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Prevalence of Psychiatric Diagnoses and Psychiatric Consultation Service Utilization on Inpatient Medical Units

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Abstract

OBJECTIVE: This practice improvement project sought to determine the prevalence of psychiatric diagnoses among patients admitted to a community hospital's inpatient medical units and which diagnoses were serviced by the hospital's psychiatric consultation service. **METHOD:** Electronic medical record data on adult patients of five medical units admitted with a psychiatric condition between October 1, 2019, and December 31, 2019, were used. Psychiatric ICD-10 (*International Classification of Diseases, 10th Revision*) codes and diagnosis names extracted were categorized into seven major diagnostic groups. A total of 687 adult patients with 82 psychiatric ICD-10 codes were analyzed using descriptive statistics. **RESULTS:** Substance-related and addictive disorders were the most prevalent psychiatric diagnoses. Ninety-six percent ($n = 658$) of patients residing on medical floors with psychiatric disorders were hospitalized for a principal medical problem. Seventy-three cases received psychiatric consultations during their stay. Sixty percent ($n = 44$) of those cases had psychiatric disorders from two or more diagnostic categories. **CONCLUSIONS:** Multidisciplinary, team-based health care delivery models that include a psychiatric nurse can provide an effective approach to treat patients in community hospitals with multiple psychiatric and medical comorbidities. Hospitals could take a significant role in providing substance use disorder treatment and equipping medical nurses with training to competently care for patients with psychiatric disorders on medical units. Further research into the prevalence and impact of patients with co-occurring and multiple psychiatric diagnoses in community hospitals is needed to implement effective health care delivery models and provide appropriate treatment options in the community.

Keywords

comorbidity, psychiatric and medical-surgical nursing, substance-related disorders, referral and consultation, hospital psychiatric department

Introduction

With limited access to mental health services and the decreased capacity of 24-hour psychiatric treatment beds (National Association of State Mental Health Program Directors [NASMHPD], 2017), community hospitals increasingly provide psychiatric care for patients experiencing a mental health crisis. In 2014, 30% of psychiatric inpatients across the United States received their care at general hospitals with separate, designated psychiatric units. Some community hospitals without distinct psychiatric units provide inpatient psychiatric care dispersed throughout their medical units. Routine data are not collected on this population to accurately ascertain the percentage treated in this setting (NASMHPD, 2017).

Patients with psychiatric conditions, including both psychiatric and substance use disorders, admitted to community hospitals for psychiatric treatment can be categorized into two groups. The first group includes those with a principal psychiatric diagnosis (e.g., major depressive disorder or alcohol dependence with withdrawal). The second group comprises those with a principal medical diagnosis (e.g., sepsis) and yet have one or more co-occurring psychiatric condition(s) such as opiate use disorder. In 2016, 2,169,000 cases were admitted to community hospitals with a primary psychiatric condition, and notably, 7,726,500 cases admitted to community hospitals fell into the latter group (Owens

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et al., 2019). Such statistics suggest a significant role for psychiatric treatment in community hospitals.

Impacts of Co-Occurring Medical and Psychiatric Conditions

Co-occurring medical and psychiatric conditions create an increased burden on patients and hospitals. Psychiatric conditions cause clinically significant distress and impairment, making it more difficult to manage co-occurring medical conditions. Psychiatric and medical comorbidities are associated with longer lengths of stay (LOS; Jansen et al., 2018; Owens et al., 2019) and higher costs (Owens et al., 2019) than a medical hospitalization without a comorbid psychiatric condition. Increased LOS impedes patient flow, reduces hospital capacity, and increases the risk of complications (Penner, 2013). In addition, general hospitals are designed for short-stay treatments of acute medical-surgical problems have a shortage of staff with psychiatric expertise (American Hospital Association, 2019), and usually lack trauma-informed approaches to effectively care for patients with psychiatric conditions (Substance Abuse and Mental Health Services Administration [SAMHSA], 2014). Finally, medical nurses often have negative perceptions and attitudes toward patients with psychiatric conditions and are unskilled in caring for this population, resulting in decreased nursing staff satisfaction (Alexander et al., 2016).

Psychiatric Treatment Models in General Hospitals

Hospital medical floors employ various approaches to meet the psychiatric needs of their patients. The most common approach is to use a conventional, psychiatric consultation service model where the medical attending physician initiates a referral when in need of a consulting psychiatrist for medication recommendations or behavioral management (Angel et al., 2016; Sledge et al., 2015; Triplett et al., 2019). As increasing numbers of patients present with co-occurring and complex medical, psychiatric, and behavioral needs, hospitals are investigating innovative, proactive, multidisciplinary team-based approaches to address their needs. These models identify patients at risk earlier, have decreased patient LOS (Angel et al., 2016; Sledge et al., 2015; Sockalingam et al., 2016; Triplett et al., 2019), and increased staff satisfaction (Sledge et al., 2015; Triplett et al., 2019).

Implementing an effective and appropriate hospital care delivery model necessitates an examination of the population being treated with psychiatric needs. Hosseini et al.'s (2020) review of 22 articles from 11 countries found mood and substance use disorders were the most frequent diagnoses receiving psychiatric consultation in general hospitals. Currently, there is limited knowledge regarding the care of patients with comorbid psychiatric conditions and the role of the psychiatric nurse on medical floors in community hospitals. The purpose of this practice improvement project was to examine the varieties of psychiatric diagnoses being admitted, understand what diagnoses were most prevalent, and which required psychiatric consultation. Research and practice implications for psychiatric-mental health nursing in a medical setting concluded our article.

Method

The project was completed at a 321-bed acute care hospital and clinic network with no specialty psychiatric unit. For a psychiatric consultation, the hospitalist would page the part-time psychiatrist on call to provide recommendations or follow the care of patients admitted for an acute psychiatric problem. A full-time, master's-prepared psychiatric nurse was on staff whose primary role was to provide nursing staff education and support with psychiatric patients and establish psychiatric treatment protocols. This project focused on the hospital's five inpatient medical units (142 beds), which experienced a significant increase in psychiatric consultation requests. The project was reviewed and approved for exempt status by the Research Oversight Committee at the hospital.

Data Collection

De-identified electronic medical records (EMRs) of adult inpatients discharged with a psychiatric ICD-10 (*International Classification of Diseases, 10th Revision*) code between October 1, 2019, and December 31, 2019, were extracted. The timeframe was selected to capture data following an EMR system upgrade. A total of 780 de-identified records were retrieved with data on psychiatric ICD-10 code and diagnosis name, admission for a primary psychiatric condition (Yes/No), and placement of a psychiatric consultation order (Yes/No) during the hospital stay. Due to the project objectives, demographic data were not collected.

Data Analysis

A total of 104 ICD-10 code and diagnosis names were extracted and categorized into seven major groups (mood disorders, schizophrenia spectrum and other psychotic disorders, anxiety disorders, trauma and stressor-related disorders, substance-related and addictive disorders, neurodevelopmental disorders, and neurocognitive disorders) for data analysis. Diagnoses with fewer than 10 cases fitting within an established diagnostic group (e.g.,

Table 1. Results by Diagnostic Groups/Disorders.

Diagnostic group/disorder	Prevalence[a] (*n*)	Principal diagnosis (*n*)	Psychiatric consultation[a,b] (*n*)
Substance-related and addictive	327	18	25
Opiate use	160	0	
Alcohol use	116	15	
Cocaine and stimulant use	58	1	
Cannabis use	28	1	
Other psychoactive substance use	15	0	
Sedative/hypnotic use	7	1	
Mood	270	2	44
Anxiety	173	0	25
Neurocognitive	70	3	12
Schizophrenia spectrum and other psychotic	57	6	18
Trauma and stressor-related	40	0	20
Neurodevelopmental	23	0	6

Note. $N = 687$.
[a]Patients may have a co-occurring diagnosis from more than one group. If patient readmitted within 90-day period, the diagnosis was counted once unless the diagnosis came from a different diagnostic group. [b]Seventy-three cases were referred for psychiatric consultation. Patients may have a co-occurring diagnosis from more than one group. One diagnosis = 29, two diagnoses = 19, three diagnoses = 19, four diagnoses = 2, and five diagnoses = 4.

personality disorders) or conditions irrelevant to overall project purpose (e.g., mood and substance use disorders in remission) were excluded. The final data set included 687 patient records and 82 ICD-10 codes and diagnoses for analysis.

Descriptive statistics were used. Frequency of diagnoses, patients with a principal psychiatric diagnosis, patients with a secondary psychiatric diagnosis, and patients referred for psychiatric consultation during their stay were calculated and presented by diagnostic group. When patients had more than one psychiatric diagnosis, all diagnoses within the same diagnostic category received one count for the frequency (e.g., a patient with bipolar disorder, opiate use disorder, and alcohol use disorder received one count for mood disorders and one count for substance-related and addictive disorders). Patients who readmitted during the 90-day period received an additional count only if the diagnosis was in a different diagnostic category than their previous admission.

Results

Among the seven major diagnoses, substance-related and addictive disorders was the most prevalent diagnostic group ($n = 327$). Specifically, opiate use disorder was the most common ($n = 160$). Mood disorders ($n = 270$) and anxiety disorders ($n = 173$) were the second and third most prevalent diagnostic groups, respectively.

Most often, the psychiatric disorder was a secondary diagnosis ($n = 658$, 96%). Only 29 patients had it listed as the principal diagnosis for their inpatient stay. Notably, 18 of the 29 patients had a substance-related and addictive disorder. See Table 1 for a detailed summary.

Seventy-three cases were referred for psychiatric consultation. Twenty-nine (40%) cases had psychiatric conditions from one diagnostic category, and the remaining 60% had psychiatric conditions from two to five categories. Of the 73 cases, only 15 (22%) cases had a principal psychiatric diagnosis. Most consultations were made for patients admitted for medical conditions.

Discussion

To provide effective psychiatric support and treatment in the medical setting, hospitals require an understanding of the diagnostic categories being seen, whether the psychiatric condition is the principal problem, and what diagnoses call for psychiatric consultation. Using the EMR data from an acute care hospital, the project provided insight into psychiatric and medical comorbidities on medical units, the use of psychiatric consultation, and nursing practice implications for patients with medical and psychiatric comorbidities.

Consistent with the literature, most patients with psychiatric conditions were admitted primarily for medical conditions. However, the percentage (96%) in our data was higher than the national average of 78.1% (Owens et al., 2019). Our sample only included adult patients (aged 18 years and older). Also, patients with primary psychiatric conditions at our hospital were frequently transferred from the emergency department directly to inpatient psychiatric units at other hospitals. These patients never reached the medical floors, the area of project focus. The age of our sample and transfer process may have contributed to the higher percentage observed in our data.

Substance-related and addictive disorders surprisingly had the highest prevalence on the medical units, followed by mood disorders. These results are consistent with Hosseini et al.'s (2020) international systematic review but differ from Owens et al.'s (2019) U.S. national sample showing depressive disorders (excludes bipolar disorders) had a higher rate compared with substance use disorders. According to a SAMHSA (2019) report, in 2018, 14.4% of adolescents aged 12 to 17 years had a major depressive episode in the past year. Owens et al.'s (2019) study found depressive disorders were the most common reason for a psychiatric or substance use disorder inpatient stay in 5- to 17-year-olds. Our strictly adult sample may have contributed to the difference. Further investigations to understand prevalence of psychiatric diagnoses by age groups on medical units are needed.

Moreover, opioids were the most common substance of abuse, followed by alcohol, in our data. In 2017, 67.8% of drug overdose death involved opioids, and from 2016 to 2017, overdose death rates involving synthetic opioids increased by 45.2% (Scholl et al., 2019). In our county, heroin treatment admissions more than doubled over the past 7 years, from 1,500 per year in 2011 to 3,400 per year in 2017. Furthermore, 44% of the respondents of a syringe exchange survey had an abscess in the past 12 months, and 31% reported skin or tissue infection (University of Washington, Alcohol and Drug Abuse Institute, 2018), suggesting an increased need for acute medical care among intravenous drug users. These emerging trends may explain the higher prevalence of opiate use disorder than alcohol use disorder admissions on our inpatient medical units.

Limitations and Strengths

Project findings are limited to adult patients admitted to medical units at an acute care community hospital in an urban setting of the Northwestern United States. We limited the data to 3 months because of their EMR system update. For that, our findings cannot account for potential seasonal variation. Despite the limitations, a significant strength is the relatively large sample size. Like others (NASMHPD, 2017), this community hospital does not have its own psychiatric unit and provides psychiatric services scattered throughout their inpatient units. This project offered a valuable opportunity to gain insights into psychiatric care provided at community hospitals not designed to treat this population.

Implications for Research

Most patients who received consultation had at least one co-occurring psychiatric diagnosis. These results suggest that patients with psychiatric comorbidities provide increased complexity and diagnostic uncertainty. Further research into treating patients with co-occurring or multiple psychiatric diagnoses in community hospitals would help hospitals provide the most effective service delivery model. Research on the prevalence of co-occurring psychiatric disorders at hospitals is also vital at the community level to understand the demand for inpatient psychiatric services for co-occurring conditions (NASMHPD, 2017).

Implications for Practice

Due to the complexity of medical and psychiatric comorbidities among inpatients, community hospitals utilizing a conventional, psychiatric consultation service model may consider moving to a proactive, team-based model of care composed of psychiatric specialists (Angel et al., 2016; Sledge et al., 2015; Triplett et al., 2019). Although our hospital staffed a psychiatrist, psychiatric nurse, and social workers, they did not function as a team, and hospitalists initiated consults via a paging system. With a proactive, team-based model, psychiatric consultation orders are placed preferably through an EMR system, directed to the team that triages requests and assigns them to the appropriate team member. Psychiatric advanced practice nurses are typically represented on the team; however, psychiatric charge nurses have also been effectively used on medical-surgical floors to lead responses to behavioral emergencies, improve patient and staff safety, and recommend medication adjustments (Zicko et al., 2017). Psychiatric nurses could fill the gap where recruitment of psychiatric advanced practice nurses is a challenge, as in a mental health professional shortage area (Rural Health Information Hub, 2020). This team-based model of care allows for more efficient use of resources, potentially faster response time, and increased staff satisfaction (Sledge et al., 2015; Triplett et al., 2019).

Given that substance use disorders (SUDs) were the most prevalent diagnostic group in our results, hospitals could strategize needs and recommendations for this population. Our psychiatric consultation service did not provide treatment recommendations for patients with SUDs. As SUDs are often undertreated in the acute care hospital setting, some hospitals have successfully responded with addiction medicine consultation services (Priest & McCarty, 2019; Trowbridge et al., 2017). In smaller medical centers where a separate service line is not feasible, the addition of a chemical dependency professional or nurse with extra training in addiction medicine to the psychiatry service line could be a helpful solution.

Last, given the prevalence of patients on medical units with co-occurring medical and psychiatric conditions, medical nurses can play a key role in providing safe and effective care to patients with psychiatric conditions. Considering medical nurses are often less skilled in providing psychiatric care than psychiatric nurses and carry negative perceptions toward patients with psychiatric conditions (Alexander

et al., 2016), hospitals should offer training to enhance their nursing staff's competency and job satisfaction. Training components could include de-escalation strategies to help nurses more confidently and safely communicate with agitated patients (Lamont & Brunero, 2018). Education on trauma-informed care principles (SAMHSA, 2014) could assist nurses in more effectively and sensitively caring for patients with psychiatric conditions. In addition, medical nurses identified as psychiatric patient advocates or those frequently caring for psychiatric patients should be provided with more extensive training and opportunities. These nursing staff can become resources for all staff and ultimately help increase community hospital's organizational capacity to better serve patients with co-occurring psychiatric and medical conditions (Kalisch et al., 2013; Sampson et al., 2017).

Author Roles

Both authors contributed to the design of the work. BR acquired and analyzed the data. Both authors contributed to the drafting and revision of the work and gave final approval of the version to be published.

Declaration of Conflicting Interests

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References

Alexander, V., Ellis, H., & Barrett, B. (2016). Medical-surgical nurses' perceptions of psychiatric patients: A review of the literature with clinical and practice applications. *Archives of Psychiatric Nursing*, *30*(2), 262-270. https://doi.org/10.1016/j.apnu.2015.06.018

American Hospital Association. (2019, May 29). Increasing access to behavioral health care advances value for patients, providers and communities. *Trendwatch*. https://www.aha.org/system/files/media/file/2019/05/aha-trendwatch-behavioral-health-2019.pdf

Angel, C., Brooks, K., & Fourie, J. (2016). Standardizing management of adults with delirium hospitalized on medical-surgical units. *Permanente Journal*, *20*(4), Article 16-002. https://doi.org/10.7812/TPP/16-002

Hosseini, S. H., Elyasi, F., Moradi, S., & Rezapour, M. (2020). Psychiatric consultations in general hospitals: A scoping review. *Iranian Journal of Psychiatry and Behavioral Sciences*, *14*(2), Article e100516. https://doi.org/10.5812/ijpbs.100516

Jansen, L., van Schijndel, M., van Waarde, J., & van Busschbach, J. (2018). Health-economic outcomes in hospital patients with medical-psychiatric comorbidity: A systematic review and meta-analysis. *PLoS One*, *13*(3), Article e0194029. https://doi.org/10.1371/journal.pone.0194029

Kalisch, B. J., Xie, B., & Ronis, D. L. (2013). Train-the-trainer intervention to increase nursing teamwork and decrease missed nursing care in acute care patient units. *Nursing Research*, *62*(6), 405-413. https://doi.org/10.1097/NNR.0b013e3182a7a15d

Lamont, S., & Brunero, S. (2018). The effect of a workplace violence training program for generalist nurses in the acute hospital setting: A quasi-experimental study. *Nurse Education Today*, *68*, 45-52. https://doi.org/10.1016/j.nedt.2018.05.008

National Association of State Mental Health Program Directors. (2017, August). *Trend in psychiatric inpatient capacity, United States and each state, 1970-2014* (Assessment No. 2). https://www.nasmhpd.org/sites/default/files/TACPaper.2.Psychiatric-Inpatient-Capacity_508C.pdf

Owens, P. L., Fingar, K. R., McDermott, K. W., Muhuri, P. K., & Heslin, K. C. (2019, March). *Inpatient stays involving mental and substance use disorders, 2016* (HCUP Statistical Brief No. 249). https://www.hcup-us.ahrq.gov/reports/statbriefs/sb249-Mental-Substance-Use-Disorder-Hospital-Stays-2016.pdf

Penner, S. J. (Ed.). (2013). *Economics and financial management for nurses and nurse leaders*. Springer.

Priest, K. C., & McCarty, D. (2019). Role of the hospital in the 21st century opioid overdose epidemic: The addiction medicine consult service. *Journal of Addiction Medicine*, *13*(2), 104-112. https://doi.org/10.1097/ADM.0000000000000496

Rural Health Information Hub. (2020). *Rural mental health*. https://www.ruralhealthinfo.org/topics/mental-health#workforce-challenges

Sampson, E. L., Vickerstaff, V., Lietz, S., & Orrell, M. (2017). Improving the care of people with dementia in general hospitals: Evaluation of a whole-system train-the-trainer model. *International Psychogeriatrics*, *29*(4), 605-614. https://doi.org/10.1017/S1041610216002222

Scholl, L., Seth, P., Kariisa, M., Wilson, N., & Baldwin, G. (2019). Drug and opioid-involved overdose deaths—United States, 2013-2017. *MMWR Morbidity Mortality Weekly Report*, 67(5152), 1419-1427. https://www.cdc.gov/mmwr/volumes/67/wr/mm675152e1.htm?s_cid=mm675152e1_w

Sledge, W. H., Gueorguieva, R., Desan, P., Bozzo, J. E., Dorset, J., & Lee, H. B. (2015). Multidisciplinary proactive psychiatric consultation service: Impact on length of stay for medical inpatients. *Psychotherapy and Psychosomatics*, *84*, 208-216. https://doi.org/10.1159/000379757

Sockalingam, S., Alzahrani, A., Meaney, C., Styra, R., Tan, A., Hawa, R., & Abbey, S. E. (2016). Time to consultation-liaison psychiatry service referral as a predictor of length of stay. *Psychosomatics*, *57*(3), 264-272. https://doi.org/10.1016/j.psym.2016.01.005

Substance Abuse and Mental Health Services Administration. (2014). *SAMHSA's concept of trauma and guidance for a trauma informed approach* (HHS Publication No. [SMA] 14-4884).

Substance Abuse and Mental Health Services Administration. (2019, August). *Key substance use and mental health indicators in the United States: Results from the 2018 National Survey on Drug Use and Health* (HHS Publication No. PEP19-5068). https://www.samhsa.gov/data/sites/default/files/cbhsq-reports/NSDUHNationalFindingsReport2018/NSDUHNationalFindingsReport2018.pdf

Triplett, P., Carroll, C. P., Gerstenblith, T. A., & Bienvenu, O. J. (2019). An evaluation of proactive psychiatric consults on general medical units. *General Hospital Psychiatry*, *60*, 57-64. https://doi.org/10.1016/j.genhosppsych.2019.07.009

Trowbridge, P., Weinstein, Z. M., Kerensky, T., Roy, P., Regan, D., Samet, J. H., & Walley, A. Y. (2017). Addiction consultation services: Linking hospitalized patients to outpatient addiction treatment. *Journal of Substance Abuse Treatment*, *79*, 1-5. https://doi.org/10.1016/j.jsat.2017.05.007

University of Washington, Alcohol and Drug Abuse Institute. (2018, May). *2017 Drug use trends in King County, Washington*. https://adai.uw.edu/pubs/pdf/2017drugusetrends.pdf

Zicko, J. M., Schroeder, R. A., Byers, W. S., Taylor, A. M., & Spence, D. L. (2017). Behavioral emergency response team: Implementation improves patient safety, staff safety, and staff collaboration. *Worldviews on Evidence-Based Nursing*, *14*(5), 377-384. https://doi.org/10.1111/wvn.12225