Determinants of Unmet Mental Healthcare Needs of Single Adults Who Are Homeless or Vulnerably Housed

Arnaud Duhoux

University of Montreal and Centre de recherche Charles-Le Moyne—Saguenay-Lac St. Jean sur les Innovations en santé

Tim Aubry, John Ecker, and Rebecca Cherner

University of Ottawa

Ayda Agha, and Matthew J. To

St. Michael's Hospital

Stephen W. Hwang

St. Michael's Hospital and University of Toronto

Anita Palepu

University of British Columbia

Arnaud Duhoux, Faculty of Nursing, University of Montreal, Montreal, QC, Canada and Centre de recherche Charles-Le Moyne—Saguenay-Lac St. Jean sur les Innovations en santé, Longueil, QC, Canada ; Tim Aubry, Centre for Research on Educational and Community Services, School of Psychology, University of Ottawa, Ottawa, ON, Canada; John Ecker, Centre for Research on Educational and Community Services, School of Psychology, University of Ottawa, Ottawa, ON, Canada; Rebecca Cherner, Centre for Research on Educational and Community Services, School of Psychology, University of Ottawa, Ottawa, ON, Canada; Ayda Agha, Centre for Research on Inner City Health, Keenan Research Centre in the Li Ka Shing Knowledge Institute, St. Michael's Hospital, Toronto, ON, Canada; Matthew J. To, Centre for Research on Inner City Health, Keenan Research Centre in the Li Ka Shing Knowledge Institute, St. Michael's Hospital, Toronto, ON, Canada; Stephen W. Hwang, Centre for Research on Inner City Health, Keenan Research Centre in the Li Ka Shing Knowledge Institute, St. Michael's Hospital, Toronto, ON, Canada and Department of Medicine, University of Toronto, Toronto, ON, Canada; Anita Palepu, Centre for Health Evaluation and Outcome Sciences, Department of Medicine, University of British Columbia, Vancouver, BC, Canada.

Correspondence concerning this article should be addressed to Arnaud Duhoux, Université de Montréal, Faculté des sciences infirmières, Marguerite d'Youville, 2375, chemin Côte-Ste-Catherine, Montréal (Québec) H3T 1A8, bureau 5103. Mailing address: C.P. 6128, succursale Centre-ville Montréal, QC H3C 3J7. Email: arnaud.duhoux@umontreal.ca

ABSTRACT

Persons who are homeless experience higher levels of mental illness, unmet mental healthcare needs, and physical healthcare needs than the general population. This study aimed (1) to determine the reasons contributing to having unmet mental healthcare needs (UMHCN) and (2) to examine the determinants of UMHCN among a representative sample of adults who are homeless or vulnerably housed in three Canadian cities (N=1190). Almost a quarter (23.3%) of the sample reported UMHCN in the past year. The reported reasons for having UMHCN pertained especially to the availability (31.5%), accommodation (22.1%), and acceptability (21.3%) of services. Age, city, and need-for-care variables were associated with UMHCN in multivariate analysis. Implications of the findings for policy and program planning are discussed.

Keywords: homelessness, unmet mental healthcare needs, accessibility, mental health

RÉSUMÉ

Les personnes sans-abri présentent des niveaux plus élevés de maladie mentale, de besoins de soins de santé et de besoins non comblés de soins de santé mentale que la population générale. Cette étude visait (1) à déterminer les raisons des besoins non comblés des soins de santé mentale (BNCSM) et (2) à examiner les déterminants des BNCSM auprès d›un échantillon représentatif d›adultes sans-abri ou logés de façon précaire dans trois villes canadiennes (N = 1190). Près d›un quart (23,3%) de l›échantillon a rapporté des BNCSM lors de l›année passée. Les raisons principales des BNCSM portaient sur la disponibilité (31,5%), l'accommodement (22,1%), et l›acceptabilité (21,3%) des services. L'âge, la ville et les besoins de soins étaient les variables associées aux BNCSM en analyse multivariée. Les implications des résultats pour la planification des services et le développement des politiques sont discutées.

Mots clés : itinérance, besoins non comblés de soins de santé mentale, accessibilité, santé mentale

Persons who are homeless experience higher levels of physical and mental illness and need for healthcare compared to the general population (Baggett, O'Connell, Singer, & Rigotti, 2010; Fazel, Geddes, & Kushel, 2014; Stergiopoulos, Dewa, Durbin, Chau, & Svoboda, 2010). Individuals who are homeless with mental illness often experience various acute and chronic health conditions and are at substantially increased risk for morbidity and all-cause mortality (Aubry, Klodawsky, & Coulombe, 2012; Bhui, Shanahan, & Harding, 2006; Fazel et al, 2014; Frankish, Hwang, & Quantz, 2005; Lebrun-Harris et al., 2013). Mental illness is considered to be one of the leading causes of disability among individuals who are homeless, often combined with additional health problems and limited access to both general and mental healthcare (Durbin, Sirotich, & Durbin, 2014; Fazel et al, 2014; Frankish et al., 2005; Lebrun-Harris et al., 2013).

Previous research also indicates that persons who are homeless or vulnerably housed have a similar prevalence of self-reported physical and mental health problems and both groups experience high rates of unmet health needs (Palepu et al., 2013). Given the high prevalence of unmet needs among these groups, it is important to identify and examine associated factors. This study aims (a) to determine the reasons contributing to having unmet mental healthcare needs (UMHCN) among adults who are homeless or vulnerably housed in three Canadian cities and (b) to examine the determinants of UMHCN.

UNMET NEEDS AND POOR ACCESS TO HEALTHCARE

Research indicates that the prevalence of unmet needs for healthcare among individuals who are homeless is high, with some reports suggesting that only one third of them receive healthcare (Baggett et al., 2010; Kim et al., 2007; Stergiopoulos et al., 2010). A 1999 study of 200 individuals who were homeless in Manchester, UK found only 17% had seen a psychiatrist and 22.5% were in contact with a drug agency for treatment, despite a majority of participants reporting psychological or drug-related problems (Bhui et al., 2006). Within a national survey of 996 US adults who were homeless, 73% reported at least one unmet health need and 21% reported UMHCN (Baggett et al., 2010). In another sample of adults who were homeless in San Francisco, 61.9% of those who felt treatment was important reported unmet emotional or mental health treatment needs (Wojtusik & White, 1998).

A level-of-care needs assessment conducted with 356 men staying at a homeless shelter in Toronto, Canada, found that despite the availability of on-site health services, more than half of the participants did not have their level of service needs met, with a higher number of unmet needs among those needing specialty mental healthcare (Stergiopoulos et al., 2010). Another study in Ottawa, Canada with 81 women and 86 men who were homeless found a higher percentage of them reporting a higher level of unmet healthcare needs when compared to the general population as reported in a national population health survey (Aubry, Klodawsky, Hay, & Birnie, 2003). In particular, 35% of women and 21% of men who were homeless indicated not being able to access needed healthcare or advice versus 7% of women and 5% of men in the general population.

CHALLENGES AND BARRIERS RELATED TO UMHCN

Despite an increased need for health services, individuals who are homeless face various challenges in accessing, utilizing, and maintaining healthcare services (Lebrun-Harris et al., 2013). These challenges include experiencing complex psychosocial and socioeconomic problems that simultaneously increase their risk for chronic health problems while decreasing their access to specialty psychiatric treatment as well as general medical care (Durbin et al, 2014; Fazel et al., 2014; Kim et al., 2007). Individuals who are homeless frequently encounter barriers such as having limited knowledge about health issues and services, low levels of education, non-existent or small social support networks, and cognitive impairment (Forchuk, Brown, Schofield, & Jensen, 2008; Kim et al., 2007; Ojeda & Bergstresser, 2008;).

As a result, although individuals who are homeless have higher use of hospital-based and emergency care, they have decreased rates of primary-care use compared to the general population (Forchuk et al., 2008; Lebrun-Harris et al., 2013). Additional barriers can include uncertainty regarding where to access care, inconvenient hours or wait times, embarrassment or discomfort seeking care, and competing priorities for basic needs (Baggett et al., 2010; Chartier-Otis, Perreault, & Belanger, 2010). When exploring UMHCN specifically in a sample of adults who were homeless in Toronto, the most frequent reasons included "did not have a doctor to go to" or "didn't know where to get care," (Khandor & Mason, 2007).

FACTORS RELATED TO UMHCN

Gelberg, Andersen, and Leake (2000) proposed three types of factors related to the use of health services: predisposing characteristics, enabling variables, and need for care. Moreover, this behavioural model has also been explored in relation to UMHCN in the general population (Dezetter et al., 2015).

Predisposing characteristics refer to demographics characteristics such as sex, education and ethnic-racial status, and beliefs related to health (Gelberg et al., 2000). Several of these predisposing characteristics have been associated with the presence of UMHCN. For example, being younger, female, and married have been found to be associated with UMHCN (Bijl & Ravelli, 2000; Holmes Nelson & Park, 2006; Urbanoski, Cairney, Bassani, & Rush, 2008). One study found ethnic-racial status to be associated with UMHCN, where White women had fewer unmet needs than women who are Black or Hispanic (Sherbourne, Dwight-Johnson, & Klap, 2001).

Enabling factors are variables that facilitate having access to health services (Gelberg et al., 2000). There has been limited research on the relationship between enabling factors and UMHCN. Although some studies have found both low income and unemployment to be related to encountering barriers to accessing mental health care (Rabinowitz, Gross, & Feldman, 1999; Steele, Dewa, & Lee, 2007), others have not found these associations (Bijl & Ravelli, 2000; Mojtabai, Olfson, & Mechanic, 2002; Sherbourne et al., 2001; Urbanoski et al., 2008). On the other hand, not surprisingly, substantial literature does find that inability to afford care, not having health insurance, as well as lacking access to transportation are the most commonly reported barriers to obtaining general healthcare service (Baggett et al., 2010; Chondraki, Madianos, Dragioti, & Papadimitriou, 2014; Dezetter et al., 2015; Kim et al., 2007; Perese, 2007).

Even with universal medical coverage, cost of service appears to be problematic in Canada. Durbin et al. (2014) found that an individual's income source was associated with elevated risk of unmet needs among adults admitted to mental health court support programs in Toronto. Concerns about the cost of services and lack of private health insurance coverage were also the most commonly reported as reasons for UMHCN among 206 participants diagnosed with social anxiety or panic disorder in Quebec (Chartier-Otis et al., 2010). Also, despite Canada's universal medical care coverage, barriers still exist that can make it difficult for persons who are homeless to obtain care, such as proof of coverage or identification (Durbin et al., 2014). Moreover, many mental health services such as psychotherapy are not covered under Canadian universal health insurance.

Need-for-care variables include how people perceive their health and experience symptoms. Several studies have identified a relationship between UMHCN and need-for-care variables, such as the presence of a mental disorder, mental health status, and physical health status. Mental health variables, including the presence of a mental disorder (Holmes Nelson & Park, 2006), lower self-reported mental health functioning (Holmes Nelson & Park, 2006; Urbanoski et al., 2008), or higher level of mental health symptoms (Dezetter et al., 2015; Stergiopoulos et al., 2010) have consistently been related to UMHCN.

Moreover, higher levels of poverty and a greater severity of psychiatric symptoms have been significantly associated with a higher probability for reporting UMHCN (Kim et al., 2007; Perese, 2007; Stergiopoulos et al., 2010; Urbanoski et al., 2008). There has been less research on the relationship between substance use and UMHCN. Adults with concurrent disorders (i.e., mental health disorder and substance use disorder) have reported more UMHCN compared to those with solely a mental disorder, or substance use disorder

(Urbanoski, Rush, Wild, Bassani, & Castel, 2007). A perceived need for mental health treatment is also related to having a substance use disorder within the past year (Sareen et al., 2007).

The presence of a chronic physical health condition has also been found to be associated with UMHCN (Holmes Nelson & Park, 2006). For example, greater impairment due to medical illness in men who are homeless was related to receiving a lower level of mental healthcare than recommended (Stergiopoulos et al., 2010). Moreover, having lower levels of physical and mental health functioning (Hwang et al., 2010) and having two or more chronic medical co-morbidities have also been associated with unmet healthcare needs (Bagget et al., 2010). Palepu et al. (2013) previously investigated the cohort from the present study and found that having a higher burden of chronic physical health conditions as well as past diagnosis of a mental health condition were both independently associated with unmet general healthcare needs among this sample.

To date there is a paucity of research on the UMHCN of people who are homeless or living in a precarious housing situation. The current study is intended to address this gap in knowledge by investigating factors contributing to the unmet healthcare needs in these two populations. Based on the Behavioral Model for Vulnerable Populations (see Gelberg et al., 2000), the intent of the study is to identify predisposing characteristics, enabling factors, and variables related to the need for care that are predictive of UMHCN in people who are homeless or vulnerably housed.

METHODOLOGY

Study Design and Participants

Data for this research comes from the Health and Housing in Transition (HHiT) study, a prospective cohort study that aimed to track the health and housing status of a representative sample of single adults who are homeless or vulnerably housed in three Canadian cities. The survey methodology has been detailed elsewhere (Hwang et al., 2011). In brief, single adults were randomly selected from shelters, meal programs, community health centres, drop-in centres, rooming houses, and single-room occupancy hotels in Toronto, Ottawa, and Vancouver between January and December 2009. Participants were then interviewed every 12 months for a four-year period. The current study utilizes data collected at three time points, namely at study entry, one-year follow-up (FU1), and two-year follow-up (FU2).

Participants were considered homeless if they were living in a shelter, public place, vehicle, abandoned building, or temporarily staying with someone due to lack of own housing. Participants were considered vulnerably housed if they reported living in their own room, apartment, or place and had been homeless in the past 12 months and/or had at least two moves in the past 12 months. Participants who were temporarily living with friends or family and were paying rent were considered vulnerably housed, while those who were not paying rent were considered homeless. At baseline, participants (N = 1,190) completed in-depth, in-person interviews.

The description of the characteristics of the sample are presented elsewhere (Palepu et al., 2013). The first (FU1: N = 968, 81.3% retention) and the second follow-up interviews (FU2: N = 970, 82.8% retention) were completed primarily in person, with some interviews being conducted via telephone for those individuals no longer living in the same city. All interviews were conducted by trained research assistants. Participants

provided written informed consent and were compensated $20 CDN for completing the survey. The methodology used in the HHiT study was approved by the Research Ethics Boards at St. Michael's Hospital in Toronto, the University of Ottawa, and the University of British Columbia in Vancouver.

Measures

The primary measure for this analysis was based upon two questions regarding UMHCN. Participants were asked: (1) "Have you needed mental health care in the past 12 months but were not able to get help?" and if so (2) "What are the reasons that you were unable to access mental healthcare?" Participants were asked to provide up to three reasons that the interviewer matched to a pre-established list of possible reasons. If the reason given was not on the pre-established list, interviewers recorded the reason as free-text. Reasons for being unable to access mental healthcare were then post-coded into their corresponding five dimensions of access described by Penchansky and Thomas (1981): (1) availability, (2) accessibility, (3) accommodation, (4) affordability, and (5) acceptability.

Availability pertains to whether there is an adequate supply of healthcare providers relative to patients, whereas accessibility is related to the location of these providers. Accommodation refers to how well provider operations are organized to accommodate patients' constraints and preferences. Affordability refers to the cost of services relative to patient income, insurance, and overall ability to pay. Finally, acceptability is defined as the interaction between patient and provider attitudes and preferences about what constitutes acceptable personal and treatment practices, such as patient-provider trust. As some reasons pertained to the respondent's willingness to seek care, a sixth category named "personal reasons" was used. Four authors (AD, RC, JE and TA) individually classified the UMHCN reasons reported by the respondents in the six categories. Those four authors met to reach consensus on their different classifications.

The survey also included self-report questions regarding demographic characteristics, health, as well as problems associated with substance use. Participants were asked to self-identify their age, gender, marital status, ethnic background, country of birth, and education level. To determine employment status, participants were asked at each interview period if they had either part-time or full-time employment in the past 12 months. Participants were asked if they had ever been diagnosed with a mental health condition. If they answered "yes," they were asked to report the specific diagnosis. Participants were asked if they have a provincial health card number.

Based upon their residence at the time of each interview, participants were coded as "homeless" or "vulnerably housed" or "housed." Using the Housing Timeline Follow-Back Calendar, the percentage of time housed in the last 12 months was calculated using the housing histories provided by the participants (Tsemberis, McHugo, Williams, Hanrahan, & Stefancic, 2007). This method asks participants to recount their previous living situations within a specified period. For the current analysis, the participants were asked to recount their housing history in the year since the last interview at FU1 and FU2. The measure has demonstrated good psychometric properties (Tsemberis et al., 2007).

Health status was assessed using the Short Form 12-item health survey (SF-12), which assesses individual's functioning within the previous four weeks of test administration (Ware, Kosinski, & Keller, 1996). Results are expressed in terms of a meta-score that reflects physical and mental health functioning: the

Physical Component Summary (PCS) and the Mental Health Component Summary (MCS). Scores on the items are weighted to produce a range from 0 to 100, with scores higher than 50 indicating above average health status. The SF-12 has demonstrated sound psychometric properties (Salyers, Bosworth, Swanson, Lamb-Pagone, & Osher, 2000; Ware et al., 1996). The 10-item Drug Abuse Screening Test (DAST-10) was also used to screen for illicit drug use (positive screen ≥ 3). The Alcohol Use Disorders Identification Test (AUDIT), a 10-item questionnaire, was used to screen for alcohol use disorder (positive screen ≥ 8). Both scales have demonstrated very good psychometric properties (Cocco & Cary, 1998; Maisto, Conigliaro, McNeil, Kraemer, & Kelley, 2000; Skinner, 1982)

Analysis. The Gelberg et al. (2000) Behavioral Model for Vulnerable Populations was used to conceptually group variables that were potentially associated with UMHCN. Predisposing characteristics selected included age, sex, marital status, ethnicity, country of birth, and education level of the respondent. Work status in the past year, income, current residence status, proportion of days housed in the last 12 months, and having a provincial health card number were selected as enabling factors. Need-for-care variables included the mental and physical health functioning based on SF-12 as well as ever being diagnosed with a mental health problem. The DAST and AUDIT were included to identify the presence of drug and alcohol use problems.

Since previous analysis of this cohort had shown that persons who are homeless or vulnerably housed had many comparable baseline characteristics, the two groups were combined (Hwang et al., 2011; Palepu et al., 2013). Descriptive statistics were used to assess the rate of UMHCN at baseline and identify the associated reasons. Bivariate analyses between UMHCN and study variables at baseline were performed using the chi-square test or Fisher exact test (where appropriate) for categorical variables and one-way ANOVA for continuous variables. For multivariate analysis, all variables significant at a threshold of $P<0.05$ in bivariate analysis were included in the logistic regression model. Associations were expressed as odds ratios (ORs) with their 95% CIs. The same procedure was repeated at FU1 and FU2 to test for reliability of predictors. Response rates for each of the variables considered were very high, with a maximum of 2.9% of missing data for ethnic background. For the logistic regression analysis, 69 (5.9%) participants who had incomplete data on the variables of interest were excluded. Analyses were performed with IBM SPSS statistics 22 software.

RESULTS

At baseline, 23.3% (n = 277) of the HHiT participants reported UMHCN in the past 12 months. This proportion decreased slightly at FU1 (20.7%) and FU2 (21%). Only 42% of the 277 persons with UMHCN at baseline reported UMHCN at FU1 or FU2. Although samples are relatively small, differences in reasons identified for UMHCN among cities were found (Table 1 and Figure 1). In Ottawa, the availability of services appears to be more problematic, whereas in Vancouver, acceptability was reported as a reason for UMHCN more frequently than elsewhere. Among the entire sample, more participants reported availability (31.5%), accommodation (22.1%), and acceptability (21.3%) as reasons for UMHCN. Few participants stated affordability (1.9%) or accessibility (5.2%) as barriers.

Table 2 presents the proportion or mean of participants reporting UMHCN according to categories of variables. There were significant differences in the rate of UMHCN based on three predisposing characteristics: age, gender, and ethnic-racial status. Respondents between ages of 30 and 39 reported the highest

Figure 1

Description of reasons contributing to UMHCN reported at baseline and post-coded into their corresponding dimensions of access in a population of single adults who are homeless or vulnerably housed in three Canadian cities (n = 277)
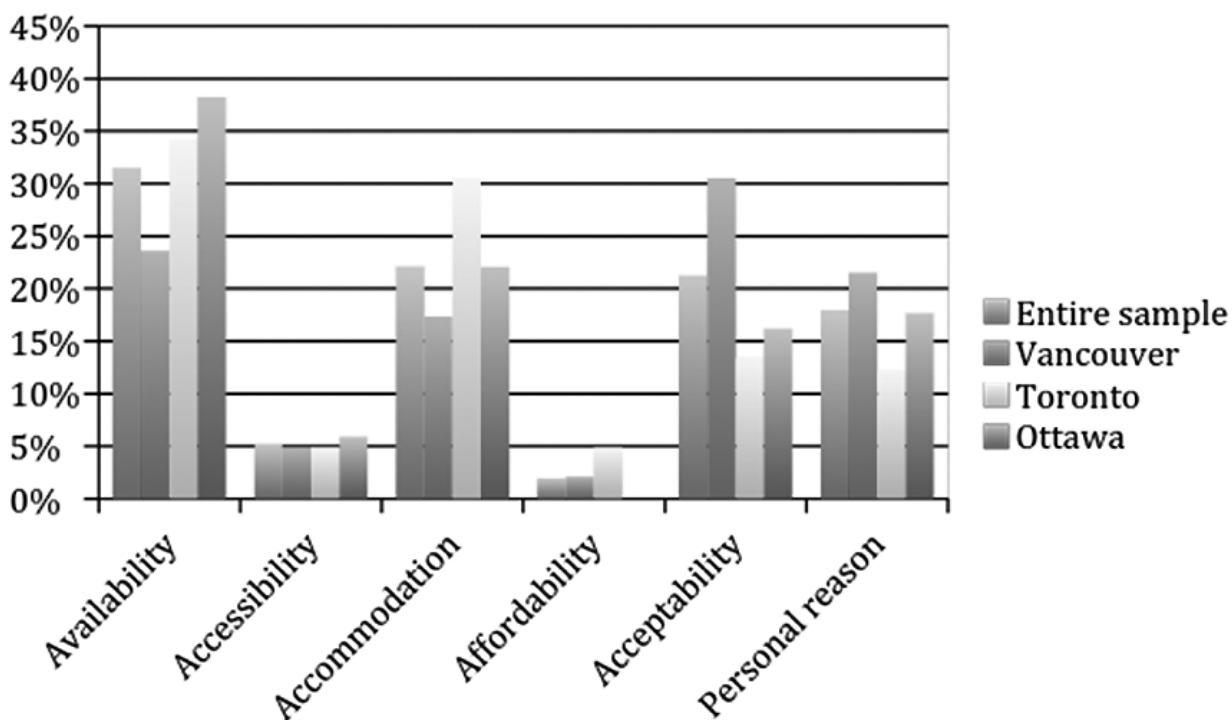
Source: Authors' compilation.

Table 1

Description of UMHCN Reasons Reported at Baseline and Post-Coded into Their Corresponding Dimensions of Access in a Population of Single Adults who are Homeless or Vulnerably Housed in Three Canadian Cities (N = 277)

	Vancouver	Toronto	Ottawa	Total sample
Availability	34 (23.6%)	28 (34.1%)	52 (38.2%)	114 (31.5%)
Accessibility	7 (4.9%)	4 (4.9%)	8 (5.9%)	19 (5.2%)
Accommodation	25 (17.4%)	25 (30.5%)	30 (22.1%)	80 (22.1%)
Affordability	3 (2.1%)	4 (4.9%)	0 (0%)	7 (1.9%)
Acceptability	44 (30.6%)	11 (13.4%)	22 (16.2%)	77 (21.3%)
Personal reason	31 (21.5%)	10 (12.2%)	24 (17.6%)	65 (18%)

Note: Total number of reported reasons is higher than the sample size because respondents could give up to three different reasons.
Source: Authors' compilation.

rate of UMHCN ($p = 0.002$). White and First Nation participants reported higher rates of UMHCN. City was the only enabling factor associated with UMHCN, with residents of Toronto having lower percentages of UMHCN than those in Vancouver or Ottawa ($p = 0.001$). All five need-for-care variables were associated with UMHCN. Participants who reported having been diagnosed with a mental health problem, as well as those screened as positive on the AUDIT ($p = 0.003$) and DAST-10 ($p < 0.001$) reported higher proportions of UMHCN. Additionally, lower MH and PH SF-12 component scores were associated with more UMHCN ($p < 0.001$).

A logistic regression found age, city, and all the need variables to be significantly associated with UMHCN (Table 3). Single adults who are homeless or vulnerably housed and aged 30–39 years were almost twice as likely to report UNMCH compared to older age groups (AOR = 1.78). Those living in Vancouver were more likely to have UMHCN compared to respondents living in Toronto (AOR = 1.55). Screening positive for illicit drug use and alcohol use disorder were both associated with UMHCN (AOR 1.79 and AOR 1.45, respectively). Individuals diagnosed with a mental health condition were almost two and a half times more likely to report UMHCN (AOR = 2.44). Sensitivity analysis in the second and third model (at FU1 and FU2), reported similar results except age was no longer statistically significant (results not shown available from authors on request).

DISCUSSION

In this study of single adults who are homeless or vulnerably housed in three Canadian cities, almost a quarter (23.3%) report UMHCN in the past year. This is consistent with previous research suggesting rates of UMHCN range from 21% to 35% for individuals who are homeless (Aubry et al., 2003; Baggett et al., 2010; Durbin et al, 2014) but higher than the general population rate in Canada which was 17% in 2012 (Sunderland & Findlay, 2013). Previous research investigating this cohort also found that housing

Table 2

Bivariate Analysis Between Reporting UMHCN at Baseline (2009) and Variables Classified According to Gelberg, Andersen and Leake (2000) Behavioral Model of Health-Care Use (N = 1,190)

	UMHCN at baseline		
	Yes	No	*p* value
Predisposing characteristics			
Age group			0.002
<30	20.6%	79.4%	
30–39	31.4%	68.9%	
40-49	22.5%	77.5%	
>=50	18.4%	81.6%	
Gender			0.04
Female	26.5%	73.5%	
Male	21.6%	78.5%	
Transgender	41.2%	58.8%	
Marital status			0.94
Single	24.1%	75.9%	
Divorced	21.6%	78.4%	
Widowed	23.3%	76.7%	
Married	22.9%	77.1%	
Partnered	22.4%	77.6%	
Born in Canada			0.18
Yes	24%	76%	
No	19.2%	80.8%	
Ethnic			0.04
White	25%	75%	
Black	12.3%	87.7%	
First Nations	25.4%	74.6%	
Mixed	19%	81%	
Other	18.6%	81.4%	
Education			0.85
Some high school	22.7%	77.3%	
Completed high school	24.4%	75.6%	
Post-secondary or higher	23.8%	76.2%	
Enabling characteristics			
Work status			0.23
Not working	23.8%	76.2%	
FT (n=28)	10.7%	89.3%	
PT	21%	79%	

Table 2, continued

Bivariate Analysis Between Reporting UMHCN at Baseline (2009) and Variables Classified According to Gelberg, Andersen and Leake (2000) Behavioral Model of Health-Care Use (N = 1,190)

Income	1650	1357	0.05
Having a provincial health card number			0.79
Yes	23.1%	76.9%	
No	24.5%	75.5%	
City			0.001
Vancouver	27.2%	72.8%	
Toronto	16.7%	83.3%	
Ottawa	26.4%	73.6%	
Current Residence			0.26
Homeless	24.1%	75.9%	
Vulnerably housed	22.8%	77.2%	
Institution (n = 8)	12.5%	87.5%	
% of housed days in the last 12 months	9.83%	11.053%	0.30
Need for care			
Have you ever been diagnosed with a mental health problem?			<0.001
Yes	33.9%	66.1%	
No	12.3%	87.7%	
SF-12 MH component score	31.1	41.8	<0.001
SF-12 PH component score	42.02	45.1	<0.001
Alcohol Use (AUDIT) Screen			0.003
Positive	28.2%	71.8%	
Negative	20.5%	79.5%	
Drug use (DAST) Screen			<0.001
Positive	31.5%	68.5%	
Negative	14.2%	85.8%	

Source: Authors' compilation.

Table 3

Factors Associated with Reporting UMHCN in a Population of Single Adults who are Homeless or Vulnerably Housed in Three Canadian Cities (N = 1075)

Characteristics	AOR1	(95%CI)	
<30 years	1.19	0.66	2.13
30–39 years	1.78	1.11	2.85
40–49 years	1.18	0.76	1.83
>= 50 years	1.00		
Gender			
Female	1.00		
Male	1.00	0.71	1.42
Transgender	1.87	0.58	5.99
Ethnic-Racial Origin			
White	1.00		
Black/African Canadian	0.66	0.33	1.31
First Nations/Aboriginal	0.82	0.54	1.25
Mixed ethnicity	0.65	0.31	1.35
Other	0.96	0.45	2.07
City			
Toronto	1.00		
Vancouver	1.55	1.03	2.34
Ottawa	1.41	0.94	2.15
Diagnosed mental health problem			
Yes	2.44	1.72	3.45
No	1.00		
SF-12 mental health component	0.94	0.93	0.95
SF-12 physical health component	0.98	0.96	0.99
AUDIT Screen			
Positive	1.45	1.05	2
Negative	1.00		
DAST Screen			
Positive	1.79	1.26	2.53
Negative	1.00		
1AOR—adjusted odds ratio			

Source: Authors' compilation.

status at baseline did not significantly alter the likelihood of reporting unmet needs for general medical care (Argintaru et al., 2013).

Our results demonstrate that accessibility and affordability of services were not significant barriers to mental healthcare. This is in contrast to previous research that found financial barriers and not knowing how or where to look for help, as primary reasons for UMHCN (Baggett et al., 2010; Chartier-Otis, 2010; Dezetter et al., 2015; Durbin et al., 2014; Kessler et al., 2001; Kim et al., 2007; Perese, 2007). However, it is important to note that many of these previous studies were conducted in the US. Moreover, primary care services are available in shelters in both Toronto and Ottawa (Covenant House Toronto, 2016; Khandor & Mason, 2007; Ottawa Inner City Health, 2010).

Instead, reasons for UMHCN in this sample were related to gaps in services and support for people with mental illness, such as limited supply of healthcare providers and negative patient and provider inter-actions. Previous literature has revealed that individuals who are homeless have experienced conflicts with professionals and have reported mistrust and fear of the healthcare system (Bhui et al., 2006; Forchuk et al., 2008). Additionally, some individuals who are homeless have reported lack of consideration regarding their needs and constraints or felt that their health needs were not adequately met when seeking care (Bhui et al., 2006; Forchuk et al., 2008). These findings correspond to those of previous studies that suggested perceived stigma as being a major barrier to accessing healthcare (Kim et al., 2007; Lasser, Himmelstein, & Woolhandler, 2008; Ojeda & Bergstresser, 2008; Perese, 2007) including experiencing discrimination by healthcare professionals in a study conducted in Toronto (Khandor et al., 2011) and feeling unwelcome in healthcare settings (Wen, Hudak, & Hwang, 2007).

Although ethnic-racial origin was related to UMHCN in the bivariate analysis, this relationship was no longer significant in the logistic regression. Past findings on this relationship vary, with some studies having found a relationship (Sherbourne et al., 2001), while other have not (Mojtabai et al., 2002). Additionally, significant gender differences were present in the bivariate analysis, but no longer evident in the regression model, a pattern that has also been reported by Meadows et al. (2002) and Urbanowski et al. (2008), suggesting that other factors associated with gender may be directly associated with UHNMC.

A finding of increased UMHCN in the 30–39 age range was also consistent with research by Urbanoski et al. (2008) that also found that adults in the 30–39 age range reported more UMHCN than older adults. One explanation is that younger age has been significantly associated with wanting to solve one's mental health problems on one's own (Kessler et al., 2001). Additionally, older individuals have been found to be more frequent users of healthcare services (Nakonezny & Ojeda, 2005)

All the need-for-care variables, namely diagnosis of a mental health disorder, the presence of poorer mental and physical health functioning, and positive screens for problematic alcohol and drug use, were as-sociated with UMHCN. These relationships are not surprising given that individuals with difficulties who are not receiving services are more likely to view themselves as having unmet service needs. A number of studies have found that individuals perceiving UMHCN have more severe symptoms than those without perceived needs for care (Kim et al., 2007; Perese, 2007; Prins et al., 2011) and tend to experience higher levels of distress (Lefebvre, Cyr, Lesage, Fournier, & Toupin, 2000; Sunderland & Findlay, 2013). Additionally, these

findings are consistent with past studies that have found poorer mental and physical health to be related to UMHCN (Holmes Nelson & Park, 2006; Stergiopoulos et al., 2010; Urbanoski et al., 2008).

Differences between the three Canadian cities were also detected. Our results indicate that Toronto had lower rates of UMHCN than both Vancouver and Ottawa in the bivariate analysis. However, this difference was statistically significant only for the comparison between Toronto and Vancouver in the multiple regression analysis. Variation in population characteristics could be one explanation for between-city differences. Vancouver had a younger sample than Toronto (mean age 41.9 [Vancouver] vs. 43.5 [Toronto] and 41.1 [Ottawa] [$P = 0.004$]) and had a higher proportion of individuals reporting drug abuse problems (DAST positive screen: Vancouver = 66%, Toronto = 41%, Ottawa = 53% [$P < 0.001$]).

It is unlikely that these differences are due to between-city variations in service provision, as Vancouver had the lowest proportion reporting availability as a barrier. However, a greater proportion of participants in Vancouver reported UMHCN due to acceptability, which focuses on trust and attitudes of healthcare provider. This difference may be due to the higher prevalence of substance use in Vancouver among the participants and possibly perceiving greater stigma in their healthcare experiences. As well, as previously indicated, both Toronto and Ottawa have developed programs that deliver primary health in shelters (Covenant House Toronto, 2016; Khandor & Mason, 2007; Ottawa Inner City Health, 2010), a contextual factor that could contribute to higher levels of acceptability in these cities. Additional research is required to investigate city differences in experiences with mental healthcare services among individuals who are homeless.

The implications of the findings for policy and program planning are numerous. Despite the universal nature of healthcare services in Canada, the results indicate that individuals who are homeless or vulnerably housed and have significant health problems are experiencing unmet healthcare needs. Our findings suggest that there is a need for expansion of community mental health programs that can improve the availability of services for these individuals. This will require a need to train and produce more mental healthcare clinicians and professionals who have a desire to serve this population and have appropriate expertise.

In the Canadian context, the recent shift in services for people who are homeless or vulnerably housed towards Housing First can serve to address the unmet needs of these individuals (Aubry, Nelson, & Tsemberis, 2015). The completed At Home/Chez Soi Demonstration Project demonstrated the effectiveness of this approach and how it can serve as a platform for addressing unmet healthcare needs once housing stability has been established (Aubry et al., 2016; Stergiopoulos et al., 2015). In particular, the community support delivered by Housing First programs through Assertive Community Treatment or Intensive Case Management is intended to be individualized and comprehensive, facilitating the targeting of mental health problems and addictions (Tsemberis, 2010). The central values guiding these programs, notably facilitating empowerment and focusing on recovery can serve to respond to the accommodation and acceptability issues found to contribute to unmet healthcare needs in this population.

Limitations

This study has certain limitations. Health status and access to healthcare were self-reported, and thus are based on the participants' awareness and comfort with self-disclosing this personal information. There is some research suggesting that individuals who are homeless tend to under-report health problems (Gelberg

& Linn, 1992). Additionally, some participants may be hesitant to report mental health difficulties and needs due to the stigma associated with mental illness (Urbanoski et al., 2008). Finally, the collected data did not allow for determining if the healthcare needs of those reporting UMHCN were only partially unmet or completely unmet and whether the participants who reported having no UMHCN were being forthright.

CONCLUSIONS

Despite Canada's system of universal health care, almost a quarter of single adults who were homeless or vulnerably housed in Toronto, Ottawa, and Vancouver in 2009 reported UMHCN in the past year. Moreover, those with self-reported mental health diagnoses and who screened positive for drug and alcohol use disorder reported increased rates of unmet needs. Availability and access to mental healthcare services are major barriers for this group. Moreover, it appears these individuals who are homeless or vulnerably housed have negative experiences with healthcare providers and feel that their needs are not being accommodated when they do seek care. Further studies should investigate strategies and interventions to improve access to care and remedy negative patient provider relationships with this vulnerable population. There is a need for the development of community mental health programs that can address these unmet needs in this marginalized and underserved population.

REFERENCES

Argintaru, N., Chambers, C., Gogosis, E., Farrell, S., Palepu, A., Klodawsky, F., & Hwang, S. W. (2013). A cross-sectional observational study of unmet health needs among homeless and vulnerably housed adults in three Canadian cities. *BMC Public Health*, *13*(1), 1.

Aubry, T., Goering, P., Veldhuizen, S., Adair, C. E., Bourque, J., Distasio, J., ... Tsemberis, S. (2016). A multiple-city RCT of Housing First with assertive community treatment for homeless Canadians with serious mental illness. *Psychiatric Services*, *67*(3), 275–281.

Aubry, T., Klodawsky, F., & Coulombe, D. (2012). Comparing the housing trajectories of different classes within a diverse homeless population. *American Journal of Community Psychology*, *49*(1–2), 142–155.

Aubry, T., Klodawsky, F., Hay, E., & Birnie, S. (2003). *Panel study on persons who are homeless in Ottawa: Phase 1 results.* Ottawa, Canada: University of Ottawa, Centre for Research on Community Services.

Aubry, T., Nelson, G., & Tsemberis, S. (2015). Housing First for people with severe mental illness who are homeless: A review of the research and findings from the At Home/Chez Soi demonstration project. *Canadian Journal of Psychiatry*, *60*(11*)*, 467–474.

Baggett, T. P., O'Connell, J. J., Singer, D. E., & Rigotti, N. A. (2010). The unmet health care needs of homeless adults: A national study. *American Journal of Public Health*, *100*(7), 1326–1333.

Bhui, K., Shanahan, L., & Harding, G. (2006). Homelessness and mental illness: A literature review and a qualitative study of perceptions of the adequacy of care. *International Journal of Social Psychiatry*, *52*(2), 152–165.

Bijl, R. V., & Ravelli, A. (2000). Psychiatric morbidity, service use, and needs for care in the general population: Results of the Netherlands Mental Health Survey and Incidence Study. *American Journal of Public Health*, *90*(4), 602–607.

Chartier-Otis, M., Perreault M., & Belanger, C. (2010) Determinants of barriers to treatment for anxiety disorders. *Psychiatric Quarterly.*, *81*(2), 127–138.

Chondraki, P., Madianos, M. G., Dragioti, E., Papadimitriou, G. N. (2014). Homeless mentally ill in Athens area: A cross-sectional study on unmet needs and help-seeking. *International Journal of Social Psychiatry, 60*(6), 544–553. doi:10.1177/0020764013503150

Cocco, K. M & Carey, K. B. (1998). Psychometric properties of the Drug Abuse Screening Test in psychiatric outpatients. *Psychological Assessment*, *10*(4), 408–414.

Covenant House Toronto. (2016). Covenant House impact report 2016. Toronto, Canada: Covenant House. Retrieved from http://www.covenanthousetoronto.ca/homeless-youth/Page/Files/2316_Covenant_House_AR_2016.pdf.

Dezetter, A., Duhoux, A., Menear, M., Roberge, P., Chartrand, E., & Fournier, L. (2015). Reasons and determinants for perceiving unmet needs for mental health in primary care in Quebec. *Canadian Journal of Psychiatry. Revue canadienne de psychiatrie, 60*(6), 284–293.

Durbin, A., Sirotich, F., & Durbin, J. (2014). Predictors of unmet need for medical care among justice-involved persons with mental illness. *Psychiatric Services*, *65*(6), 826–829. doi: 10.1176/appi.ps.201300301

Fazel, S., Geddes, J. R., & Kushel, M. (2014). The health of homeless people in high-income countries: Descriptive epidemiology, health consequences, and clinical and policy recommendations. *The Lancet*, *384*(9953), 1529–1540.

Forchuk, C., Brown, S. A., Schofield, R., & Jensen, E. (2008). Perceptions of health and health service utilization among homeless and housed psychiatric consumer/survivors. *Journal of Psychiatric and Mental Health Nursing*, *15*(5), 399–407.

Frankish, C. J., Hwang, S. W., & Quantz, D. (2005). Homelessness and health in Canada: Research lessons and priorities. *Canadian Journal of Public Health/ Revue Canadienne de Sante'e Publique*, S23–S29.

Gelberg, L., Andersen, R. M., & Leake, B. D. (2000). The Behavioral Model for Vulnerable Populations: Application to medical care use and outcomes for homeless people. *Health Services Research*, *34*(6), 1273.

Gelberg, L., & Linn, L. S. (1992). Demographic differences in health status of homeless adults. *Journal of General Internal Medicine*, *7*(6), 601–608.

Holmes Nelson, C., & Park, J. (2006). The nature and correlates of unmet health care needs in Ontario, Canada. *Social Science & Medicine*, *62*, 2291–2300. doi:10.1016/j.socscimed.2005.10.014

Hwang, S. W., Aubry, T., Palepu, A., Farrell, S., Nisenbaum, R., Hubley, A. M., ... Dowbor, T. (2011). The health and housing in transition study: A longitudinal study of the health of homeless and vulnerably housed adults in three Canadian cities. *International Journal of Public Health*, *56*(6), 609–623.

Hwang, S. W., Ueng, J. J., Chiu, S., Kiss, A., Tolomiczenko, G., Cowan, L., ... Redelmeier, D. A. (2010). Universal health insurance and health care access for homeless persons. *American Journal of Public Health*, *100*(8), 1454–1461.

Kessler, R. C., Berglund, P. A., Bruce, M. L., Koch, J. R., Laska, E. M., Leaf, P. J., ... Wang, P. S. (2001). The prevalence and correlates of untreated serious mental illness. *Health Services Research*, *36*(6 Pt 1), 987.

Khandor, E., & Mason, K. (2007). *The Street Health Report 2007.* Toronto, Canada: Street Health. Retrieved from Street Health website: www.streethealth.ca

Khandor, E., Mason, K., Chambers, C., Rossiter, K., Cowan, L., & Hwang, S. W. (2011). Access to primary health care among homeless adults in Toronto, Canada: Results from the Street Health survey. *Open Medicine*, *5*(2), e94.

Kim, M. M., Swanson, J. W., Swartz, M. S., Bradford, D. W., Mustillo, S. A., & Elbogen, E. B. (2007). Healthcare barriers among severely mentally ill homeless adults: Evidence from the five-site health and risk study. *Administration and Policy in Mental Health and Mental Health Services Research*, *34*(4), 363–375.

Lasser, K. E., Himmelstein, D. U., & Woolhandler, S. (2008). Access to care, health status, and health disparities in the United States and Canada: Results of a cross-national population-based survey. *Health Policy: Crisis and Reform in the US Health Care Delivery System*, 379

Lebrun-Harris, L. A., Baggett, T. P., Jenkins, D. M., Sripipatana, A., Sharma, R., Hayashi, A. S., ... Ngo-Metzger, Q. (2013). Health status and health care experiences among homeless patients in federally supported health centers: Findings from the 2009 patient survey. *Health Services Research*, *48*(3), 992–1017.

Lefebvre J., Cyr, M., Lesage, A., Fournier, L., & Toupin, J. (2000) Unmet needs in the community: Can existing services meet them? *Acta Psychiatr Scand*; *102*(1), 65–70.

Maisto, S. A., Conigliaro, J., McNeil, M., Kraemer, K., & Kelley, M. E. (2000). An empirical investigation of the factor structure of the AUDIT. *Psychological Assessment*, *12*(3), 346–353.

Meadows, G., Burgess, P., Bobevski, I., Fossey, E., Harvey, C., & Liaw, S.-T. (2002). Perceived need for mental health care: Influences of diagnosis, demography and disability. *Psychological Medicine, 32*, 299–309. doi:10.1017}S0033291701004913

Mojtabai, R., Olfson, M., & Mechanic, D. (2002). Perceived need and help-seeking in adults with mood, anxiety, or substance use disorders. *Archives of General Psychiatry*, *59*, 77–84.

Nakonezny, P. A., & Ojeda, M. (2005). Health services utilization between older and younger homeless adults. *The Gerontologist*, *45*(2), 249–254.

.