

People with Mental Health Issues in Children and Adolescents Should Seek Help at the Emergency Room

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ABSTRACT

Objective: To describe young people who seek help for mental health issues by going to the emergency room (ED).

Method: In this population-based cross-sectional cohort research in Ontario, Canada, from April 1, 2010, to March 31, 2014, incident MH ED visits were linked to health and demographic administrative databases. In the preceding two years ("first contact"), we used modified Poisson models to model the relationship between demographic, clinical, and health service use characteristics and not having had previous outpatient MH treatment.

Results: 14% of the 118,851 children and adolescents who visited an emergency room for mental health reasons were hospitalized. Nearly five out of ten participants (53.5%) had no prior outpatient psychiatric care; this was associated with younger age, rural residence, lower income, and refugee and other immigrant status, as well as nonimmigrants. The cohort's 5.1% without a regular primary care physician (RR 14 1.78, 95 percent CI 14 1.77 1.80) had the greatest risk of first encounter. There was an increased risk for those who had previously used the emergency department for medical problems with low acuity and who had primary care physicians who were in the lowest tertile for mental health visits.

Conclusion: More than half of the kids receiving ED treatment had never had outpatient psychiatric care before. The fact that timely primary care is linked to many indicators of primary care access characteristics suggests that some of these visits might be avoided.

KEYWORDS: first point of contact, emergency room, primary care, and other forms of mental health care are all included in this category.

METHOD

Plan and Context of the Research

Using data from an agreement with the Ontario Ministry of Health and Long-Term Care and the Institute for Clinical Evaluative Sciences, this population-based, cross-sectional study examined a group of young people who presented to an emergency department in Ontario, Canada (ICES). The Ontario Health Insurance Plan (OHIP) is the primary source of funding for most hospital and physician services in Ontario (OHIP). The Hospital for Sick Children and Sunnybrook Health Sciences Centre in Toronto, Ontario, granted ethics board clearance for the study.

Data Sources

ICES's connected health administrative and demographic datasets were utilized in this investigation. Encoded IDs are used to connect individual patient records from various health care providers, such as emergency department visits,

hospitalizations, and outpatient treatment. According to discharge diagnosis, the National Ambulatory Care Reporting System (NACRS) was utilized to determine the MH-related ED visits (International Classification of Diseases [ICD] 10th Revision codes). 22 CIHI-DAD and the Ontario Mental Health Reporting System (for designated mental health hospital beds) were utilized to analyze clinical information for individuals who had MH-related hospitalizations. 23 Information on outpatient billings by Ontario doctors was gleaned from the OHIP claims database, as were statistics on outpatient visits linked to mental health, primary care utilization, and provider characteristics. Primary care groups and patient enrollment models were described using the Client Agency Program Enrollment (CAPE) database. The IPDB (ICES Physician Database) offered data on the characteristics of physicians. It was possible to collect neighborhood income quintile data at the dissemination area level by linking the Ontario Registered Persons Database (RPDB) with data from the 2006 Canadian Census (400 700 persons). Canada's nationally administered

Permanent Resident Data System (PRDS) was used to classify immigrants and refugees in Ontario up to March 31, 2012. An encoded health insurance number ties together all of the patient data in a deterministic way. The immigrant dataset and the RPDB have a probabilistic connection of 86%, which has been explored in detail elsewhere.²⁴

Observe the People

It covered all Ontario-based kids aged 10 to 24 who visited an emergency department (ED) for a mental health-related disorder (ICD-10 codes F04-F99, X60-84, Y10-Y19 or Y28) on an unannounced basis between April 1, 2010, and March 31, 2014. ED visits for mental health issues were regarded as a “incident” if there had been no prior visits or hospitalizations in the previous two years. In order to limit our population to people who are experiencing their first or most recent emergency mental health crisis, this exclusion was put in place. The ED visits that were duplicated, overlapped, or transferred were not included. Non-Ontario residents, or those having a missing or invalid health card number, age, or sex, were not included in the study’s findings. Additionally, children and adolescents whose primary care is provided by a community health center that does not have access to administrative records of visits, as well as those with fewer than two years of OHIP eligibility prior to the index event, were removed from the study.

Outcome

Primary outcome was a mental health ED visit without prior outpatient physician care for MH problems (“first contact visit”), operationalized as one or more outpatient visits for MH-related disorders to a primary care provider (i.e. general practitioner/family physician [GP/FP] or pediatrician) or any visit to a psychiatrist in the two years preceding the incident visit to an emergency department. We defined MH visits using an algorithm that had been used in adults and adapted for children.²⁵ The algorithm defines an MH visit as an outpatient visit claim with an MH diagnosis code based on physician billing data.

Predictors

According to the literature or clinical plausibility, a number of factors were included that may be connected with MH problems or access to MH services were included. These factors were included as variables because they have been shown to influence access to mental health treatment in the past.^{1,11} RIO was used to assess whether patients resided in an urban area (RIO 5 years and 10 years, and long-term 14 >10 year) or a rural area (RIO 5 years and 10 year).^{28,29} It has been established that all low-acuity emergency department visits, or a predisposition to seek emergency services for less urgent reasons, reflects access to primary care services.³¹ ED visits in the two years before the occurrence were measured and classified as none, 1, 2, or 3 ED visits for children and teenagers. In the two years before the ED visit, visits to a primary care provider were evaluated and

grouped into tertiles to identify the frequency of outpatient primary care service usage before the initial interaction. The number of visits to a psychiatrist in the two years previous to the ED visit was documented for kids with a prior outpatient MH visit. With the introduction of numerous primary care models³² and financial incentives to offer after-hours treatment, Ontario has significantly reformed primary care delivery.³³ The fee-for-service model is used by GPs and FPs who are not enrolled in a model (FFS). Primary care for children is provided by pediatricians, but they are not part of the primary care reform; they are paid under the FFS and are not required to offer after-hours service. It was not included in the primary care reforms to incorporate mental health integration or specialized MH-focused programs, although some practices may have utilized extra resources to invest in MH services, such as those from social workers. As with prior assignments, UPC was given the following instructions. Those enrolled in a primary care model were paired up with a specific doctor or nurse practitioner. All primary care billings for the previous two years were utilized to assign a physician to each non-rostered patient based on the greatest monetary value. Nonrostered kids were said to have no UPC if they did not see a primary care physician. There were four categories: pediatrician, general practitioner/family practitioner, and no UPC. Primary care patients are more likely to have access to mental health services, according to our research hypothesis. The allocated UPC’s characteristics, such as gender, age, years of practice, training outside the country, full-time vs. part-time status, rurality, and practice volume at the MH level, were all taken into consideration. Mental health volume was calculated using the average annual volume of unique outpatient MH-related visits for children ages 10 to 24 years old for the number of years the physician has been practicing; tertiles were used to form groupings based on these visits. Medical professionals with greater involvement in mental health (MH) may have a better understanding and ability to diagnose MH issues, we reasoned. The following are the ED diagnoses for MH disorders: Anxiety, depression, eating disorders, mood/affective disorders, substance abuse, self-harm, schizophrenia, delusional and nonorganic psychotic disorders, autism spectrum disorder, personality and behavioral disorders, and other MH-related disorders are all included in this list of psychiatric conditions (see Supplement 1 and Table S1, available online, for mutually exclusive ICD-10 codes used). The Canadian Triage and Acuity Scale (CTAS) was used to characterize all visits, assigning a CTAS score of 4 or 5 to low- and high-acuity patients, respectively (CTAS score 1, 2, or 3).³⁵ In order to determine the effect of the availability of outpatient services on ED visit times and days of the week, researchers looked into patients’ ED visits (e.g., after-hours clinic). For example, patients who came to the emergency department at 8 a.m. on Monday and left at 8 p.m. on Saturday and Sunday were classified as needing multiple services, while those who came at 16 a.m. Saturday and left at 8 a.m. Monday and left at 8 a.m. Sunday were

classified as needing only one service. Similarly, emergency department visits were divided between those that occurred during the week and those that occurred on the weekend or on a statutory holiday (defined by the Ontario Ministry of Labour).

The Study of Statistics

For categorical data, proportions were utilized, and for continuous data, the median or mean with standard deviation was used to summarize. The c2 test for categorical data and one-way analysis of variance (ANOVA) were used to examine differences between groups. First-time ED visits were predicted using Poisson modeling with robust error variances and a priori-selected covariates. Table S2 provides an overview of how missing data were handled in the study. A subgroup analysis was conducted to examine the characteristics of primary care providers linked with initial contact, including only patients having a primary care physician of their own. Children and adolescents who had been admitted to the hospital were stratified in order to ensure the robustness of the findings and their applicability to more critically sick youth. There are risk ratios (RR) and 95% confidence intervals (CIs) provided. SAS Enterprise Guide 6.1 was used for all analyses (SAS Institute, Inc., Cary, NC).

RESULTS

There were 118,851 first-time emergency department visits for mental health issues between 2010 and 2014, of whom 16,666 (14.0 percent) were hospitalized and 40 died in the ER. Substance-related disorders (26.6%), anxiety (20.4%), and mood/affective disorders (11.6%) were the most common reasons for visits.

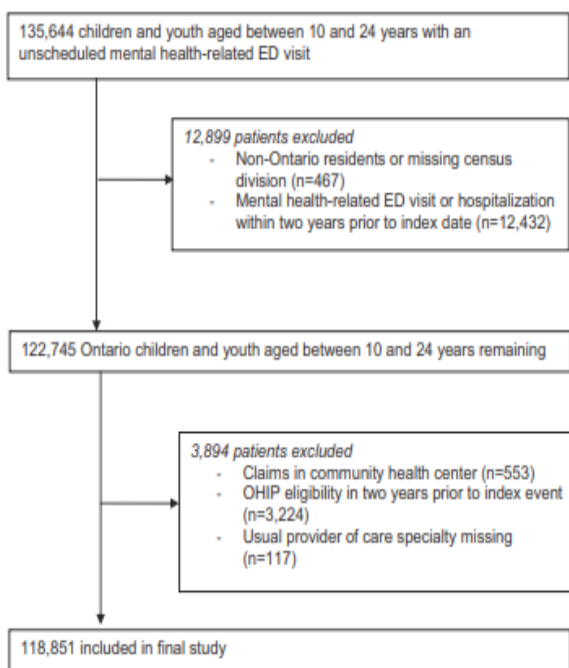


Figure 1. Flowchart detailing inclusion criteria.
Note: ED ¼ emergency department; OHIP ¼ Ontario Health Insurance Plan

Acute stress disorder (ASD) accounts for 18.2% of all disorders (14.4 percent). Our online Table S3 provides a breakdown of the whole cohort by admission status since those who were hospitalized may reflect a somewhat distinct clinical group. The hospitalization rate for young people with drug abuse and anxiety disorders was just 2.7% and 2.4%, respectively, but the hospitalization rate for young people with schizophrenia, delusional disorders, and psychotic disorders was 70.1%. More over half of the adolescents had never received outpatient treatment for mental health issues (Table 1). There was a greater likelihood of ED visits for substance-related disorders (34.3 percent vs. 17.8 percent) among individuals with no previous MH treatment, but a lower likelihood of ED visits for mood/affective and selected childhood illnesses (0.9 percent vs 3.4 percent). More than a third of adolescents with past outpatient psychiatric treatment had one or more psychiatrist visits in the two years before to initial contact, compared to just over a third of youth without prior outpatient psych care. 41.2 percent of patients brought to the ED for mental health treatment had never visited an outpatient physician before. Table 2 shows the corrected RRs of first-time ED visits for MH-related conditions. There was a higher probability of first contact for refugees (RR 14 1.17, 95 percent CI 14 1.13 1.21) and non-refugees (RR 14 1.10, 95 percent CI 14 1.08 1.13) compared to non-immigrants. The lower the neighborhood’s economic quintile, the greater the chance of first contact (RR 14 1.04, 95% CI 14 1.03 1.06). No UPC vs GP/FP model; RR 14 1,78, 95 per cent CI 14 1,77 1,80) substantially increased the likelihood that children and teens would go to the ED for the first time. There was a correlation between specific provider features and the number of children and teens having a UPC (n 14 112,447).greater likelihood of first encounter, including rurality, male sex and full-time employment in rural areas (Table 3). There was a dose response impact in provider MH practice volume, with a greater probability of first contact being linked with a lower MH volume. There was a 10% increase in the number of first-time trips to the ED for those who had a UPC paid for by FFS, as opposed to those who were part of a primary care reform model. Almost all of the results remained the same when the study was broken down by age group (Table S4, avail able online). Males had a reduced likelihood of first encounter between the ages of 10 and 17 than between the ages of 18 and 24. In the 10- to 17-year-old age range, neighborhood income quintile was not related with an elevated probability of first contact, however in older kids it was. Most of the results remained consistent when the study focused just on kids admitted to the hospital rather than those released from the emergency department. Youth from the lowest neighborhood income quintile had a higher probability of not having had previous outpatient MH treatment.

DISCUSSION

Children and adolescents who arrived to the ED with a new psychiatric disorder had not previously sought outpatient treatment for their disease, according to this large, population-based research. Anxiety, adjustment, mood/affective, and substance-related disorders accounted for 81% of all psychiatric visits. Considering that most first-contact work on mental health conditions focuses on adults with psychotic disorders^{15,36} or children and teens referred to mental health services³⁷, our study fills an essential gap in the literature. We discovered a number of risk variables for first-time ED visits for mental health. Youth from the most impoverished areas were more likely to have their initial encounter with an ED, which is consistent with previous studies on poverty and inadequate access to MH treatment. Prior to their initial visit to the ED, youth in rural areas were less likely to obtain outpatient treatment. Rural teenagers may postpone getting treatment for mental health issues because of worries about gossip, perceived social closeness, and limited resources, according to qualitative study.³⁸ When it came to first-contact ED visits, youth with previous low acuity visits were more likely to have used emergency services for less urgent issues^{31,39} or this might be a reflection of difficulties in obtaining primary care. Immigrants, both refugees and nonrefugees, also had a higher rate of first contact visits than nonimmigrants. It is possible that the first point of contact is due to a lack of access to primary care (either real or perceived), limited English proficiency, social stigma, difficulty navigating the healthcare system, or a more severe condition.^{12,16,18} A high-risk category has been identified, given that 20% of the population is made up of foreign nationals. Even while most young people with drug abuse problems (including acute intoxication) do not have any previous outpatient MH treatment, 43 percent of those who sought treatment for schizophrenia, delusional disorder, or psychosis did so for the first time. Even though certain ED visits are likely inevitable and are directly tied to the severity of the outset (i.e., an episode of severe intoxication), others are not and should be treated early in ambulatory settings (e.g., newly diagnosed schizophrenia, adjustment and anxiety disorders). Among children with drug use problems, two-thirds had their first contact visit, but just one-fourth had their first contact visit for diseases that develop more slowly, such as autism spectrum disorder. It is possible that some minor mental health issues may have turned into major crises because of a lack of access to basic care and/or the inability of clinicians to recognize the signs and symptoms of mental health issues.⁴¹ Youth who had a primary care physician who saw a large number of patients with mental health issues and who were enrolled in a capitation-based primary care model were more likely to be diagnosed with a mental health issue.

Table 2. Adjusted Risk Ratios (ARR) of No Prior Outpatient Care for Mental Health Emergency Department (ED) Visits, 2010–2014 (n = 118,811).

Variable	ARR (95% CI)
Age, y (reference = 22–24 y)	
10–13	1.01 (0.98–1.03)
14–17	1.09 (1.07–1.10)
18–21	1.11 (1.09–1.12)
Male sex	1.06 (1.05–1.07)
Rural residence	1.16 (1.14–1.18)
Neighborhood income quintile (reference = 5, high)	
1 (low)	1.04 (1.03–1.06)
2 (medium–low)	1.02 (1.00–1.03)
3 (medium)	1.02 (1.00–1.04)
4 (medium–high)	1.01 (0.99–1.03)
Immigration category (reference = nonimmigrant)	
Nonrefugee immigrant	1.10 (1.08–1.13)
Refugee immigrant	1.17 (1.13–1.21)
ED visits for any reason in prior 2 y (reference = 0 visits)	
Low (1 visit)	0.87 (0.86–0.89)
Moderate (2 visits)	0.81 (0.79–0.83)
High (≥3 visits)	0.72 (0.71–0.74)
Low-acuity ED visits in prior 2 y (reference = 0 visits)	
Low (1 visit)	1.09 (1.07–1.11)
Moderate (2 visits)	1.17 (1.14–1.20)
High (≥3 visits)	1.17 (1.13–1.20)
Specialty of UPC (reference = GP/FP model)	
GP/FP fee-for-service	1.11 (1.09–1.13)
Pediatrician	0.90 (0.87–0.93)
None	1.78 (1.77–1.80)

Note: FP = family practitioner; GP = general practitioner; UPC = usual provider of primary care.
^aMissing = 40 (excluded those who died in ED).

A reduced number of initial contact ED visits were seen among patients who needed after-hours primary care access. Other studies²¹ have shown that having easy access to primary care may have a factor in the frequency with which people go to the ED for their initial visit (76 percent of visits take place after 16:00 on weekdays and weekends/holidays). The high frequency of primary care visits among children and adolescents who had previously received outpatient MH treatment was one of the study's most startling findings (10.4 compared with 4.2 visits in the 2 years before the ED visit). With just 31% of children visiting a psychiatrist, primary care plays an important and sometimes overlooked role in treating mental health issues. An Australian study of adults revealed that 53% of patients visited a general practitioner (GP) before seeking specialized mental health treatment, underscoring the importance of basic care in the road to first diagnosis.³⁶ The fact that children and young people who go to the ED for the first time are getting primary care for issues unrelated to mental health may be a wasted chance for treatment. Further.

Table 3. Adjusted Risk Ratio (ARR) of No Prior Outpatient Care by Primary Care Characteristics in Individuals With a Primary Care (PC) Provider, 2010–2014 (n = 112,447)

Variable	ARR (95% CI) ^{a,b}
Enrollment model (reference = GP/FP model)	
GP/FP fee-for-service	1.10 (1.08–1.12)
Pediatrician	0.92 (0.89–0.95)
Male sex	1.07 (1.06–1.08)
Full-time	1.11 (1.06–1.16)
Rural location	1.10 (1.07–1.12)
Years in PC practice (reference = >20 y)	
≤10	0.99 (0.97–1.00)
11–20	1.00 (0.98–1.01)
Foreign trained	1.06 (1.04–1.07)
Mental health volume in prior 2 y (reference = highest tertile)	
Medium tertile	1.12 (1.10–1.13)
Low tertile	1.25 (1.23–1.27)

Note: FP = family practitioner; GP = general practitioner.
^aAdjusted for age, sex, residence, neighborhood income quintile, low-acuity emergency department (ED) visits in past 2 years, all ED visits in past 2 years, and specialty of usual provider of primary care.
^bMissing = 297.

Potential screening mechanisms⁴² should be investigated in order to detect certain mental health issues early. For the first time to our knowledge, we examined children and adolescents who initially presented to the ED with any problem linked to mental health. A universal access health care approach decreased selection bias by incorporating all psychiatric disorders in all institutions. It is possible that coding mistakes and lack of data on relevant variables (e.g. drug use, education levels, and utilization of non-physician community MH services) limit the usefulness of administrative statistics (e.g., psychologists and social workers). In our investigation, we did not identify whether the previous outpatient visit was for the same mental health problem as the first contact ED visit, nor did we discover when the prior outpatient visit occurred in connection to the incident ED. An growing number of health care providers are using the ED as the primary point of contact for mental health treatments. ¹ As a result of insufficient access to timely MH treatment, high rates of first contact may be an indicator of a lack thereof. Although the emergency department (ED) plays a vital role in crisis management, stabilization rather than rehabilitation is the emphasis, and referrals to community services are generally postponed until primary care. ¹² First contact is connected with a number of risk variables that have substantial consequences for physicians and policymakers. More than half of all children and adolescents who are seen in the emergency department (ED) need some kind of follow-up care. In addition, health care system strategies to increase primary care access and referrals to specialty treatments when required to reduce these ED visits would be critical.

CG Clinical Guidance

- More than half of children and youth who present to the emergency department (ED) with a mental health (MH) condition have not previously received outpatient physician care for MH problems.
- Many of these ED visits occur after hours, but ED staff need to have systems to ensure timely and adequate follow-up, especially given how many are the first presentation for MH problems.
- Children and youth at greatest risk for no previous MH care include those from rural areas, low-income neighborhoods, or immigrant families.
- Children and youth whose primary care providers have more of a focus on MH or who are mandated to provide after-hours access are more likely to have previously sought outpatient care for MH problems before presenting to the ED.

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