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Prevalence of Substance Misuse and Psychiatric Disorders in Patients Who Frequent the Emergency Department

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Abstract

Background

Emergency Department (ED) overutilization is a major health systems problem. Understanding frequent ED utilizers better and developing appropriate interventions for these patients will significantly improve health care delivery and cost efficiency.

Study Objectives

Identify demographic and clinical characteristics in patients who frequent the emergency department with pain complaints.

Methods

Retrospective electronic medical record review. Included 275 patients aged ≥18 years with >3 ED visits in a 6-month period prior to enrollment in a city-wide ED care coordination program between February 1, 2006 and November 1, 2010. Records from six months before and after enrollment were reviewed for age, gender, history of substance misuse or psychiatric disorders, and the types of chief complaint.

Results

Pain complaints accounted for 74.8% of all chief complaints prior to enrollment. 56.4% of patients reported a history of substance misuse and 62.6% of those reported a history of polysubstance misuse. Opioids were the most misused substance. 29.8% of patients had a documented psychiatric diagnosis, with personality disorders being the most prevalent. 24.4% had a history of co-occurring substance abuse and psychiatric diagnoses. However, having a psychiatric diagnosis was the only statistically significant variable that predicted excessive ED visits.

Conclusion

Most frequent users with pain complaints tend to have one or more comorbid substance misuse or psychiatric diagnoses. Screening for mental illness and substance abuse is warranted. Mental health, substance abuse treatment options, and referrals are needed to address patients frequenting the ED with pain complaints in order to reduce utilization and provide better care.

Keywords: Emergency Department; Frequent Users; Psychiatric Disorders; Substance Misuse.

Introduction

Overcrowding of the Emergency Department (ED) has been an ongoing issue for hospitals across the nation. It is a multifactorial matter and individuals that frequent the ED are contributing to this problem [1,16]. The ED is a high-cost resource and managing its utilization is a potential point of intervention.

Frequent ED use has been heavily researched over the past several years. The previous generally accepted definition was 4 or more visits in a given year, although there is no objective threshold to support this number. In one study, the definition of five attendances or more per year corresponded to a non-random event [11]. According to Doupe, a recent study using characteristic differences based on the number of ED visits, they defined frequent ED users as 7 to 17 visits per year and highly frequent ED users as ≥18 visits [11,12]. Nevertheless, there is no standard definition of frequent use.

Frequent users are a complex and heterogeneous group of patients. They tend to be uninsured from a low socio-economic level [1,3,7,18,22], have a higher acuity or chronic illness [1,7], have a higher morbidity and mortality compared to non-frequent users [18,19], have higher rates of drug and alcohol abuse [7,8,11,12,19], and have higher incidences of mental health issues [11,18,19,20,22]. In Doupe's study, highly frequent users are a more homogeneous group characterized by a high prevalence of substance abuse, mental health issues, and unlike frequent users appear to use EDs in place of other health care services [12]. These patients have traditionally been difficult to deal with, utilizing resources, and increasing costs and frustrations for ED providers.

This study sought to describe the characteristics of the individuals enrolled in a city-wide ED care coordination program who frequent the ED. Records of patients with frequent ED visits enrolled in a citywide ED care coordination program were analyzed to determine if patterns existed that could help identify risk factors and co-morbidities in this population. This could then assist in developing treatment strategies for patients that frequently utilize the ED.

Overcrowding → Frequent users → Definition of FU → Who are these patients → Mental health and substance abuse issues → Purpose of study

Methods

This was a retrospective electronic medical record review. The study was approved by appropriate local review boards.

Setting

The setting was a city-wide ED care coordination program, which focuses on reducing ED visits made by individuals frequently utilizing the ED [9]. Patients are referred by ED staff or community medical staff. In brief, this program utilizes an electronic health record system combined with an ED care coordination model. Emergency departments are linked by a shared regional hospital information system which can track patient ED utilization patterns, compile historical patient data (e.g., diagnoses, medications, allergies, discharge summaries), manage patient care by providing ED providers with immediate access to ED care guidelines, and document treatment interventions provided to the patient. The city-wide ED care coordination program provides a concise medical summary for each of its enrolled patients with recommendations for ED care in the form of ED Care Guidelines for each enrolled patient [9].

Patient Selection

Records were included from patients who were aged ≥18 years, had more than 3 visits in 6 months prior to enrollment in the care coordination program, and who were enrolled in the program anytime during February 1, 2006 to November 1, 2010 (n=275). Exclusion criteria included 1) patients not enrolled in the program, 2) patients enrolled, but not presenting with a pain complaint or 3) patients enrolled due to exhibiting behavior that posed a threat to ED staff. Medical records during the 6 months (182 days) before and after the patient's enrollment date were reviewed and included in analysis.

Data Extraction

Patient information was accessed via an electronic health record Data and was manually extracted from the hospital information system by an un-blinded researcher (MD). Participants were assigned a confidential, unique identifier prior to data analysis. Demographic data elements included age, gender, and number of visits. Chief complaints for each patient visit were categorized by the most common 20 clinical presentations and coded as pain-related or not. Substance misuse was coded positive if a notation was found in the History of the Present Illness, Social History and/or History of Substance Abuse sections of the transcribed notes. This clinical information was then categorized into one of the following groups: opioid, THC, stimulant, alcohol, and polysubstance abuse (>2 substances noted in the chart). Psychiatric diagnoses were obtained from psychiatric consultation notes recorded in the hospital information system by hospital staff psychiatrists. Only DSM-IV Axis I and Axis II diagnoses were included. Psychiatric diagnoses were categorized into the following groups: personality disorder, depression, anxiety, mood disorder NOS, bipolar disorder, adjustment disorder, schizophrenia and other psychotic disorders. Personality disorders were grouped together and included borderline, narcissistic, antisocial and dependent. Other Axis I or II disorders included factitious disorder, malingering, childhood onset disorders, and mental retardation.

Statistical Analysis

After descriptive analyses, logistic regression analyses were used to test the predictive ability of psychiatric and substance misuse conditions on frequency of ED visits, controlling for age and gender. Interaction effects were also tested among subgroups of psychiatric disorder (yes/no),

substance misuse (yes/no), age, and gender. The category of frequent use was defined as >15 visits. The rationale for this definition was based on the literature and on our distribution of visits. Ultimately, our cutoff score was established to allow for sensitivity in identifying those individuals with "highly frequent" ED use in the 6-month timeframe.

Results

Table 1 presents basic demographic and clinical characteristics of patients enrolled in the city-wide ED care coordination program. Pain complaints accounted for 74.8% of chief complaint presentations to the ED during the six months prior to enrollment. The top three presenting chief complaints were abdominal pain, headache, and back/neck pain. These three presentations comprised 40.9% of all chief complaints in this sample, followed by extremity, body part, and dental pain. The top six chief complaints were pain-related and accounted for 58.3% of all chief complaints prior to enrollment.

Demographic	**Male**	**Female**	**Total**
Variable	-77	-198	-275
Gender (%)	28	72	100
Age (Mean (S.D.))	38 (11)	35.5 (10.5)	36.3 (10.7)
Visits Before Enrollment (Mean (S.D.))	18.2 (11.1)	16.8 (11.7)	17.2 (11.5)
Total Visits	1401	3328	4729
Pain Complaints (# (%))	1031 (73.9)	2505 (75.3)	3536 (74.8)

Table 1. Demographics

Visits Before Enrollment: 6-Month Period
Abbreviations: SD = Standard Deviation, ED = Emergency Department

Rates of substance misuse, psychiatric diagnoses, and co-occurring disorders in patients enrolled in the city-wide ED care coordination program are presented in Figure 1. Psychiatric diagnoses were documented in 30% of patients and substance misuse in 56% of patients. Co-occurring substance misuse and psychiatric diagnoses was found in 24% of the patients.

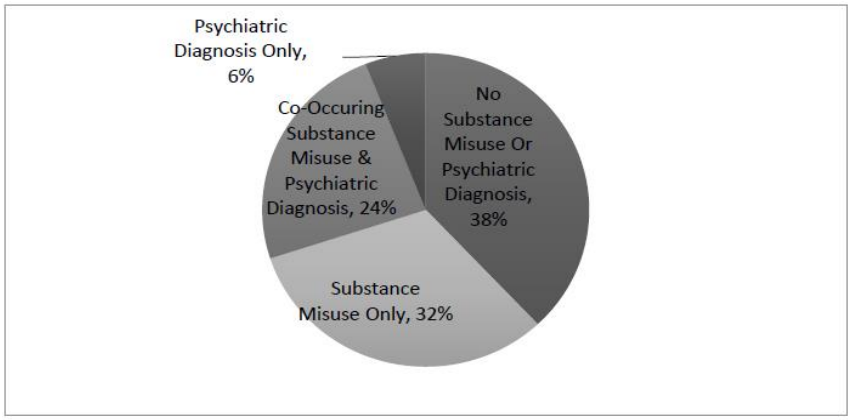

Figure 1. Rates of Substance Misuse and Psychiatric Diagnoses

A breakdown of psychiatric diagnoses is found in Table 2. Most patients had multiple Axis I or Axis II psychiatric diagnoses (90%). While personality disorders taken together were the most common psychiatric diagnosis, depression was the most common Axis I disorder (67%). In descending order of prevalence, personality disorders included; borderline, antisocial, dependent, narcissistic and histrionic.

Psychiatric	**Male**	**Female**	**Total**
Variable	-24	-59	-82
Psychiatric Diagnosis (%)	31.2	29.2	30
- Number with Multiple Psychiatric Diagnoses (%)	79.2	93.2	90.2
- Axis I Disorders			
Depression	66.7	61	63.4
Anxiety	25	52.5	45.1
Mood Disorder NOS	37.5	35.6	36.6
Bipolar Disorder	25	25.4	25.6
Adjustment Disorder	16.7	20.3	19.5
Schizophrenia and Other Psychotic Disorders	20.8	13.6	15.9
- Axis II Disorders			
Personality Disorder	62.5	83.1	78
- Other Axis I and Axis II Disorders	50	35.6	40.3

Table 2. Psychiatric Diagnoses

Personality Disorder includes: Narcissistic, Borderline, Histrionic, Antisocial, and Dependent. Other Axis I and Axis II Disorders include: Factitious Disorder, Malingering, Childhood Onset Disorders, Cognitive Disorder, Impulse Control, Eating Disorder, Masochistic, Mental Retardation

Abbreviations: tot = total, pop = population, NOS = Not Otherwise Specified

In patients with a history of substance misuse, polysubstance use (>2 substances) was reported in 62.6% (n=97) as seen in Table 3. Opioids were the most commonly reported misused substance (12.9%), followed by THC (11.6%), alcohol (7.1%), and stimulants (5.8%). No history of substance misuse was reported in the record within the 6 months before or after enrollment in 43.6% of the sample.

Substance Misuse	Male	Female	Total
Variable	-50	-105	-155
Substance Misuse History (%)	64.9	53	56.4
Polysubstances (%)	60	63.8	62.6
Opioid Only (%)	12	13.3	12.9
Alcohol Only (%)	8	6.7	7.1
Marijuana Only (%)	16	9.5	11.6
Stimulant Only (%)	4	6.7	5.8

Table 3. Substance Misuse History

Polysubstances: include multiple substances used (>2) and general substance abuse
Abbreviations: tot = total, pop = population

In the logistic regression analyses predicting ED use, patients with psychiatric diagnoses were more likely to have greater ED use (β = -14.95, t (274) = -2.20, $p < .05$). This finding was independent of substance misuse, age, or gender. No other variables or interactions were statistically significant.

Discussion

The purpose of this study was to identify characteristics of patients enrolled in a city-wide ED care coordination program with high utilization and complaints of pain. The most striking result from this study was not only the high prevalence of psychiatric illness in this patient population, but that having a psychiatric diagnosis was the only statistically significant variable that predicted excessive ED visits. Surprisingly, in a previous study analyzing frequent ED users, 93% had at least one DSM-IV psychiatric diagnosis, with the most common being major depression, generalized anxiety disorder, adjustment disorder, somatoform pain disorder, substance abuse and dependence, and dysthymia [10]. Notably, the average number of ED visits 6 months prior to enrollment was 17.2 per patient in our study. The previous generally accepted definition of frequent ED use was 4 or more visits in a given year, but recent objective thresholds have been defined by Doupe et al using characteristic differences based on number of ED visits, labeling frequent ED users (7 to 17 visits per year) and highly frequent ED users (≥18). [11,12] Using this newer definition, patients enrolled in our study are approaching highly frequent ED use in only 6 months on average. Highly frequent ED users (≥18 visits) have been defined by their struggle with mental illness, most notably schizophrenia, and substance abuse [12].

The data presented supports previous research of the high prevalence of substance misuse and psychiatric illness in the population of frequent ED users. Roughly two thirds of patients enrolled had a substance use history or psychiatric diagnosis, with a quarter of the patients enrolled having a co-occurring substance use history and psychiatric diagnosis. This is not surprising, as studies have found substance abuse comorbidity with a psychiatric disorder in patients presenting to the ED is associated with increased ED use [8]. Since only confirmed psychiatric diagnoses were included in our study, i.e. those documented after a patient was evaluated by a psychiatrist, this highlights the issue that psychiatric illness may often go undiagnosed and untreated in a large portion of frequent ED users.

Of the 30% of patients with a psychiatric disorder in our study, Axis II personality disorders were the most prevalent, followed by depression and anxiety. Personality disorders included borderline, narcissistic, histrionic, anti-social, and dependent disorders. In general, patients with personality disorders are difficult to treat, as they frequently have mood swings, stormy relationships, social isolation, angry outbursts, poor impulse control, and suspicion or mistrust of others. Also, compared to Axis I diagnoses, which include major mental disorders, learning disabilities, and developmental disorders, Axis II diagnoses, which include underlying pervasive or personality conditions, are harder for the untrained individual to identify or recognize. Not only are personality disorders more difficult to identify, treatment is different from Axis I disorders as well. Where Axis I disorders can often be treated with medications and therapy, treatment of Axis II personality disorders focuses on psychotherapy with a lesser focus on medication. Personality disorders typically utilize psychoanalytic psychotherapy, dialectical behavior therapy, group psychotherapy,

family therapy, and supportive psychotherapy, whether in an inpatient, partial inpatient, or outpatient setting as the primary treatment. The ED is not situated to effectively treat these patients over the long term.

Pain complaints dominated in our study, accounting for 74.8% of all chief complaints. Over half the patients with a substance use history reported poly-substance use, and opioids were the most prevalent substance abused. Abdominal pain was the top pain complaint. Interestingly, abdominal pain is a common symptom of opioid withdrawal. This merits further investigation into patients that frequent the ED with abdominal pain complaints, and whether this is a classic "revolving door" scenario. Analysis of chronic pain patients presenting to the ED demonstrated a high propensity for prescription opioid abuse associated with psychiatric disorders such as panic attacks, trait anxiety, and personality disorders [13].

The prescribing of opioids to treat chronic pain in this population may be contributing to addiction. Over half of these patients (56.4%) reported a history of substance misuse. Illicit substance-using patients in the ED report more severe pain, functional interference, more psychiatric illness and mood distress, and more chronically painful conditions compared to non-substance users. [14] This shows that not only do patients who present with pain complaints have a high prevalence of substance misuse and psychiatric illness as demonstrated by our study, individuals with a substance misuse history have more pain and psychiatric illness in general. In addition, a large percentage of chronic pain patients presenting to the ED for opioid refills are at risk for aberrant drug-related behaviors, as well as a history of drug dependence other than opioids [13].

Mental illness and addictions are not properly addressed and treated in the acute setting of the ED. A gap analysis in a recent study setting out to prioritize evidence-based quality of care indicators for the ED found the top priority indicators did not include screening for mental health problems or addictions [15]. With such a high prevalence of substance misuse and psychiatric illness in patients who frequent present to the ED with pain complaints, providers in the ED would benefit from resources and referral options to better treat these individuals. Furthermore, patients who frequent the ED with high number of visits should be routinely screened for substance misuse and mental illness either in the ED or at an outpatient facility. Underlying psychiatric illness may be the patient's primary reason for frequenting the ED. Early identification of these individuals and referrals to appropriate community-based resources would likely reduce their ED overutilization. Substance misuse and psychiatric disorders are contributing factors to ED overutilization, especially in patients presenting with pain complains.

The longitudinal care of these patients will not be completed in the ED. Instead, primary care providers will need to take on the treatment of those who frequent the ED with pain complaints. By necessity, this will involve addressing all their comorbidities, including substance misuse, mental health problems, and chronic pain concerns. ED providers need to be educated about the high prevalence of mental illness in this population, how to identify mental illness and substance misuse, and treatment referral options. Psychiatric patients, particularly those with personality disorders, may be frustrating to work with. This was demonstrated by interviews of physicians treating frequent users, in which they stated this population is a source of puzzlement and frustration [10]. Increased attention on associated conditions, such as mental health and substance misuse in individuals frequenting the ED with pain complaints will facilitate appropriate referrals, proper treatment and better outcomes.

Limitations

There are two major limitations of this study to be noted. First, substance misuse history was only defined by an indication of presence or absence in the history portion of the ED provider's transcribed note. Since specific diagnostic criteria provided by a trained chemical dependency professional could not be obtained or were not included in the chart, substance misuse may have been underreported. Therefore, current presence or severity of misuse could not be accurately determined. Individuals enrolled in the program may have had a greater incidence of substance misuse than documented. However, a substantial portion of patients had no mention of misuse. A need for a more systematic and diagnostic assessment in the population is indicated.

Second, although there was an association with greater use of ED and psychiatric disorders, causality cannot be determined. It is unknown whether the diagnosis was made prior or post enrollment. It could also be that greater ED usage increased likelihood of detection and, therefore, inclusion in the program.

Conclusions

This study illustrates the complexity of problems exhibited by patients who frequent the ED for pain related complaints. Patients who frequently present to the ED with pain complaints tend to have one or more comorbid substance misuse or psychiatric diagnoses. ED providers should consider the increased risk of addiction before prescribing opioids to this population. Screening for mental illness and substance abuse is warranted in frequent ED users with pain complaints. Since the ED is not designed, nor well-suited, to properly manage chronic pain, psychiatric, or substance issues, the ED's focus should be on screening and identifying these patients in the acute care setting rather than evaluating and treating them repeatedly. The health care policy implications of this and other studies is that appropriate mental health and substance abuse treatment options and referrals are needed in order to address patients who frequent the ED with complaints of pain in order to reduce utilization.

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