



Reasons for Emergency Department Use among Patients with Mental Disorders

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Abstract

Disproportionate use of emergency departments (EDs) by patients with mental disorders suggests the need to evaluate factors associated with ED use. Based on the Andersen Behavioral model, this mixed-method study identified the contributions of predisposing, enabling and needs factors in ED use among 328 patients with mental disorders. We hypothesised that ED use for mental health (MH) reasons would be most strongly associated with need factors. The study was conducted in four EDs located in different territories of Quebec (Canada). ED teams assisted with patient recruitment. Participants completed a questionnaire including a qualitative component on reasons for using the ED and assessments of ED and MH services. Data were organised according to the Andersen model, and analysed thematically. ED users were generally single, with low socioeconomic status and inadequate knowledge of MH services (predisposing factors). Most had a regular source of care which facilitated ED referrals (enabling factors); although inadequate access to outpatient care contributed to ED use. Needs factors were the primary motivators in ED use among patients with mental disorders, especially self-rated importance of problems, and MH diagnoses including suicidal ideation/attempts, depression, anxiety, and substance use disorders. Results confirmed our hypothesis that ED visits were more strongly related to needs factors. The mixed methodology reinforced the importance of predisposing and enabling factors in ED use, particularly in more complex cases. Various strategies (e.g. shared care, recruitment of addiction liaison nurses for SUD screening) are suggested for improving access to other resources and reducing non-urgent ED use.

Keywords Emergency department · Mental disorders · Mixed method study · Patient perspective · Utilization factors

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Introduction

Individuals with mental disorders contribute significantly to congestion in emergency departments (EDs), and to the frequency and length of hospital stays. International studies suggest that 4 to 15% of ED visits are for mental health (MH) reasons [1, 2]. Individuals with mental disorders, including substance use disorders, create challenges for nurses and other ED staff due to the complexity and the difficulty of performing mental health assessments [2]. Moreover, at the triage stage, MH clients are often considered a lesser priority than individuals affected by physical illnesses [2, 3]. According to an American study, ED wait times exceeded eight hours for 33% of individuals presenting for MH reasons [4]. One systematic review and meta-analysis [1] found that hospital stays for the 8–27% of ED patients with mental disorders requiring hospitalization were 38% longer than hospital stays of other ED patients. ED use by individuals with mental disorders has increased significantly in the US since 2000, from 27.9 per 1000 visits in 2005 to 35.1 in 2011 [5], reflecting the difficulties encountered by MH services in meeting patient needs. Moreover, patients with mental disorders are often labelled as frequent ED users, making four or more ED visits on average over a 12-month period [6].

Frequent ED use by patients with mental disorders necessitates identification and better understanding of related factors. The Andersen Behavioral Model [7] is the most recognised conceptual model for explaining healthcare service use, and is frequently used in ED assessment [8, 9]. This model builds on “predisposing”, “enabling” and “needs” factors as the three main conceptual blocks. Predisposing factors are individual characteristics existing prior to health service use, including individual beliefs and attitudes toward healthcare services. Enabling factors are elements that facilitate access to healthcare services [10, 11]. Needs factors include self-reported health, or health status as assessed by healthcare professionals (e.g. diagnosis, suicidal ideation) [11].

The Andersen model has rarely been used in studies investigating ED use for MH reasons; one exception was a quantitative assessment of ED use among older adults with mental disorders [12]. The Andersen Model was recently used in a qualitative study involving ED use for alcohol-related reasons [10]. To date, the Andersen Behavioral Model has not been used to investigate reasons for ED use by adults with mental disorders in a mixed-method study, which attests to the originality of the present study. Moreover, this study focuses on a wide variety of variables seldom considered in relation to ED use by MH patients, such as previous experience with other MH resources (predisposing factors); use of, and satisfaction with, regular healthcare sources; reasons for using EDs (enabling factors); gambling, medication issues, and psychosocial problems (needs factors). Different operating models among EDs, whether specialised psychiatric EDs, general EDs or merged psychiatric/general EDs, suggest another possible influence on ED use, and on patient satisfaction [13]. Moreover, few studies have accounted for the configuration of EDs, or ED services operating in different territories. Using the Andersen model, this mixed-method study identified and evaluated the respective contributions of predisposing, enabling and needs factors on ED use among 328 patients with mental disorders using four EDs located in urban areas of Quebec (Canada) that used different operating models. As needs tend to be viewed as the major predictors of health service use [7], we hypothesised that needs factors would predominate in ED use for MH reasons.

Methods

Study Setting

The study was conducted in four EDs located in different administrative territories of Quebec (Canada). The first was a single psychiatric ED (“ED-P”) located in a MH university institute. Two EDs were integrated into general hospital EDs, one (“ED-PG-1”) at a separate site, and the other (“ED-PG-2”) a merged psychiatric/general ED, which included an addictions liaison team. The fourth (“ED-G”) was a general ED that included both staff psychiatric consultants and an addictions liaison team. All four EDs had inpatient units offering specialised psychiatric care.

Data Collection

Participant recruitment occurred between January and June 2017. Interviewers came to the EDs during different times and days of the week, more especially when the ED was operating at peak capacity, or overloaded. Interviews were conducted on site, but in separate offices provided for this purpose. Participants had to have a MH diagnosis based on the ED visit or a MH referral. Clinical ED teams assisted with recruitment, evaluating patient ability to provide informed consent. Close to 5% of ED patients were considered ineligible for participation in the study, as they were scheduled for immediate transfer to another hospital unit. Most were later interviewed whether during or after hospitalization, once their conditions had stabilised. Patient questionnaires required approximately 40 min to complete, including the 10-min qualitative component. Questions on the structured questionnaire covered socio-demographic and socio-economic characteristics, patient health beliefs, self-assessed physical and MH conditions, as well as utilization and satisfaction with EDs and with MH services. Semi-structured, qualitative items included reasons for ED use, and participant assessments of ED and MH services. Written informed consent was obtained from all participants at the beginning of the interviews. The multisite study protocol was approved by the Douglas Mental Health University Institute research ethics board.

Conceptual Framework

Data were organised using a conceptual framework based on the Andersen Behavioral model (Fig. 1), and additional variables from the literature on ED use for MH reasons. Predisposing factors included socio-demographic and socio-economic characteristics (housing, education, work, household income); social support (marital status, number of children, number of close relations) and health beliefs (knowledge of MH resources; patient perceptions of MH professional attitudes toward them, negative experiences with services). Enabling factors included having a regular source of care; 12-month service use outside the ED (family physician, psychiatrist, other providers); satisfaction with regular sources of healthcare; previous ED utilization; satisfaction with ED services; and reasons for using the ED (lack of choice, MH referrals, ED proximity, ED facility access, operating model of the ED, ED reputation). Needs factors included: perceived health problems (MH, physical health), addictions (substance use disorders - SUDs, gambling), and urgency of MH problems (suicidal ideation/attempt, diagnoses, medication issues, psychosocial problems). SUDs were assessed with two standardised scales: 1) the Alcohol Use Disorders Identification Test (AUDIT) [14], including 10 items on alcohol use, and consequences, evaluated on a 5-point Likert scale (Cronbach alpha: 0.88); and

2) the Drug Abuse Screening Test-20 (DAST-20), which includes 20 items on consequences of drug use, with yes/no responses (Cronbach alpha: 0.73) [15].

Analysis

The quantitative data were first screened for missing values, univariate outliers, and normality assumptions (skewness and kurtosis). Univariate analyses were performed, including frequency distributions, percentages for categorical variables, and central tendency measures for continuous variables (mean values and standard deviations). The qualitative data collection, and mixed-method analysis, followed a six-step process: 1) audio-recording of interviews and verbatim transcription; 2) preliminary readings; 3) selection and definition of classification units based on the questionnaire; 4) separation of content into units of meaning; 5) data extraction and integration within the conceptual framework (according to predisposing, enabling and needs factors) and 6) data management [16]. Numbers of responses, and

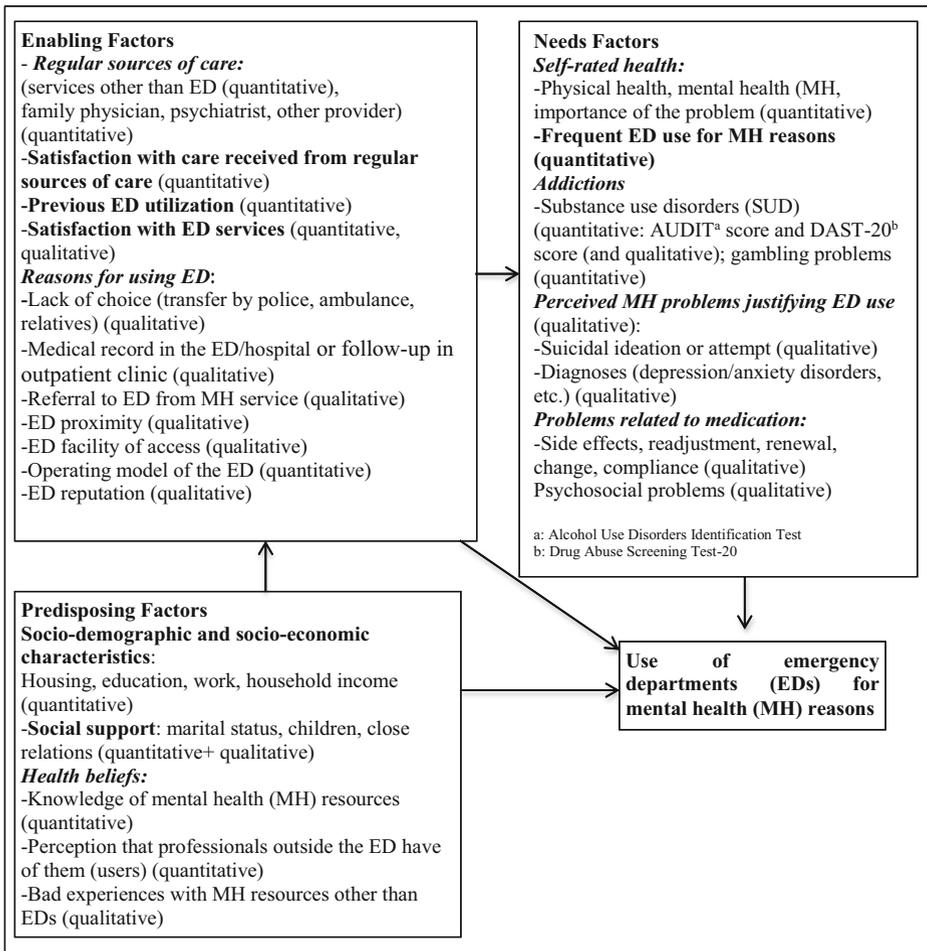


Fig. 1 Conceptual framework based on the Andersen Behavioral Model

percentages, were also calculated for each of the qualitative variables in order to assess their relative weight.

Results

Sample

Of 372 patients invited to the study, 328 participated for a response rate of 88%. Among them, 172 (52%) were recruited from ED-P, 89 (27%) from ED-PG-2, 38 (12%) from ED-PG-1, and 29 (9%) from ED-G; 188 (57%) interviews were conducted at EDs versus 140 (43%) in hospital units. There were 167 (51%) female and 161 (49%) male participants, with a mean age of 38.9 years (SD: 15.2). Participant characteristics are presented in Tables 1, 2, and 3.

Predisposing Factors

Regarding socio-demographic and socio-economic characteristics, most participants (80%) lived in private homes, condos or rented apartments. Only one third were employed. Household income was less than Can. \$40,000 for 70% of participants. Only 19% were married or living common law. The great majority had close relatives on whom they could rely for help. With respect to health beliefs, 59% claimed to have good or excellent knowledge of MH or addiction services. The great majority (90%) felt that professionals outside the ED had a good opinion of them despite their presenting problems, and/or treated them fairly (Table 1).

Enabling Factors

Regarding regular sources of care, 63% of participants had used services other than the ED for MH problems or SUDs in the previous 12 months. Most (85%) were followed by at least one healthcare professional with whom they consulted at least once per year; 65% had a family physician, 45% a psychiatrist, and 41% another provider (e.g. social worker, nurse, psychologist). The great majority of participants expressed some/total satisfaction with their family physician, psychiatrist or other provider. A majority (79%) viewed treatment in the ED as adequate to their needs. Moreover, 78% viewed the information provided by the ED concerning their problems and treatments as adequate (Table 2). The main reasons for ED use included: lack of choice (33%); having a file with the same hospital or follow-up in the outpatient clinic (25%); referral from a MH service (19%); proximity of the ED to home (19%); ease of access (14%); and hospital reputation or quality of care (13%).

Needs Factors

Concerning health perceptions, 62% of participants rated their MH as fair or poor; while 59% rated their physical health good to excellent. About one third engaged in harmful alcohol use or were diagnosed with drug abuse or dependence; 13% of this group had both alcohol and drug disorders. Twelve (4%) had experienced gambling problems in the previous twelve months (Table 3). The vast majority (91%) rated their presenting problem at the ED as important or very important, 14% of whom were frequent ED users. The main needs factors underlying ED visits were: suicidal ideation or attempt and self-harm (28%); depression

Table 1 Participant characteristics related to predisposing factors ($N = 328$)

Factors	n	%
Socio-demographic and socio-economic characteristics:		
Housing		
Private home, condo or rented apartment	262	79.9
Supervised apartment	6	1.8
Subsidized housing	22	6.7
Foster family	1	0.3
Group home	7	2.1
No fixed address	17	5.2
Other	13	4.0
Education		
Elementary/secondary	145	44.2
Post-secondary	183	55.8
Work		
Yes	110	33.5
No	218	66.5
Full time	78	23.8
Part time	38	11.6
Household income (Canadian dollars)		
\$0 to 19,999/year	145	44.2
\$20,000 to 39,999/year	84	25.7
\$40,000 to 59,999/year	43	13.1
\$60,000 to 79,999/year	21	6.4
\$80,00 and +	35	10.7
Social support:		
Marital status		
Single/separated/divorced/widowed	263	80.2
Married/Common law	62	18.9
Other/Don't know	3	0.9
Children		
Yes	125	38.1
No	203	61.9
Do you have close relations on whom you can rely for help?		
Yes	296	90.2
No	32	9.8
Number of close relations on whom you can rely for help		
0	32	9.8
1–5	221	67.4
6–10	59	18.0
>10	16	4.9
Health beliefs:		
Knowledge of mental health (MH) or addiction services		
Poor	133	40.5
Good	100	30.5
Very Good	52	15.9
Excellent	43	13.1
Professionals outside of the ED have a good opinion of me or treat me fairly despite my problems		
Completely disagree	13	4.0
Somewhat disagree	20	6.1
Somewhat agree	47	14.3
Agree	107	32.6
Completely agree	141	43.0

(12%), anxiety disorders (11%); and medication issues (side effects, readjustment, renewal, compliance) (11%). Few participants mentioned psychotic disorders (5%), bipolar disorders

Table 2 Participant characteristics related to Enabling factors (N = 328)

Factors	n	%		
Having a regular source of care:				
Use of services other than ED for mental health (MH) problems or addictions in the previous 12 months				
Yes	207	63.1		
No	121	36.9		
Has a family physician				
Yes	214	65.2		
No	114	34.8		
Has a psychiatrist				
Yes	147	44.8		
No	181	55.2		
Has another provider				
Yes	133	40.5		
No	195	49.5		
Satisfaction with care received from regular sources:				
Satisfaction with care received from family physician (<i>n</i> = 213)				
Completely unsatisfied	12	5.6		
A little unsatisfied	19	8.9		
Fairly satisfied	23	10.8		
Satisfied	61	28.6		
Completely satisfied	98	46.0		
Satisfaction with care received from psychiatrist (<i>n</i> = 147)				
Completely unsatisfied	10	6.8		
A little unsatisfied	7	4.8		
Fairly satisfied	23	15.6		
Satisfied	35	23.8		
Completely satisfied	72	48.9		
Satisfaction with care received from other provider (<i>n</i> = 133)				
Completely unsatisfied	2	1.5		
A little unsatisfied	3	2.3		
Fairly satisfied	17	12.8		
Satisfied	37	27.8		
Completely satisfied	74	55.6		
Previous use of emergency departments (EDs):	Minimum	Maximum	Mean	SD
Number of visits to EDs for mental disorders or substance use disorders (SUDs) in previous 12 months	1	31	2.39	3.82
Number of visits to EDs annually for MH reasons	0	52	1.07	3.54
Satisfaction with ED services:	n	%		
I have received enough information at the ED about my problem and treatment				
Completely disagree	33	10.1		
Somewhat disagree	40	12.2		
Somewhat agree	62	18.9		
Agree	95	29.0		
Completely agree	98	29.9		
The ED provides adequate treatment for my problem				
Completely disagree	40	12.2		
Somewhat disagree	30	9.1		
Somewhat agree	75	22.9		
Agree	101	30.8		
Completely agree	82	25.0		

(3%), addiction problems (1%) or psychosocial issues (e.g. housing, family conflicts, physical aggression) (3%) as their main reasons for visiting the ED.

Table 3 Participant characteristics related to Needs factors (N = 328)

Factors	n	%
Self-rated health:		
Perceived physical health		
Poor to fair	134	40.9
Good	103	31.4
Very good	50	15.2
Excellent	41	12.5
Perceived Mental Health (MH)		
Poor to fair	203	61.9
Good	67	20.4
Very good	33	10.1
Excellent	25	7.6
Importance of MH presenting problem at ED visit		
Very important	233	71.0
Important	66	20.1
Not at all important	29	8.8
Frequent ED users for mental disorders	45	13.7
Alcohol Use Disorders Identification Test- AUDIT score ^a : Individuals with a score of 8 +	99	30.2
Drug Abuse Screening Test-20- DAST-20 score (Mean, SD) ^b : Individuals with a score of 6 and + (Mean, SD)	92	28.0
In the last 12 months, have you borrowed money without paying it back because of gambling		
Yes	12	3.7
No	316	96.3
MH diagnosis or problem:		
Suicidal ideation or attempt	91	27.7
Depression	38	11.5
Anxiety disorders	35	10.7
Psychotic disorders	15	4.6
Bipolar disorders	9	2.7
MH instability	13	4.0
Other ^c	8	2.4

^a 10 items (0 to 4 for each variable); Min = 0; Max = 40; Higher = greater level of alcohol use disorders; 8 and + = hazardous or harmful alcohol use

^b 20 items (0 to 1 for each variable); Min = 0; Max = 20; Higher = greater drug abuse; 6 + = likelihood of substance use disorders (SUDs)

^c Other: borderline personality disorders, attention deficit hyperactivity disorder, post-traumatic stress disorders, etc.

Discussion

The results confirmed our hypothesis that patient needs would constitute the primary reasons for ED visits. A systematic review of 14 studies using the Andersen Behavioral model also found that needs were primary motivators among elderly patients for visiting EDs [17]. While inconsistencies in the classification of variables among the three Andersen factors made further comparisons difficult [11], the use of mixed-methods highlights the added importance of predisposing and enabling factors in ED use, particularly among patients with more complex needs.

Concerning needs factors, the self-perceived importance of presenting problems for most participants confirms results from previous studies suggesting that ED patients tend to view their visits as unavoidable [18, 19]. Most individuals used EDs for urgent or life-threatening health conditions [19], as in cases of suicidal ideation or attempts for example. Symptoms associated with anxiety disorders may mimic medical conditions such as heart attack,

provoking an emergency response [20]. Depression is also characterised by unpleasant physical symptoms [21] (headache, sleep disturbance, gastrointestinal problems, pain, etc.). SUDs often involve physical co-morbidity (e.g. liver disease, HIV) as well psychosocial problems (e.g. family conflict, disturbing behaviors, and violence) [22]. Moreover, SUDs have negative effects on medication and treatment effectiveness [23]. Gambling may be associated with anxiety, mood disorders, SUDs, personality disorders, or psychosocial problems (e.g. loss of housing), and is a leading cause of suicide in Quebec [24]. Finally, medication non-adherence and associated morbidity in MH patients is strongly associated with psychiatric hospital admissions [25]. According to findings from qualitative studies, patients with mental disorders often complain that the seriousness of their physical conditions is downplayed [2]. Yet how ED users rate the importance of their health problems may differ from assessments using objective measures. One study estimated that 59% of ED visits in Quebec were non-urgent, and more appropriate for primary care [26].

The 28% of ED visits attributed to suicidal ideation or attempt in this study corresponded with previous results. A systematic review and meta-analysis of 18 studies, by Barratt et al. [1], estimated that one-third of ED visits for MH reasons were connected with suicide ideation, attempts or self-harm, which were strongly associated with frequent ED use [27]. Comparative rates on ED consultations for depression were similar between the present study (12%) and Barratt et al. (13%), as were the rates for psychotic disorders (5% in this study versus 6% for schizophrenia in Barratt et al. [1]). The number of frequent ED users for MH reasons in this study was high, at 14%, relative to other studies reporting 0.03% to 18% high users representing MH populations [28]. Frequent ED users were also more likely to use other health services [10, 29]. While very few (3.7%) reported gambling problems in the previous 12 months, this rate was nearly double that of the general Canadian population (1.8%) and nearly three times the Quebec rate (1.3%) [30]. Findings revealed that an important minority of participants had alcohol or drug disorders; yet they gave other reasons for their ED visits, such as MH or psychosocial problems. ED patient perceptions also tended to contradict those of professionals who viewed SUD as an important factor in ED use, particularly among frequent users [22, 31]. By contrast, study participants generally denied having SUDs, or didn't view addiction as problematic. Concerning ED visits for alcohol-related reasons, Parkman et al. [10] found that few participants were interested in alcohol treatment, seeking help instead for other problems (e.g. MH, housing, employment). SUD patients are also considered difficult to treat due to their lack of motivation [10]. Moreover, EDs often fail to detect SUDs among patients [22, 32]. The deployment of addiction liaison nurses in EDs might promote more accurate screening of SUDs among patients presenting for MH-related problems [33, 34]. Finally, while few patients identified serious mental disorders as the reason for their visit, epidemiological studies found that schizophrenia [1, 35], mood disorders [1], and personality disorders [36] were associated with frequent ED use.

Concerning predisposing factors, participant socio-demographic characteristics closely resembled those identified in previous studies, including unemployment and low income [6]. Negative socio-demographic conditions may exacerbate MH problems and drive ED use [10]. ED users with MH problems were mainly single, as reported previously [12, 37]. However, most participants received considerable social support from relatives and friends, who may have encouraged their loved ones in distress to use EDs [18, 28] and health services more generally. Housing status was another interesting feature, as most study participants lived in private homes or apartments, a fact related to the high proportion of participants reporting common mental disorders (anxiety disorders, depression) rather than severe mental disorders

(psychotic disorders, bipolar disorders). The low proportion of individuals without a permanent address reflects the distance between most territories served by the four EDs and urban centers where homelessness is more prevalent. Finally, poor knowledge of MH and addiction services among 41% of our sample was identified elsewhere as a key barrier to healthcare use [38] and another likely explanation for high ED use.

Regarding enabling factors, our finding that 37% of participants had not used services other than EDs for mental disorders in the previous year corresponds with results of other epidemiological studies [39–41]. For example, only 42% of Quebecers with mental disorders or SUDs used MH services according to the 2012 Canadian Community Health Survey of Mental Health and Well-Being [42], which may reflect the absence of local services other than EDs. By contrast, the international literature identified availability of services and access to regular sources of healthcare as factors that actually contributed to ED use for MH reasons [10, 11]. Family physicians and MH professionals facilitate referrals to EDs, encourage their patients with mental disorders to consult EDs, and call for a police escort or ambulance when necessary [18, 28]. Yet quantitative studies have also found associations between deficiencies in primary care or community services [5, 43, 44] as well lack of continuity and coordination among MH services [28] with ED use for MH reasons. It should be noted that a majority of patients are not followed by care providers other than the family physician or psychiatrist: nurses for example. Many would need regular follow-up by a case manager for chronic mental conditions. As in other satisfaction studies on MH service use, [45–47] participants were very satisfied with both ED services, and healthcare services received outside the ED. Most described their ED visits as appropriate, although stigmatization by staff did occur [18].

Having a patient file at the same hospital as the ED or follow-up at an outpatient clinic also facilitated ED use, suggesting that many participants were known to ED services and were more comfortable using establishments with which they were familiar. Continuity of care tends to reduce symptom severity [48], and is associated with higher patient satisfaction [45]. Close proximity as an incentive to use EDs was logical, given that individuals are known to prefer frequenting services in their own neighbourhoods [49], and may explain why those who reported difficulties booking appointments with regular services headed for the ED. According to the same authors [49], access problems were the most common reason for non-urgent ED use. Another study [50] projected that the provision of adequate community services could eliminate 40% of ED use for MH reasons. Qualitative studies suggest that users with mental disorders often justify their ED visits by the lack of community resources, particularly during evenings and weekends [3].

Limitations

This study had some limitations. First, the study took place in Canada, where the health and social safety net is far more robust than in the US or other countries without a universal healthcare regime. Second, since the four selected EDs were located in urban areas, results may not be generalizable to rural territories or other ED settings. Third, ED-P participants were overrepresented in our sample which may have affected results. Fourth, some diagnostic categories, including patients with severe mental disorders or SUDs, or homeless individuals, were underrepresented in our sample. Fifth, the mixed-methodology was not sensitive to differences among patients with mental disorders due to their use of EDs with different operating models. Sixth, considering that most participants had family support, and had completed at least secondary school, data may not be transferable to ED populations

elsewhere. Finally, several predisposing or enabling factors, such as benefits provided by religion, tele-psychotherapy or online mental help use were not considered.

Conclusion

This is the first known study to investigate ED use for MH reasons using mixed-methods, and the Andersen model as a conceptual framework. Results confirmed our hypothesis that ED visits were more strongly related to needs factors, while predisposing and enabling factors also influenced ED visits, particularly in more complex cases. Several strategies such as shared care, collaboration with crisis centers, deployment of addiction liaison nurses for SUD screening, specific programs around supported employment and education for disadvantaged patients with mental disorders, and further implementation of intensive case management or assertive community treatment teams for follow-up with frequent ED users, in improving access to other resources, may reduce non-urgent ED use.

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Compliance with Ethical Standards

Conflict of Interest The authors declare they have no conflicts of interest.

Informed Consent Informed consent was obtained from all individual participants included in the study.

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