

Reasons for emergency department use among patients with mental disorders

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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.

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24 **Keywords: Emergency department, mental disorders, mixed method study, patient**
25 **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

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4 71 major predictors of health service use [7], we hypothesised that needs factors would
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6 72 predominate in ED use for MH reasons.
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11 74 **METHODS**

12 75 **Study setting**

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17 76 The study was conducted in four EDs located in different administrative territories of
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19 77 Quebec (Canada). The first was a single psychiatric ED (“ED-P”) located in a MH
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22 78 university institute. Two EDs were integrated into general hospital EDs, one (“ED-PG-
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24 79 1”) at a separate site, and the other (“ED-PG-2”) a merged psychiatric/general ED, which
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27 80 included an addictions liaison team. The fourth (“ED-G”) was a general ED that included
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29 81 both staff psychiatric consultants and an addictions liaison team. All four EDs had
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32 82 inpatient units offering specialised psychiatric care.
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35 83 **Data collection**

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37 84 Participant recruitment occurred between January and June 2017. Interviewers came to
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40 85 the EDs during different times and days of the week, more especially when the ED was
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42 86 operating at peak capacity, or overloaded. Interviews were conducted on site, but in
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45 87 separate offices provided for this purpose. Participants had to have a MH diagnosis based
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47 88 on the ED visit or a MH referral. Clinical ED teams assisted with recruitment, evaluating
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50 89 patient ability to provide informed consent. Close to 5% of ED patients were considered
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52 90 ineligible for participation in the study, as they were scheduled for immediate transfer to
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55 91 another hospital unit. Most were later interviewed whether during or after hospitalization,
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57 92 once their conditions had stabilised. Patient questionnaires required approximately 40
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59 93 minutes to complete, including the 10-minute qualitative component. Questions on the
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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 (**Figure 1**), and additional variables from the literature on ED use for MH reasons. Predisposing factors included socio-demographic and socio-economic characteristics (housing, education, employment, 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 alternative services, MH referrals, ED proximity, ED access, 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

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4 117 Alcohol Use Disorders Identification Test (AUDIT) [14], including 10 items on alcohol
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6 118 use, and consequences, evaluated on a 5-point Likert scale (Cronbach alpha: 0.88); and 2)
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9 119 the Drug Abuse Screening Test-20 (DAST-20), which includes 20 items on consequences
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12 120 of drug use, with yes/no responses (Cronbach alpha: 0.73) [15].
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14 15 121 **Analysis** 16

17 122 The quantitative data were first screened for missing values, univariate outliers, and
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19 123 normality assumptions (skewness and kurtosis). Univariate analyses were performed,
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21 124 including frequency distributions, percentages for categorical variables, and central
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23 125 tendency measures for continuous variables (mean values and standard deviations). The
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25 126 qualitative data collection, and mixed-method analysis, followed a a six-step process: 1)
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27 127 audio-recording of interviews and verbatim transcription; 2) preliminary readings; 3)
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29 128 selection and definition of classification units based on the questionnaire; 4) separation of
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31 129 content into units of meaning; 5) data extraction and integration within the conceptual
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33 130 framework (according to predisposing, enabling and needs factors) and 6) data
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35 131 management [16]. Numbers of responses, and percentages, were also calculated for each
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37 132 of the qualitative variables in order to assess their relative weight.
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47 134 **RESULTS** 48

49 135 **Sample** 50

51 136 Of 372 patients invited to the study, 328 participated for a response rate of 88%. Among
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53 137 them, 172 (52%) were recruited from ED-P, 89 (27%) from ED-PG-2, 38 (12%) from
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55 138 ED-PG-1, and 29 (9%) from ED-G; 188 (57%) interviews were conducted at EDs versus
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58 139 140 (43%) in hospital units. There were 167 (51%) female and 161 (49%) male
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participants, with a mean age of 38.9 years (SD: 15.2). Participant characteristics are presented in Tables 1 - 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

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4 163 hospital or follow-up in the outpatient clinic (25%); referral from a MH service (19%);
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6 164 proximity of the ED to home (19%); ease of access (14%); and hospital reputation or
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9 165 quality of care (13%).

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17 168 Concerning health perceptions, 62% of participants rated their MH as fair or poor; while
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19 169 59% rated their physical health good to excellent. About one third engaged in harmful
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22 170 alcohol use or were diagnosed with drug abuse or dependence; 13% of this group had
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24 171 both alcohol and drug disorders. Twelve (4%) had experienced gambling problems in the
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27 172 previous twelve months (Table 3). The vast majority (91%) rated their presenting
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29 173 problem at the ED as important or very important, 14% of whom were frequent ED users.
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32 174 The main needs factors underlying ED visits were: suicidal ideation or attempt and self-
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34 175 harm (28%); depression (12%), anxiety (11%); and medication issues (side effects,
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36 176 readjustment, renewal, compliance) (11%). Few participants mentioned psychotic
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39 177 disorders (5%), bipolar disorders (3%), addiction problems (1%) or psychosocial issues
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41 178 (e.g. housing, family conflicts, physical aggression) (3%) as their main reasons for
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50 181 **DISCUSSION**

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53 182 The results confirmed our hypothesis that patient needs would constitute the primary
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55 183 reasons for ED visits. A systematic review of 14 studies using the Andersen Behavioral
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58 184 model also found that needs were primary motivators among elderly patients for visiting

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4 185 EDs [17]. While inconsistencies in the classification of variables among the three
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6 186 Andersen factors made further comparisons difficult [11], the use of mixed-methods
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9 187 highlights the added importance of predisposing and enabling factors in ED use,
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12 188 particularly among patients with more complex needs.
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15 189 Concerning needs factors, the self-perceived importance of presenting problems
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17 190 for most participants confirms results from previous studies suggesting that ED patients
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20 191 tend to view their visits as unavoidable [18, 19]. Most individuals used EDs for urgent or
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22 192 life-threatening health conditions [19], as in cases of suicidal ideation or attempts for
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24 193 example. Symptoms associated with anxiety disorders may mimic medical conditions
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26 194 such as heart attack, provoking an emergency response [20]. Depression is also
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29 195 characterised by unpleasant physical symptoms [21] (headache, sleep disturbance,
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31 196 gastrointestinal problems, pain, etc.). SUDs often involve physical co-morbidity (e.g.
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33 197 liver disease, HIV) as well psychosocial problems (e.g. family conflict, disturbing
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35 198 behaviors, and violence) [22]. Moreover, SUDs have negative effects on medication and
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37 199 treatment effectiveness [23]. Gambling may be associated with anxiety, mood disorders,
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39 200 SUDs, personality disorders, or psychosocial problems (e.g. loss of housing), and is a
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41 201 leading cause of suicide in Quebec [24]. Finally, medication non-adherence and
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43 202 associated morbidity in MH patients is strongly associated with psychiatric hospital
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45 203 admissions [25]. According to findings from qualitative studies, patients with mental
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47 204 disorders often complain that the seriousness of their physical conditions is downplayed
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49 205 [2]. Yet how ED users rate the importance of their health problems may differ from
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51 206 assessments using objective measures. One study estimated that 59% of ED visits in
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53 207 Quebec were non-urgent, and more appropriate for primary care [26].
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4 208 The 28% of ED visits attributed to suicidal ideation or attempt in this study
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6 209 corresponded with previous results. A systematic review and meta-analysis of 18 studies,
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9 210 by Barratt et al. [1], estimated that one-third of ED visits for MH reasons were connected
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11 211 with suicide ideation, attempts or self-harm, which were strongly associated with
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13 212 frequent ED use [27]. Comparative rates on ED consultations for depression were similar
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15 213 between the present study (12%) and Barratt et al. (13%), as were the rates for psychotic
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17 214 disorders (5% in this study versus 6% for schizophrenia in Barratt et al. [1]). The number
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19 215 of frequent ED users for MH reasons in this study was high, at 14%, relative to other
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21 216 studies reporting 0.03% to 18% high users representing MH populations [28]. Frequent
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23 217 ED users were also more likely to use other health services [10, 29]. While very few
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25 218 (3.7%) reported gambling problems in the previous 12 months, this rate was nearly
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27 219 double that of the general Canadian population (1.8%) and nearly three times the Quebec
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29 220 rate (1.3%) [30]. Findings revealed that an important minority of participants had alcohol
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31 221 or drug disorders; yet they gave other reasons for their ED visits, such as MH or
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33 222 psychosocial problems. ED patient perceptions also tended to contradict those of
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35 223 professionals who viewed SUD as an important factor in ED use, particularly among
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37 224 frequent users [22, 31]. By contrast, study participants generally denied having SUDs, or
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39 225 didn't view addiction as problematic. Concerning ED visits for alcohol-related reasons,
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41 226 Parkman et al. [10] found that few participants were interested in alcohol treatment,
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43 227 seeking help instead for other problems (e.g. MH, housing, employment). SUD patients
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45 228 are also considered difficult to treat due to their lack of motivation [10]. Moreover, EDs
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47 229 often fail to detect SUDs among patients [22, 32]. The deployment of addiction liaison
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49 230 nurses in EDs might promote more accurate screening of substance use disorders among
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4 231 patients presenting for MH-related problems [33, 34]. Finally, while few patients
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6 232 identified serious mental disorders as the reason for their visit, epidemiological studies
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9 233 found that schizophrenia [1, 35], mood disorders [1], and personality disorders [36] were
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11 234 associated with frequent ED use.
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15 235 Concerning predisposing factors, participant socio-demographic characteristics
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17 236 closely resembled those identified in previous studies, including unemployment and low
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20 237 income [6]. Negative socio-demographic conditions may exacerbate MH problems and
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22 238 drive ED use [10]. ED users with MH problems were mainly single, as reported
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25 239 previously [12, 37]. However, most participants received considerable social support
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27 240 from relatives and friends, who may have encouraged their loved ones in distress to use
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30 241 EDs [18, 28] and health services more generally. Housing status was another interesting
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32 242 feature, as most study participants lived in private homes or apartments, a fact related to
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35 243 the high proportion of participants reporting common mental disorders (anxiety disorders,
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37 244 depression) rather than severe mental disorders (psychotic disorders, bipolar disorders).
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39 245 The low proportion of individuals without a permanent address reflects the distance
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42 246 between most territories served by the four EDs and urban centers where homelessness is
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45 247 more prevalent. Finally, poor knowledge of MH and addiction services among 41% of
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47 248 our sample was identified elsewhere as a key barrier to healthcare use [38] and another
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49 249 likely explanation for high ED use.
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52 250 Regarding enabling factors, our finding that 37% of participants had not used
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55 251 services other than EDs for mental disorders in the previous year corresponds with results
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58 252 of other epidemiological studies [39-41]. For example, only 42% of Quebecers with
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60 253 mental disorders or SUDs used MH services according to the 2012 Canadian Community
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4 254 Health Survey of Mental Health and Well-Being [42], which may reflect the absence of
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6 255 local services other than EDs. By contrast, the international literature identified
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8 256 availability of services and access to regular sources of healthcare as factors that actually
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10 257 contributed to ED use for MH reasons [10, 11]. Family physicians and MH professionals
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12 258 facilitate referrals to EDs, encourage their patients with mental disorders to consult EDs,
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14 259 and call for a police escort or ambulance when necessary [18, 28]. Yet quantitative
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16 260 studies have also found associations between deficiencies in primary care or community
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18 261 services [5, 43, 44] as well lack of continuity and coordination among MH services [28]
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20 262 with ED use for MH reasons. It should be noted that a majority of patients are not
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22 263 followed by care providers other than the family physician or psychiatrist: nurses for
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24 264 example. Many would need regular follow-up by a case manager for chronic mental
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26 265 conditions. As in other satisfaction studies on MH service use, [45-47] participants were
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28 266 very satisfied with both ED services, and healthcare services received outside the ED.
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30 267 Most described their ED visits as appropriate, although stigmatization by staff did occur
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42 269 Having a patient file at the same hospital as the ED or follow-up at an outpatient
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44 270 clinic also facilitated ED use, suggesting that many participants were known to ED
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46 271 services and were more comfortable using establishments with which they were familiar.
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48 272 Continuity of care tends to reduce symptom severity [48], and is associated with higher
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50 273 patient satisfaction [45]. Close proximity as an incentive to use EDs was logical, given
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52 274 that individuals are known to prefer frequenting services in their own neighbourhoods
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54 275 [49], and may explain why those who reported difficulties booking appointments with
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56 276 regular services headed for the ED. According to the same authors [49], access problems
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4 277 were the most common reason for non-urgent ED use. Another study [50] projected that
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6 278 the provision of adequate community services could eliminate 40% of ED use for MH
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9 279 reasons. Qualitative studies suggest that users with mental disorders often justify their ED
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11 280 visits by the lack of community resources, particularly during evenings and weekends [3].
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18 282 **LIMITATIONS**

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21 283 This study had some limitations. First, the study took place in Canada, where the health
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23 284 and social safety net is far more robust than in the US or other countries without a
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25 285 universal healthcare regime. Second, since the four selected EDs were located in urban
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28 286 areas, results may not be generalizable to rural territories or other ED settings. Third, ED-
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31 287 P participants were overrepresented in our sample which may have affected results.
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33 288 Fourth, some diagnostic categories, including patients with severe mental disorders or
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35 289 SUDs, or homeless individuals, were underrepresented in our sample. Fifth, the mixed-
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38 290 methodology was not sensitive to differences among patients with mental disorders due
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40 291 to their use of EDs with different operating models. Sixth, considering that most
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43 292 participants had family support, and had completed at least secondary school, data may
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45 293 not be transferable to ED populations elsewhere. Finally, several predisposing or
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48 294 enabling factors, such as benefits provided by religion, tele-psychotherapy or online
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50 295 mental help use were not considered.
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56 297 **CONCLUSION**

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

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309 Compliance with ethical standards

310 Disclosure of potential conflicts of interest

311 The authors declare they have no conflicts of interest.

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313 Informed consent

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

316 REFERENCES

- 317 1. Barratt H, Rojas-Garcia A, Clarke K, Moore A, Whittington C, Stockton S, et al.
318 Epidemiology of Mental Health Attendances at Emergency Departments: Systematic Review and
319 Meta-Analysis. PLoS One. 2016;11(4):e0154449. doi:10.1371/journal.pone.0154449
- 320 2. Clarke D, Usick R, Sanderson A, Giles-Smith L, Baker J. Emergency department staff
321 attitudes towards mental health consumers: a literature review and thematic content analysis.
322 Int J Ment Health Nurs. 2014;23(3):273-84. doi:10.1111/inm.12040
- 323 3. Clarke DE, Dusome D, Hughes L. Emergency department from the mental health client's
324 perspective. Int J Ment Health Nurs. 2007;16(2):126-31. doi:10.1111/j.1447-0349.2007.00455.x
- 325 4. Zeller S, Calma N, Stone A. Effects of a dedicated regional psychiatric emergency service
326 on boarding of psychiatric patients in area emergency departments. West J Emerg Med.
327 2014;15(1):1-6. doi:10.5811/westjem.2013.6.17848
- 328 5. Ayangbayi T, Okunade A, Karakus M, Nianogo T. Characteristics of Hospital Emergency
329 Room Visits for Mental and Substance Use Disorders. Psychiatr Serv. 2017;68(4):408-10.
330 doi:10.1176/appi.ps.201600125
- 331 6. Minassian A, Vilke GM, Wilson MP. Frequent emergency department visits are more
332 prevalent in psychiatric, alcohol abuse, and dual diagnosis conditions than in chronic viral
333 illnesses such as hepatitis and human immunodeficiency virus. J Emerg Med. 2013;45(4):520-5.
334 doi:10.1016/j.jemermed.2013.05.007
- 335 7. Andersen RM. Revisiting the behavioral model and access to medical care: does it
336 matter? J Health Soc Behav. 1995;36(1):1-10.
- 337 8. Gasperini B, Cherubini A, Pierri F, Barbadoro P, Fedecostante M, Prospero E. Potentially
338 preventable visits to the emergency department in older adults: Results from a national survey
339 in Italy. PLoS One. 2017;12(12):e0189925. doi:10.1371/journal.pone.0189925
- 340 9. Doran KM, Shumway M, Hoff RA, Blackstock OJ, Dilworth SE, Riley ED. Correlates of
341 hospital use in homeless and unstably housed women: the role of physical health and pain.
342 Womens Health Issues. 2014;24(5):535-41. doi:10.1016/j.whi.2014.06.003
- 343 10. Parkman T, Neale J, Day E, Drummond C. Qualitative exploration of why people
344 repeatedly attend emergency departments for alcohol-related reasons. BMC Health Serv Res.
345 2017;17(1):140. doi:10.1186/s12913-017-2091-9
- 346 11. Babitsch B, Gohl D, von Lengerke T. Re-revisiting Andersen's Behavioral Model of Health
347 Services Use: a systematic review of studies from 1998-2011. Psychosoc Med. 2012;9:Doc11.
348 doi:10.3205/psm000089
- 349 12. Walsh PG, Currier GW, Shah MN, Friedman B. Older Adults with Mental Disorders: What
350 Factors Distinguish Those Who Present to Emergency Departments for Mental Health Reasons
351 from Those Who Do Not? Am J Geriatr Psychiatry. 2015;23(11):1162-71.
352 doi:10.1016/j.jagp.2015.05.011
- 353 13. Halmer TC, Beall RC, Shah AA, Dark C. Health Policy Considerations in Treating Mental
354 and Behavioral Health Emergencies in the United States. Emerg Med Clin North Am.
355 2015;33(4):875-91. doi:10.1016/j.emc.2015.07.013
- 356 14. Bohn MJ, Babor TF, Kranzler HR. The Alcohol Use Disorders Identification Test (AUDIT):
357 validation of a screening instrument for use in medical settings. J Stud Alcohol Drugs.
358 1995;56(4):423-32.
- 359 15. Carey KB, Carey MP, Chandra PS. Psychometric evaluation of the alcohol use disorders
360 identification test and short drug abuse screening test with psychiatric patients in India. J Clin
361 Psychiatry. 2003;64(7):767-74.

16. Titscher S, Wodak R, Meyer M, Vetter E. *Methods of text and discourse analysis*. London: Sage Publications 2000.
17. McCusker J, Karp I, Cardin S, Durand P, Morin J. Determinants of emergency department visits by older adults: a systematic review. *Acad Emerg Med*. 2003;10(12):1362-70.
18. Wise-Harris D, Pauly D, Kahan D, Tan de Bibiana J, Hwang SW, Stergiopoulos V. "Hospital was the Only Option": Experiences of Frequent Emergency Department Users in Mental Health. *Adm Policy Ment Health*. 2017;44(3):405-12. doi:10.1007/s10488-016-0728-3
19. Olsson M, Hansagi H. Repeated use of the emergency department: qualitative study of the patient's perspective. *Emerg Med J*. 2001;18(6):430-4.
20. Carleton RN, Duranceau S, Freeston MH, Boelen PA, McCabe RE, Antony MM. "But it might be a heart attack": intolerance of uncertainty and panic disorder symptoms. *J Anxiety Disord*. 2014;28(5):463-70. doi:10.1016/j.janxdis.2014.04.006
21. Bailey KP. Physical symptoms comorbid with depression and the new antidepressant duloxetine. *J Psychosoc Nurs Ment Health Serv*. 2003;41(12):13-8.
22. Hughes JA, Sheehan M, Evans J. Treatment and outcomes of patients presenting to an adult emergency department involuntarily with substance misuse. *Int J Ment Health Nurs*. 2018;27(2):593-9. doi:10.1111/inm.12340
23. Olfson M, Mechanic D, Hansell S, Boyer CA, Walkup J, Weiden PJ. Predicting medication noncompliance after hospital discharge among patients with schizophrenia. *Psychiatr Serv*. 2000;51(2):216-22. doi:10.1176/appi.ps.51.2.216
24. Chaput Y, Lebel MJ, Labonte E, Beaulieu L, Paradis M. Pathological gambling and the psychiatric emergency service. *Can J Psychiatry*. 2007;52(8):535-8. doi:10.1177/070674370705200812
25. Knapp M, King D, Pugner K, Lapuerta P. Non-adherence to antipsychotic medication regimens: associations with resource use and costs. *Br J Psychiatry*. 2004;184:509-16.
26. Commissaire à la santé et au bien-être (CSBE). *Utilisation des urgences en santé mentale et en santé physique au Québec*. Québec Commissaire à la santé et au bien-être; 2017.
27. Da Cruz D, Pearson A, Saini P, Miles C, While D, Swinson N, et al. Emergency department contact prior to suicide in mental health patients. *Emerg Med J*. 2011;28(6):467-71. doi:10.1136/emj.2009.081869
28. Vandyk AD, Harrison MB, VanDenKerkhof EG, Graham ID, Ross-White A. Frequent emergency department use by individuals seeking mental healthcare: a systematic search and review. *Arch Psychiatr Nurs*. 2013;27(4):171-8. doi:10.1016/j.apnu.2013.03.001
29. Hansagi H, Olsson M, Sjöberg S, Tomson Y, Göransson S. Frequent use of the hospital emergency department is indicative of high use of other health care services. *Ann Emerg Med*. 2001;37(6):561-7. doi:<http://dx.doi.org/10.1067/mem.2001.111762>
30. Williams RI, Volberg RQ, Stevens RMG. *The Population Prevalence of Problem Gambling: Methodological Influences, Standardized Rates, Jurisdictional Differences, and Worldwide Trends*. Report prepared for the Ontario Problem Gambling Research Centre and the Ontario Ministry of Health and Long Term Care 2012.
31. Vu F, Daeppen JB, Hugli O, Iglesias K, Stucki S, Paroz S, et al. Screening of mental health and substance users in frequent users of a general Swiss emergency department. *BMC Emerg Med*. 2015;15:27. doi:10.1186/s12873-015-0053-2
32. Giguere CE, Potvin S, Signature C. The Drug Abuse Screening Test preserves its excellent psychometric properties in psychiatric patients evaluated in an emergency setting. *Addict Behav*. 2017;64:165-70. doi:10.1016/j.addbeh.2016.08.042

33. Musgrave C, Timms A, Georgiou G, Glover S, Sque M, Black D, et al. Alcohol-related harm: developing a drug and alcohol liaison team. *Br J Nurs*. 2018;27(15):881-5. doi:10.12968/bjon.2018.27.15.881
34. O'Brien A, Leonard L, Deering D. Could an advance practice nurse improve detection of alcohol misuse in the emergency department? *Int J Ment Health Nurs*. 2012;21(4):340-8. doi:10.1111/j.1447-0349.2011.00797.x
35. Chaput YJA, Lebel M-J. Demographic and Clinical Profiles of Patients Who Make Multiple Visits to Psychiatric Emergency Services. *Psychiatr Serv*. 2007;58(3):335-41. doi:10.1176/appi.ps.58.3.335
36. Chang G, Weiss AP, Orav EJ, Rauch SL. Predictors of frequent emergency department use among patients with psychiatric illness. *Gen Hosp Psychiatry*. 2014;36(6):716-20. doi:10.1016/j.genhosppsych.2014.09.010
37. Beck A, Sanchez-Walker E, Evans LJ, Harris V, Pegler R, Cross S. Characteristics of people who rapidly and frequently reattend the emergency department for mental health needs. *Eur J Emerg Med*. 2016;23(5):351-5. doi:10.1097/MEJ.0000000000000349
38. Prins M, Meadows G, Bobevski I, Graham A, Verhaak P, Van derMeer K, et al. Perceived need for mental health care and barriers to care in the Netherlands and Australia. *Soc Psychiatry Psychiatr Epidemiol*. 2011;46(10):1033-44. doi:10.1007/s00127-010-0266-3
39. Kessler RC, Berglund P, Demler O, Jin R, Koretz D, Merikangas KR, et al. The epidemiology of major depressive disorder: results from the National Comorbidity Survey Replication (NCS-R). *JAMA*. 2003;289(23):3095-105.
40. Wang PS, Berglund P, Olfson M, Pincus HA, Wells KB, Kessler RC. Failure and delay in initial treatment contact after first onset of mental disorders in the National Comorbidity Survey Replication. *Arch Gen Psychiatry*. 2005;62(6):603-13. doi:10.1001/archpsyc.62.6.603
41. Vasiliadis H-M, Lesage A, Adair C, Boyer R. Service Use for Mental health Reasons: Cross-Provincial Differences in Rates, Determinants, and Equity of Access. *Can J Psychiatry*. 2005;50(10):614 - 9.
42. Institut de la statistique du Québec (ISQ). Portrait des statistiques de la santé mentale des québécois. Résultats de l'Enquête sur la santé dans les collectivités canadiennes Santé mentale 2012; Portrait chiffré. Québec: Gouvernement du Québec, Institut de la statistique du Québec; 2015.
43. Kahan D, Leszcz M, O'Campo P, Hwang SW, Wasylenki DA, Kurdyak P, et al. Integrating care for frequent users of emergency departments: implementation evaluation of a brief multi-organizational intensive case management intervention. *BMC Health Serv Res*. 2016;16:156. doi:10.1186/s12913-016-1407-5
44. Nesper AC, Morris BA, Scher LM, Holmes JF. Effect of Decreasing County Mental Health Services on the Emergency Department. *Ann Emerg Med*. 2016;67(4):525-30. doi:10.1016/j.annemergmed.2015.09.007
45. Fortin M, Bamvita JM, Fleury MJ. Patient satisfaction with mental health services based on Andersen's Behavioral Model. *Can J Psychiatry*. 2018;63(2):103-14. doi:10.1177/0706743717737030
46. Krupchanka D, Khalifeh H, Abdulmalik J, Ardila-Gomez S, Armiya'u AY, Banjac V, et al. Satisfaction with psychiatric in-patient care as rated by patients at discharge from hospitals in 11 countries. *Soc Psychiatry Psychiatr Epidemiol*. 2017;52(8):989-1003. doi:10.1007/s00127-017-1366-0
47. Ruud T, Aarre TF, Boeskov B, le Husevag PS, Klepp R, Kristiansen SA, et al. Satisfaction with primary care and mental health care among individuals with severe mental illness in a rural

1
2
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4 455 area: a seven-year follow-up study of a clinical cohort. *Int J Ment Health Syst.* 2016;10:33.
5 456 doi:10.1186/s13033-016-0064-8
6
7 457 48. Poremski D, Harris DW, Kahan D, Pauly D, Leszcz M, O'Campo P, et al. Improving
8 458 continuity of care for frequent users of emergency departments: service user and provider
9 459 perspectives. *Gen Hosp Psychiatry.* 2016;40:55-9. doi:10.1016/j.genhosppsych.2016.01.004
10 460 49. Padgett DK, Brodsky B. Psychosocial factors influencing non-urgent use of the
11 461 emergency room: a review of the literature and recommendations for research and improved
12 462 service delivery. *Soc Sci Med.* 1992;35(9):1189-97.
13
14 463 50. Zeman L, Arfken CL. Decreasing unnecessary care in a psychiatric emergency service.
15 464 *Psychiatr Serv.* 2006;57(1):137-8. doi:10.1176/appi.ps.57.1.137
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Figure 1: Conceptual framework based on the Andersen Behavioral Model

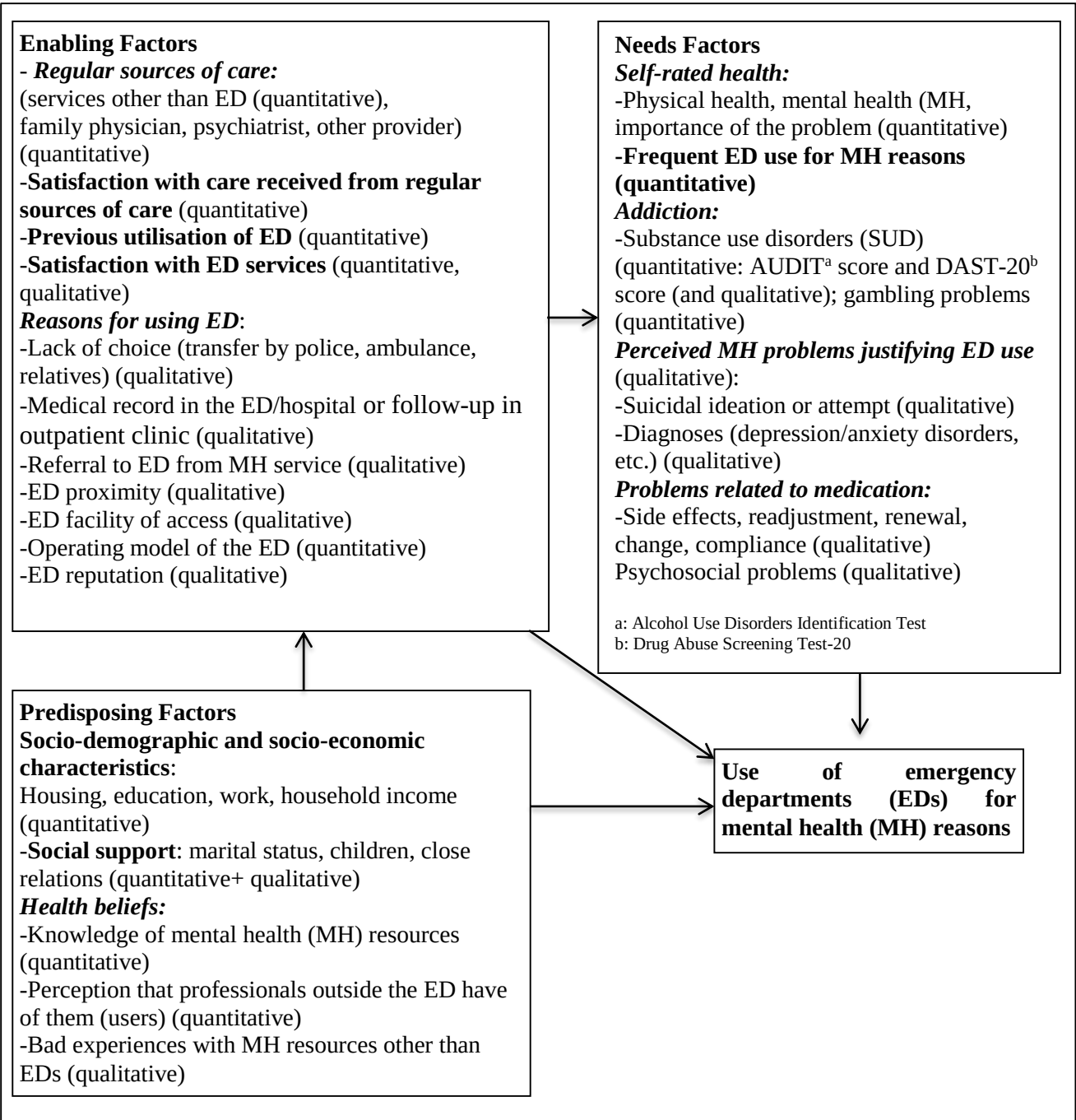


TABLE 1: Participant characteristics related to predisposing factors (N=328)

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	168	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

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 (n=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 (n=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 (n=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
Number of visits to EDs for mental disorders or substance use disorders	1	31
	Mean	SD
	2.39	3.82

(SUDs) in previous 12 months

Number of visits to EDs annually for MH reasons

0 52 1.07 3.54

n %

Satisfaction with ED services:

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

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 :	99	30.2
Individuals with a score of 8 +		
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.

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