, residence, metropolitan area, and pay type.

Table 4
Unweighted Two-Way Table Results- Repeated ED Visits within the last 72 Hours and Independent Variables- Random Sample 2

Variables	Repeated ED Visits within the last 72 Hours						
	Yes		No				
	N	(%)	*N*	(%)	Pearson Chi-Sq	*p-value*	Likelihood Ratio
Age							
Under 15 years	49	17.8	1750	19.1	10.419	.277	11.725
15-24 years	48	16.2	1351	14.2			
25-44 years	91	30.3	2565	26.7			
45-64 years	73	26.4	2270	24.0			
65-74 years	13	3.9	708	7.7			
75 years and over	17	5.4	776	8.3			
Patient Residence					15.208	.069	11.188
Blank	3	1.5	87	0.8			
Unknown	2	2.9	90	2.2			
Private residence	263	88.2	8844	93.0			
Nursing home	5	2.8	130	1.4			
Homeless/shelter	13	2.7	123	0.9			
Other	5	2.0	146	1.6			
Gender					.483	.464	.482
Female	146	52.5	5120	54.6			
Male	287	50.8	4244	44.5			
Ethnicity					1.654	.829	1.616
Non-Hispanic White	169	58.9	5555	59.9			
Non-Hispanic Black	54	19.8	2059	20.9			
Hispanic Non-Hispanic	57	18.5	1389	15.8			
Other	11	2.8	417	3.4			
Psychotic Disorder					8.423	.021	6.524
Non-Psychotic Disorder	277	94.7	9167	97.5			
Psychotic Disorder	14	5.3	253	2.5			

Substance Abuse Disorder					4.650	.023	3.638
Non-Substance Abuse	281	96.7	9247	98.4			
Substance Abuse	10	3.3	173	1.6			
Geographic Region					25.925	.032	27.353
Northeast	45	17.6	1452	17.0			
Midwest	70	27.6	2229	21.8			
South	67	22.4	3222	36.8			
West	109	32.4	2517	24.4			
Metropolitan Area					.003	.977	.003
Non-Metropolitan Area	40	19.9	1346	19.8			
Metropolitan Area	251	80.1	8074	80.2			
Pay Type					13.168	.136	12.962
Medicare	42	13.4	1748	18.2			
Medicaid	128	44.0	3356	33.9			
Private insurance	68	21.3	2534	25.3			
Self Pay	25	8.4	796	8.4			
Other	28	12.9	986	14.1			

Discussion

The findings of this study do not provide strong support for the hypotheses. Psychotic disorders and substance abuse only were significantly associated with returns to the emergency department within 72 hours in univariate unweight analyses. This was found in only one of the two samples. Weighted multivariate analysis did not confirm these associations.

These results are consistent with the research literature. A study by Gill et al. (2016) determined that their findings that mental illness was not associated with repeated ED visits might have been due to failure on the part of the patients to disclose all of their demographic information. Cheung et al. (2015) found no association between substance dependence and emergency department use or hospital admission among the homeless adults with mental disorders. Van Doren et al. (2016) reported, in North Carolina, that mental health and substance abuse accounted for a small portion of the discharges and did not show a relationship between discharge and repeated ED visits

within the last 72 hours.

Analyzing cross-sectional rather than longitudinal data might have obscured the relationship between psychosis and ED returns and also between substance abuse and ED use. Also, patients may have traveled to different Eds, thus masking their return visits. Finally, some disorders might cause patients to avoid returns to the ED, even when they are needed in the last 72 hours.

Despite these limitations, significant associations between psychotic disorders, substance abuse disorders and emergency department revisits were found in unadjusted, unweighted analysis. These significant associations suggest that efforts to improve outpatient and community-based care for persons with psychosis or substance abuse disorders might reduce ED visits by persons with these diagnoses.

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