HOMELESSNESS AND MENTAL ILLNESS: A DESCRIPTIVE ANALYSIS OF VANCOUVER AT HOME STUDY PARTICIPANTS

by

Lauren Currie B.Sc. (hons), Queen's University, 2006

CAPSTONE PROJECT SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTER OF PUBLIC HEALTH

In the Faculty of Health Sciences

© Lauren Currie 2010 SIMON FRASER UNIVERSITY Summer 2010

All rights reserved. However, in accordance with the *Copyright Act of Canada*, this work may be reproduced, without authorization, under the conditions for *Fair Dealing*. Therefore, limited reproduction of this work for the purposes of private study, research, criticism, review and news reporting is likely to be in accordance with the law, particularly if cited appropriately.

APPROVAL

Date Defended/Approved:

Name:		Lauren Currie
Degree:		Master of Public Health
Title of Thesis:		Homelessness and Mental Illness: A Descriptive Analysis of Vancouver At Home Study Participants
Examining Comn	nittee:	
	Chair:	Dr. Malcolm Steinberg
		Adjunct Professor Clinical Practice Assistant Professor
		Dr. Julian Somers Associate Professor Faculty of Health Sciences
		Dr. Michelle Patterson Adjunct Professor Faculty of Health Sciences
		Dr. Michael Hayes Professor Faculty of Health Sciences

May 20, 2010



Declaration of Partial Copyright Licence

The author, whose copyright is declared on the title page of this work, has granted to Simon Fraser University the right to lend this thesis, project or extended essay to users of the Simon Fraser University Library, and to make partial or single copies only for such users or in response to a request from the library of any other university, or other educational institution, on its own behalf or for one of its users.

The author has further granted permission to Simon Fraser University to keep or make a digital copy for use in its circulating collection (currently available to the public at the "Institutional Repository" link of the SFU Library website <www.lib.sfu.ca> at: ">http://ir.lib.sfu.ca/handle/1892/112>) and, without changing the content, to translate the thesis/project or extended essays, if technically possible, to any medium or format for the purpose of preservation of the digital work.

The author has further agreed that permission for multiple copying of this work for scholarly purposes may be granted by either the author or the Dean of Graduate Studies.

It is understood that copying or publication of this work for financial gain shall not be allowed without the author's written permission.

Permission for public performance, or limited permission for private scholarly use, of any multimedia materials forming part of this work, may have been granted by the author. This information may be found on the separately catalogued multimedia material and in the signed Partial Copyright Licence.

While licensing SFU to permit the above uses, the author retains copyright in the thesis, project or extended essays, including the right to change the work for subsequent purposes, including editing and publishing the work in whole or in part, and licensing other parties, as the author may desire.

The original Partial Copyright Licence attesting to these terms, and signed by this author, may be found in the original bound copy of this work, retained in the Simon Fraser University Archive.

Simon Fraser University Library Burnaby, BC, Canada



STATEMENT OF ETHICS APPROVAL

The author, whose name appears on the title page of this work, has obtained, for the research described in this work, either:

(a) Human research ethics approval from the Simon Fraser University Office of Research Ethics.

or

(b) Advance approval of the animal care protocol from the University Animal Care Committee of Simon Fraser University;

or has conducted the research

(c) as a co-investigator, collaborator or research assistant in a research project approved in advance,

or

(d) as a member of a course approved in advance for minimal risk human research, by the Office of Research Ethics.

A copy of the approval letter has been filed at the Theses Office of the University Library at the time of submission of this thesis or project.

The original application for approval and letter of approval are filed with the relevant offices. Inquiries may be directed to those authorities.

> Simon Fraser University Library Simon Fraser University Burnaby, BC, Canada

> > Last update: Spring 2010

ABSTRACT

The purpose of this paper was to describe the characteristics of the first 186 participants enrolled in the Vancouver At Home study, and compare these characteristics to those found in existing research involving similar samples of homeless, mentally ill individuals. A total of 24 publications were reviewed, their socio-demographic characteristics summarized, and contrasted with the Vancouver At Home study sample. The At Home sample showed similarities to other studies in terms of the distribution gender and age, but differences with respect to ethnic diversity and lifetime duration of homelessness. Results suggest that the emerging sample in Vancouver is representative of the parent population; however, the degree of variability between cities is unclear, thus our ability to generalize about populations across jurisdictions is uncertain. An overall lack of methodological consistency between existing studies underscores the need for improved rigor and standardization in the study of homeless, mentally ill populations.

Keywords: homelessness; mental Illness; Vancouver, BC; socio-demographic characteristics of homeless mentally ill

ACKNOWLEDGEMENTS

It is a pleasure to thank those who have contributed to this capstone project through direct research contributions, analytical support and mentorship. I would like to thank the Vancouver At Home Field Research Team for their dedication and diligence in recruiting participants and collecting the data that was used in this project. A particular thank-you to Akm Moniruzzaman for producing the data extract and outputs from the Vancouver At Home sample that were analysed in this project.

I am grateful to my supervisory committee for their support and constructive feedback through the drafting and final stages of the production of this project. Thankyou to Dr. Michael Hayes for participating as my external examiner, and for pushing me to think beyond the parameters of this project. A special thank-you to my supervisor Dr. Michelle Patterson for her guidance throughout the development of this project, and through her continued support of me as a student and a member of the Vancouver At Home Field Research Team. I owe my deepest gratitude to my senior supervisor Dr. Julian Somers for his dedication and mentorship throughout the MPH program and evolution of this capstone project. I am especially grateful for the opportunities that Dr. Somers has given me over the past several years and for his continued guidance and support as I move on to further graduate studies.

TABLE OF CONTENTS

App	roval	ii
Abs [.]	tract	iii
Ackı	nowledgements	iv
Tab	e of Contents	V
List	of Tables	vi
1: Ir	troduction	1
1.1	Context	3
2: P	urpose	4
2.1	Research Questions	4
3: N	ethods	6
3.1	Studies Outside of Vancouver	7
3.2	Studies From Vancouver	7
3.3	At Home Study: Vancouver Site	7
4: R	esults	10
4.1	Review of Studies From Outside of Vancouver	10
4.2	Review of Studies From Vancouver	16
4.3	Vancouver At Home Study Characteristics and Contrasts with Other Studies	19
5: D	iscussion	23
5.1	Findings	23
5.2	Comparing Vancouver At Home Study to Other Studies	25
5.3	Strengths and Limitations	27
5.4	Implications	28
Ref	erence List	29

LIST OF TABLES

individuals from selected studies outside of Vancouver (100% homeless and 100% mental illness)	12
Table 2: Socio-demographic characteristics of homeless participants from selected studies from outside of Vancouver (100% homeless, <100% mental illness).	14
Table 3: Socio-demographic characteristics of homeless and mentally ill individuals from studies outside of Vancouver, BC (<100% homeless and varying mental illness).	16
Table 4: Socio-demographic characteristics of participants from Vancouver- based studies published since 2004 with homelessness and mental illness indicators relevant to the At Home study	18
Table 5: Socio-demographic characteristics of Vancouver At Home study participant enrolled from October 2009 - April 2010 (n=186).	20
Table 6: Health, Social Service and Justice System Use characteristics of Vancouver At Home participants enrolled from October 2009 - April 2010 (n=186).	21
Table 7: Characteristics of Vancouver At Home study participants enrolled from October 2009 - April 2010 (n=186)	22

1: INTRODUCTION

In the prevailing neo-liberal political climate of Canada, those who find themselves at the margins of society face significant barriers to accessing health and social services and experience overall poorer health outcomes (Bryant, 2006; Ross, et al., 2006). Despite the presence of a universal health care system, many Canadians are unable to access adequate health services due to poverty, discrimination and perceptions of stigma – particularly among those who are homeless and experiencing mental illness (Frankish, Hwang and Quantz, 2005; Wright and Tompkins, 2006). Inequalities in service access and utilization among different socioeconomic groups leads to significant inequities in health and social circumstance (Daiski, 2007; Whitehead and Dahlgren, 2006). Further, existing services are often fragmented and ill equipped to meet the multiple and complex needs of homeless people experiencing mental illnesses. In cities like Vancouver, homelessness is a highly visible consequence of these inequities and the increased morbidity and mortality among homeless individuals is of significant public health concern (Pauly, 2008; Whitehead and Dahlgren, 2006). Homelessness is frequently associated with mental illness and substance use, as such research that addresses these issues simultaneously will help to improve our understanding of the complexity of these inequities and improve service integration, access to adequate housing, and enhance the effectiveness of health and social services.

Homelessness is often viewed on a continuum, with individuals living in varying degrees of housing instability (Casavant, 1999). This includes temporary and substandard housing, such as shelters, vehicles and other areas not intended for human habitation, as well as living rough on the street (Frankish, et al., 2005). The 2008 Metro Vancouver Homeless Count (MVHC) estimated a 23% increase in homelessness since 2005, and an 86% increase in self-reported mental illness by homeless individuals over this period. While homeless counts allow for rapid assessment of local homeless situations, their methods are often criticized for their lack of standardization and rigor (Patterson, Somers, McIntosh, Shiell and Frankish, 2008). Further, homeless counts may not be representative as they underestimate the true prevalence of homelessness

and rely exclusively on unverified self-reported mental health status and substance use, which are known to be under-reported (Kertesz, Crouch, Milby, Cusimano and Schumacher, 2009; MVHC, 2008; Patterson, et al., 2008).

To ensure that housing interventions and local service provision are meeting the needs of this population, it is necessary to understand the diversity within homeless populations, including their service utilization, mental health needs and substance use histories. The housing situation of individuals suffering from mental illness has important implications for not only their physical and mental health, but also for their overall well being and quality of life (Kyle and Dunn, 2008). Experts agree that supportive housing is necessary; however, there is a lack of consensus around exactly which services and supports are needed to ensure housing retention, recovery and community integration (Kertesz, et al., 2009; Kloos and Shah, 2009; Patterson, et al. 2008). Emerging evidence exists in favour of supportive housing models including Housing First, Therapeutic Communities, and models that combine housing with intensive case management (ICM); however, the efficacy of these models within different subpopulations including the homeless, mentally ill is not well established (Kertesz, et al.; Nelson, Aubry and Lafrance, 2007; Patterson, et al.).

Previous work concerning homeless populations in North America, and Vancouver more specifically, highlights the heterogeneity of homeless populations as an important consideration for service planning, service delivery and policy development (Fazel, Khosla, Doll and Geddes, 2008; Patterson, et al., 2008). The diversity among homeless populations presents complex challenges to designing both comprehensive and tailored interventions to meet the needs of homeless individuals. Homelessness is shown to exacerbate mental health problems, increase the risk of physical health problems and mortality (Beijer, Andreasson, Agren and Fugelstad, 2007; Frankish, et al., 2005), and often results in disaffiliation and disengagement from services – specifically primary health care services (Patterson, et al., 2008; Kushel, Vittinghoff, and Haas, 2001; Wright and Tompkins, 2006). In order to effectively design and implement interventions that improve service engagement and health outcomes, it is necessary to understand objective patterns of service use, housing status, and substance use, in the context of socio-demographic diversity (MVHC, 2008).

1.1 Context

An emerging body of evidence exists to guide the development of housing interventions for homeless populations with concurrent substance use and mental illness (Kertesz et al, 2009; Nelson, et al., 2007); however, much of this evidence is based on research conducted predominantly in the United States (Somers, Drucker, Frankish and Rush, 2007). While similarities do exist, important legislative and jurisdictional differences underscore the need for research with a Canadian focus. To date, much of the literature on housing for people with concurrent mental illness and substance use disorders has been confined to cross-sectional studies and economic arguments of the cost of service provision based on analyses of administrative data and public records (Hoch, Dewa, Hwang and Goering, 2008; Patterson, et al., 2008).

A large body of literature exists on the plight of homeless individuals and the association between homelessness and mental illness; however a lack of methodological rigor and consistency between studies of homeless, mentally ill populations makes it difficult to compare findings and to extrapolate to the general population (Fazel, et al., 2008; Leff, et al., 2009). Variations in study designs, length of follow-up, sampling methods, assessment protocols, and definitions of homelessness and mental illness weaken our ability to make informed policy recommendations and design appropriate services. It is well established that homeless populations are not homogeneous (Casavant, 1999; Frankish, et al., 2005). It is therefore important to understand the unique socio-demographic characteristics within a given city or population, while simultaneously considering comparisons between different populations (Fazel, et al.).

We frequently look to other jurisdictions for examples of policies and interventions that target specific health and social problems. It is therefore important that information is collected and data are presented in a way that permits comparison and facilitates adaptation to a local context. Without an empirical basis for investment in the long-term provision of housing and supports for individuals with mental illness and substance use problems, it is unlikely that social spending policies and government support will change in a way that improves the lives of the most marginalized homeless populations.

2: PURPOSE

The At Home project is a Canadian multi-site project, with study sites located in Moncton NB, Montreal QC, Toronto ON, Winnipeg MB, and Vancouver BC. Each site is pursuing unique research questions, while sharing a common core of methodological features. The Vancouver At Home site will recruit and follow a total of 500 homeless adults between October 2009 and March 2013. Over the course of this project, study participants will complete an array of quantitative and qualitative interviews, using both standardized and locally developed research instruments. Three hundred participants will be randomized to receive housing in conjunction with supports [scattered site housing with either intensive case management (ICM) (n=100) or assertive community treatment (ACT) (n=100), or congregate housing with modified ACT-like supports (n=100)]. The remainder will be randomized to receive usual care (treatment-as-usual) (n=200). All participants will be followed for a minimum of 2 years, and will be interviewed every three months to assess housing status, mental health and addiction status, quality of life, community integration, and service utilization.

2.1 Research Questions

In order to verify that study findings can be generalized to a larger population and to ensure the fidelity of outcomes, it is important to monitor sampling procedures and the characteristics of study participants as they are enrolled in the Vancouver At Home study. The purpose of this paper is to describe the characteristics of the first 186 participants recruited by the At Home Project team in Vancouver, and to compare these characteristics to those found in previous research involving similar populations. This paper will answer the following questions:

- 1. How has the existing body of research literature described the homeless, mentally ill population in Vancouver?
- 2. What are the characteristics of At Home study participants enrolled in Vancouver?

3. How do Vancouver At Home study participant characteristics compare to those of similar populations in other studies (i.e., homeless, mentally ill participants studied previously in Vancouver and other cities)?

3: METHODS

A thorough review of the relevant literature concerning adults experiencing homelessness and mental illness was conducted first, followed by descriptive analyses of the first 186 participants enrolled in the At Home project in Vancouver, BC. Existing descriptions of similar populations from Vancouver, other jurisdictions in Canada and the United States were collected from published epidemiological studies, and selected reports from the grey literature.

The inclusion criteria for studies from Vancouver and those from outside of Vancouver were somewhat different, due to qualitative differences in the type and number of published papers available describing the homeless, mentally ill in Vancouver versus all other cities. Different criteria were applied to the inclusion of Vancouver-specific studies to develop a description of the local population of homeless people with complex needs that was as accurate as possible. Epidemiological descriptions of homeless, mentally ill adults were found by searching scientific literature through the Google and Google Scholar search engines using the following search terms: "homeless mental illness"; "characteristics of homeless mentally ill"; "Vancouver Homeless Count"; "homelessness + mental health"; "pathways to housing", "homelessness + Vancouver", "homelessness + Canada". Only peer-reviewed literature was consulted in this review; however, key homeless counts were also considered due to their influence in public policy and range of descriptive characteristics they report. Once these studies were collected, they were individually evaluated for their suitability, and descriptive statistics were examined and summarized into tables.

To ensure the most accurate comparison with the Vancouver At Home study population, only studies that were composed of mixed-gender samples and were published since 2004 were included in this review. The selection criteria for the inclusion of publications was derived through an iterative process, which required refinement throughout to enable the inclusion of a sufficient number of the most relevant descriptions of this population. The strategy applied for the selection of relevant studies in and outside Vancouver is described below.

3.1 Studies Outside of Vancouver

Studies from outside of Vancouver were selected based on their reporting of common descriptive statistics and on the basis of their samples comprising a minimum proportion of individuals who were both homeless (at least 30% of sample) and mentally ill (at least 30% of sample). For example, a study was included if the majority of its participants were homeless and if at least 30% also had a mental illness. In the selection of these studies, homelessness was considered the primary criterion for inclusion; therefore, studies that principally focused on mental illness with only a small proportion of their sample being homeless were excluded.

3.2 Studies From Vancouver

The criteria for inclusion of Vancouver specific studies were less stringent compared to the non-Vancouver studies. It was recognized that there may be fewer studies to select from given the restriction to research from only one city. Moreover, it was important to consult studies that might best describe the population from which the Vancouver At Home participants are being drawn – even if they did not specifically target the homeless, mentally ill. For example, a substantial body of research in Vancouver has focused on communicable infectious disease, illicit drug use and sex work. As homelessness and mental illness are commonly associated with these outcomes, samples based on these variables were considered for inclusion in the literature review.

At a minimum, every study included a measure of housing status from precarious housing in single room occupancy hotels (SRO) to absolute homelessness. Studies were sought that contained a measure of mental illness, though no minimum threshold for inclusion was set with respect to mental illness. Additionally, studies with exclusively adult (+18 years) samples were prioritized, but other samples (i.e. youth) were considered if they reported similar comparable measures of homelessness and mental illness to the At Home study.

3.3 At Home Study: Vancouver Site

Descriptive data on the first 186 participants enrolled in the Vancouver At Home study were collected through a series of quantitative measures. The data used in these

analyses were obtained from eligible participants through structured research instruments used during the screening and baseline phases of participant recruitment. Study participants included adults (19+ years) residing in Vancouver who met eligibility criteria for current homelessness and mental illness. Participants were referred to the study through community agencies, institutional settings, and outreach. Upon referral, participants were assessed on their current and recent housing history, and their mental health status was evaluated using a standardized questionnaire (the MINI mental status exam). Through administration of the MINI questionnaire participants were screened for current major depression, mania, panic disorder, posttraumatic stress disorder (PTSD), alcohol and substance use disorders, and psychotic disorders. Housing eligibility was determined on the basis of absolute homelessness or precarious housing, which were defined as follows:

Absolute homelessness is defined as having 'no fixed place to stay' for at least the past 7 nights and little likelihood of getting a place in the upcoming month - 'no fixed place to stay' means living rough in a public or private place not ordinarily used as a regular sleeping accommodation for a human being (i.e., outside, on the streets, in parks or on the beach, in doorways, in parked vehicles, squats, or parking garages), as well as those whose primary night-time residence is a supervised public or private emergency accommodation (i.e., shelter, hostel). Those currently being discharged from an institution, prison, jail or hospital with no accommodation are also considered Absolutely Homeless (and eligible) if have а history of absolute homelessness prior admission/incarceration.

Precariously housed is defined as having an SRO, rooming house, or hotel/motel as a primary residence, and 2 or more episodes of being Absolutely Homeless in the past year OR 1 episode of being Absolutely Homeless of at least 4 weeks duration in the past year. (MHCC, At Home: Screener, 2010)

All interviews were carried out by research staff trained in the administration of study instruments and versed in the protocol. Data were collected electronically using an online data entry system and were stored on a server. Eligible participants were subsequently asked questions from a series of research instruments (both standardized and original), following which they were randomly assigned to one of five different study conditions as described previously (see Problem section).

Using quantitative descriptive statistics, the preliminary sample of participants (n=186) was described in terms of: demographic characteristics; housing status; current

mental illness; substance use histories; health service utilization; and recent justice system involvement. Descriptive statistics were then compared with those gathered from other studies involving comparable populations of individuals from Vancouver and outside of Vancouver. Similarities and differences between the present Vancouver At Home study sample and previous studies were evaluated for the purpose of assessing the representativeness of the first 186 enrolled participants.

4: RESULTS

A total of 24 published reports were deemed suitable for inclusion in the review of socio-demographic characteristics of people experiencing homelessness and mental illness. The following summarizes the results from the review of these studies.

4.1 Review of Studies From Outside of Vancouver

Descriptions of 19 unique samples from 17 reports published between 2004 and 2010 fit the criteria for inclusion of studies from outside of Vancouver. Five reports came from Canadian studies while the remaining 12 came from analyses conducted in the United States. Sixteen of these studies included samples that were entirely homeless, 8 of which had complete samples that were both homeless and mentally ill. While this review was not intended to exclude studies from outside of Canada and the United States, no recent literature fitting the inclusion criteria from outside of North America was found. All reports included mixed gender samples with men comprising the majority of every sample (range: 50.6% - 85.0%), and no study specifically targeted any ethnic group. Socio-demographic measures varied between different studies, including measures of central tendency (means or medians), as well as whether mental illness or service utilization were derived from self-report, clinical diagnosis, or administrative records. Additionally, study designs, participant recruitment strategies, and operational definitions of homelessness and mental illness were inconsistent between studies.

To allow for comparison between similar samples, the studies from outside of Vancouver were grouped into three categories based on the composition of their samples. The first group of studies, summarized in Table 1, includes studies with entire samples of participants that were both homeless and mentally ill (study #: 1-6). Table 2 contains studies of homeless people with less than 100% mental illness (study #: 7-14), and Table 3 includes those studies that had less than 100% homeless samples and varying proportions of participants with mental illness (study #: 15-17).

Among the studies included in Table 1, males comprised the majority of the samples (62.0% - 85.0%) with mean ages ranging from 39.7-47.9 years (study #: 1, 3-4, 6). Table 1 includes studies conducted only in the United States, as there were no recent studies conducted in Canada with samples of both 100% homeless and mentally ill individuals. Within these American samples there was considerable ethnic diversity. The distinction between Caucasian participants (range: 27.0% - 68.8%) and minority groups was made for each sample, with 3 studies specifically identifying African American, Hispanic, and Mixed/Other ethnicity.

All studies in Table 1 reported mental health and substance use characteristics, with depression and psychotic disorders reported most commonly. Among the 8 unique samples, 7 measured depression among their participants, ranging from 8.0% - 41.0%, and psychotic disorders were reported as occurring at a prevalence ranging from 52.0% to 85.0% (study #: 1, 3-6). Three of these studies additionally identified mania/bipolar disorder as present among 13.3% - 19.8% of their samples (study #: 1, 3, 5), while only one study also measured panic disorder as a primary diagnosis among its participants (study #: 5). Post Traumatic Stress Disorder (PTSD) was only measured by one study. where it was present among 54.2% of the sample (study #: 2). Illicit substance use was identified across all 8 studies included in Table 1, though not all studies differentiated between illicit substance use alone or in combination with alcohol use. Among those reporting current substance use, or substance use in combination with alcohol use, the prevalence ranged from 60.5% - 90% (study #: 1-5, 6). Recent hospitalizations were reported among 6 unique samples with 3.0% - 42.0% of the participants having had at least one hospital admission in the past year (study #: 3-4, 6). One study had established their sample on the basis of past year mental health services use and therefore 100% of the participants in this study had used hospital services in the past year (study #: 1).

Table 1: Socio-demographic characteristics of homeless and mentally ill individuals from selected studies outside of Vancouver (100% homeless and 100% mental illness).

Mean Age first homeless (years)	Recent incarceration (%)	Recent Hospitalization (%)	homelessness (years)	Mean duration of	Hepatitis C positive (%)	Concurrent MD & SUD (%)	Alcohol Use (%)	Substance Use (%)	Psychotic Disorder (%)	Panic Disorder (%)		Manic/ Hypomanic (%)	Depression (%)	Marital Status			Ettinicity (%)	Ethnicit: (0/)		Mean Age (years)	Female (%)	Male (%)	Housing Status		Mental Illness (%)	Percent of Sample with	Homeless (%)	Percent of Sample	# of Barticipants (a)	Study Design	Study Location	Source					
not stated		mental health se: 100	not stated		not stated	60.5	not stated	60.5	54.8		not stated	19.8	25.2	Married: 6.9			1.5; Other: 2.4	1 E. Othor o A	White: 68.8; Latino:		38	62	"homeless in transition"	Absolutely homeless &	100		100	1000	1560	cross sociona	San Diego. CA	S., et al. (2005).	٦	Lindamer, L., Gilmer,	Hawthorne, W.,	1 Folsom D.P.	
not stated	not stated	not stated	not stated		22.4	63.6	not stated	60.5 Alcohol or SUD: 63.6	not stated	not stated	54.2	19.8 not stated	25.2 not stated	not married: 91.4			Wille: 40	Mhito: 40		40.3 median 38	22.7	77.3	past 6 months	Absolutely homeless in	100		100	101	CLOSS-SECHOLIGI	orose spotional	Connecticut, Maryland, New Hampshire & North Carolina	Elbogen, E.B. (2007).	Mustillo, S.A. &	Bradford, D.W.,	Swartz. M.S	2. Kim, M.M.,	
29.5	not stated	36	4.4		22.4 not stated	9(not stated	Alcohol or SUD: 90	53.8	not stated	54.2 not stated	13.3	14.2	widowed: 0.4	8.9; divorced: 14.3;	married: 3.6; separated:	Power married: 60 3:	Mixed/other: 173	White: 28; Black: 40;	41.5	23.1	76.9	Absolutely homeless		100		100	723		DCT	New York, NY	Tsemberis, S. (2006).	Gulcur, L., &	3. Padgett, D. K.,			
29.5 not stated	0	8	4.4 not stated		not stated) 68	not stated	84	52	not stated	not stated	not stated	14.2 mood disorder: 16	not stated			20.	שיווופ. טיו, טומכיי.	White: 64: Black:	47.9	16	84	homeless: 84%	Chronically	100		100		COLIOIT		Seattle, WA	4. Pearson, C., Mo					
not stated	31	ω	not stated		not stated	66	not stated	66	59	not stated	not stated	not stated	mood disorder: 41	not stated			17.	וופ. טט, טומטא.		39.7	34	66	homeless: 86%	Chronically	100		100	2			San Diego. CA	4. Pearson, C., Montgomery, A. E., & Locke, G. (2009)					
not stated	16	42	not stated		not stated	73	not stated	77	85	not stated		not stated	mood disorder: 8	not stated			50.	וונס. טו, טומטא.		47	15	85	homeless: 92%		100		100	2			New York, NY	_					
not stated	not stated	not stated	not stated		not stated	not stated)		0.5 (primary diagnosis)		15 (primary diagnosis)	21 (primary diagnosis)	not stated			nispanic: 10;	Wille: 41, Diack: 44,	Mb#0: 41: Block: 44:	not stated	not stated	not stated	Absolutely homeless		100		100	10tal. 00T	Total: 904	DCT	Boston, MA; Baltimore, MD; New York, NY; San Diego, CA.	al. (2009).	D. L., Valencia, E., et	Lehman, A. F., Shern,	Goldfinger, S. M.,	5. Schutt, R. K.,	:
not stated	not stated	33	4.5		not stated	90	not stated	Alcohol or SUD: 90	53	not stated	not stated	14	14	not stated			Mixed/Other To	Missodiathor 10	White: 27; Black: 41;	41.3	21	79	Absolutely homeless		100		100	002		DCT	New York, NY	M. (2004).	Gulcur, L., & Nakae,	6. Tsemberis, S.,			

The publications reviewed in Table 2 include studies with samples of entirely homeless people (100% homeless) with varying prevalence of mental illness (unknown – 55%). Eight unique studies were included in Table 2 and assessed on the basis of their socio-demographic characteristics. Among these studies, the majority of participants were men, on average comprising two-thirds to three-quarters of the samples (50.6% - 81.5%). Only three studies reported an overall sample mean age, ranging from 36.2 – 42.0 years (study #: 8, 10, 14). Three of the 8 studies included in Table 2 came from Canadian studies (study #: 7-8, 10) while the remaining 5 came from the United States. Among the Canadian studies, which were all based on samples from Toronto, ON, the majority of participants were Caucasian (55.6% - 76.0%) with the largest minorities being those of African (9.0% - 22.3%) and Aboriginal (5.0% - 15.0%) descent (study #: 7-8, 10).

The prevalence of mental illness among homeless individuals was reported as 35.0% to 54.9% in 5 of the studies included in Table 2 (study #: 8-10, 13-14). The remaining 3 studies alluded to the presence of mentally ill individuals within their samples, but did not explicitly report their prevalence. Two studies included self-reported past year depression prevalence as 35.0% and 56.0% (study #: 14 and 8 respectively). Only one study measured mental illness through clinical assessment and reported major depression in 42.5% and panic disorder in 16.4% of their sample. The Toronto Homeless Count was the only study to differentiate mental illnesses beyond depression and anxiety disorders; however, these diagnoses were based on self-report and were not confirmed with a clinical interview or review of personal health records (study #: 8). Six studies included self-reported current substance use, disclosed by 21.1% to 72.0% of homeless individuals (study #: 8-11, 13-14). Current problem alcohol use was identified in 5 studies occurring among 19.0% to 72.0% of the people in the samples (study #: 8-11, 13). Four studies presented descriptive data on health services use whereby, 7.5% - 100% of homeless individuals had been hospitalized in the past year (study #: 8-9, 11, 13), and between 34.5%-54.0% had used an emergency room in the past year (study #: 8, 11, 14).

Table 2: Socio-demographic characteristics of homeless participants from selected studies from outside of Vancouver (100% homeless, <100% mental illness).

Recent ER use (%)	Mean Age first homeless (years)	Recent incarceration (%)	Recent Hospitalization (%) not stated		homelessness (years)	Non direction of	Hepatitis C positive (%)	Suicidality (%)	Alcohol Use (%)	Substance Use (%)	Psychotic Disorder (%)	Panic Disorder (%)	PTSD (%)	Manic/ Hypomanic (%)	Depression (%)	Ethnicity (%)	Mean Age (years)	Female (%)	Male (%)	Housing Status	Percent of Sample with Mental Illness (%)	Percent of Sample Homeless (%)	# of Participants (n)	Study Design	Study Location	Source	
not stated		not stated	lion (%) not stated		not stated	not stated	L	not stated	not stated		(%) not stated	not stated	not stated		not stated	White: 76; Black: 9; Aboriginal: 5; Asian: 6; Unknown: 4.	75% est btw 30-59 yr		7	Street homeless - by observation	with unknown	10	Multi-team method: 275	Capture Recapture - observational study	Toronto, ON	7. Berry, B. (2007)	
past year: 54	not stated	not stated	past year: 24		total: 4.7	15	23	past year ideation: 23	72		past yr hallucinations: 18; diagnosis: 5	agnosis:	diagnosis: 5	diagnosis: 8	past yr: 56; diagnosis:			2	74 73	Absolutely homeless	physician diagnosis: 35	100	368	Homeless count: Survey conducted over 3 month period	Toronto, ON	8. Cowan, L., Hwang, S., Khandor, E., & Mason, K. (2007).	
not stated	not stated	not stated	institutionalized: 7.5		not stated	not stated		not stated	past month: 30.4	72 past month: 21.1	not stated				not stated	Black: 55.9; White: 41.6; Other: 2.5.	42 middle aged	23	77	Absolutely homeless & precariously housed	54.9	100	162	Cross-sectional	Allegheny County, PA	1 3	o Gordon A
not stated	28.4	not stated	not stated		3.7	not stated	not stated	not stated	19	39.9				not stated	not stated	White: 55.6; Black: 22.3; Aboriginal: 8.4; Other: 13.7.	36.2	33.5	66.5	Absolutely homeless	past 30 days: 37.3	100	1191	Stratified random sample of homeless people 2004-2005.	Toronto, ON	Kiss, A. Tolomiczenko, G., Cowan, L. & Hwang, S. (2010).	10. Grinman, M.N., Chiu, S., Redelmeier,
past year: 44.58	28.4 not stated	not stated	for mental illness: 7.47;	past yr hospitalization	median: 18 months	past 30 days: 12.85	not stated	not stated	heavy drinking, past 19 30 days: 34.92	crack use, past 30 39.9 days: 35.57	not stated		not stated		not stated	White: 32.8; Black 32.8	median 40	22.9	77.1	"literally" homeless in past year	unknown	100	3534	Cross-sectional	San Francisco, CA	Kushel, M.B. Bangsberk, D.R., Riley, E., & Moss, A.R. (2006).	11 Habba
not stated	not stated	Past 2 years: 23.1	not stated		not stated	not stated	not stated	not stated	not stated	not stated	not stated	not stated	not stated	not stated	not stated	Black: 60.4; White: 13.6; Hispanic: 20.6; Other: 5.4.	Age 36-45: 35.8		81.5	Sheltered homeless	unknown	100	Overall sheltered 3534 population: 7022	Cross-sectional	New York, NY	12. Metraux, S., & Culhane, D. P. (2006).	
not stated	not stated	not stated	100		median: 30 months	not stated	not stated	not stated	intoxication in past 30 days: 59.8	past 30 days: 58.9	not stated		not stated	not stated	42.5	Black: 78.0; Hispanic: 8.4; White: 8.4; Mixed/Other: 5.2	46.5	23.5	76.5	Unstable housing	42.5	100	405	Randomized Control Trial (RCT)	Chicago, IL	Kee, R.A., VanderWeele, T.J. and Buchanan, D. (2009)	13 Sadowski I S
34.2	not stated	not stated	100 not stated		not stated	not stated	not stated	not stated	not stated	53	not stated	16.3 not stated	not stated	not stated	35	Black: 65.2; Hispanic: 20.4; White/Other: 14.4.	36.9	4		Newly homeless	i >/= 35	100	445	Prospective cohort	New York, NY	14. Schanzer, B., Dominguez, B., Shrout, P.E. & Caton, C.L.M. (2007).	

Table 3 includes the remaining studies from outside of Vancouver that had samples of less than 100% homeless people and varying proportions of mental illness. While these studies did not fit the inclusion criteria as neatly as those included in Tables 1 and 2, they were deemed acceptable for inclusion given the relevance of their socio-

demographic characteristics in the context of the At Home Study. The gender distribution among these studies was similar to those in the previous two tables with the proportion of men ranging from 57.7% to 84.0% and the mean age was the same across all three studies at 41 years (study #: 15-17). The two Canadian studies included samples entirely of people with mental illness, of which 37.0% and 32.8% were currently homeless (study #: 15 and 16), while the sample from Baltimore, MD had 21.2% homeless people and 53.8% with mental illness. Affective disorders were reported in all studies in Table 3 ranging from 34.2% to 50.2%, and concurrent mental illness and substance use disorders were prevalent among 31.6% to 53.8% of these samples. The prevalence of psychotic disorders was reported as 35.0% and 51.4% between the two Canadian studies (study #: 15, 16), which at the upper limit was comparable to the prevalence of psychotic disorders reported among the Table 1 studies where the range was 52.0% to 85.0% (study #: 1, 3-6). The Baltimore sample was selected on the basis of recent hospital service use and therefore 100% had had past year emergency room use and over half (56.9%) of the sample had had two or more admissions in the past year (study #: 17). Similarly, 20.7% and 41.0% of the samples from the two Canadian studies (study #: 16 and 15 respectively) had past year hospital admissions.

Table 3: Socio-demographic characteristics of homeless and mentally ill individuals from studies outside of Vancouver, BC (<100% homeless and varying mental illness).

		16. Nelson, G., Sylvestre, J.,	17. O'Toole, T. P., Pollini, R., Gray,
	15. Bonin, J. P., Fournier, L., &	Aubry, T., George, L., & Trainor, J.	P., Jones, T., Bigelow, G., & Ford,
Source	Blais, R. (2007).	(2007).	D. E. (2007).
Study Location	Montreal & Quebec City, QC	Ontario	Baltimore, MD
_	Sub analysis of larger health survey		
	of people using resources for the	Evaluation of provincial housing	Retrospective/ Prospective Cohort
Study Design	homeless.	program	Study
# of Participants (n)	439	130	326
Percent of Sample Homeless			
(%)	37	32.8	21.2
Percent of Sample with Mental			
Illness (%)	100	100	53.8
	Currently homeless: 37; Previously		
Housing Status	homeless: 48; Never homeless: 16.	Currently homeless	Currently homeless
Male (%)	84	57.7	60.5
Female (%)	16	_	1
Mean Age (years)	41	41.06	41
Ethnicity (%)	not stated	not stated	Black: 74.6
		Single: 66.7; Married/ cohabiting:	
		2.3; Separated/ divorced/ widowed:	
Marital Status	Married: 2	31.0.	not stated
Depression (%)	Lifetime Affective Disorder: 65	Mood disorder: 34.2	Self report: 50.2
Manic/ Hypomanic (%)	not stated	not stated	Self report: 11.6
PTSD (%)	not stated	not stated	not stated
Panic Disorder (%)	not stated		Self report: 30
Psychotic Disorder (%)	35		not stated
Substance Use (%)	54	>/= 31.6	100
Alcohol Use (%)	not stated	not stated	54.6
Other (%)	22	not stated	not stated
Percent w/ alcohol or SUD (%)	not stated	2.7	100
Concurrent MD & SUD (%)	not stated 39		
Hepatitis C positive (%)	not stated	not stated	HCV or HBV: 67.3
riepatitis C positive (70)	Past year psychiatric hospitalization:		110 01 110 0 07.5
Recent Hospitalization (%)	41	0.9.	>/= 2 past year admissions: 56.9
Recent legal involvement (%)	not stated	Past 9 months: 13.1	not stated
Recent incarceration (%)	not stated	Past 9 months: 5.7	not stated
Recent ER use (%)	not stated	not stated	100 stated
Necent ER use (%)	mot stated	not stated	100

4.2 Review of Studies From Vancouver

A total of 7 reports published since 2004 from Vancouver-based studies were identified. Among these studies the only sample that was recruited on the primary basis of homelessness was that from the 2008 Metro Vancouver Homeless Count (study #: 22). All other samples were recruited on the basis of injection drug use and as such all participants currently used illicit substances (study #: 18-21, 23-24). Four of these reports were based on independent analyses of data collected as part of the Vancouver Injection Drug Users Study (VIDUS) (study #: 18-20, 23). While the VIDUS based analyses were conducted measuring different outcome variables using stratified samples

of the larger prospective cohort, it was unclear from the reports whether these samples overlap with one another and if so to what extent.

Studies from Vancouver reported similar overall mean ages and proportions of men (59.5% to 76.0%) as was observed among other studies, though this gender imbalance was less pronounced compared with a few samples from outside of Vancouver that were more than 80.0% men (study #: 4, 12, 15). Excluding the Metro Vancouver Homeless Count, current homelessness ranged from 18.7% to 67.9%, with one study identifying 100% of their sample as being precariously housed on the basis of living in an SRO in the Downtown Eastside of Vancouver. Mental illness status was identified in only 2 reports, comprising 30.0% and 28.7% of the sample (study #: 22, 24), while substance use was identified across all studies in Table 4.

Table 4: Socio-demographic characteristics of participants from Vancouver-based studies published since 2004 with homelessness and mental illness indicators relevant to the At Home study.

					מי פחאםר פר באהאה Dlanning		
	18. Corneil, T. A.,	10 DeBeck K	20. Kim, C., Kerr, T.,	21 Shannon K	22. SPARC BC, Epene Planning & Research, Jim Woodward & Associates Inc. Graves I	Wood,	24. M.E., Christian, W.M.,
	Shoveller, J., Hogg,	•	Tyndall, M. W.,	Ishida, T., Lai, C., &	Associates Inc., Graves, J., Huntala, K., Campbell, K., In	t.	Patterson, K., Norris, K., Moniruzzaman, A., Craib,
Source	R. S., Li, K., Spittal, P. M., et al. (2006).	Li, K., Montaner, J., & Kerr, T. (2009).	Montaner, J. S., et al. (2009).	Tyndall, M. W. (2006).	Focus Consulting & Goldberg, M. (2008).	Montaner, J., et al. (2008).	K. J. P., Schechter, M. T., & Spittal, P. M. (2008).
Study Location	Vancouver, BC		Vancouver, BC	Vancouver, BC	Metro Vancouver, BC	Vancouver, BC	Vancouver, BC & Prince George, BC
,	VIDUS - prospective	ective	VIDUS - prospective			VIDUS - prospective	
Study Design	cohort; Separate cross-sectional study	cohort; Separate cross-sectional study	cohort; Separate cross-sectional study	Prospective open cohort	Homeless count	cohort; Separate cross-sectional study	Cedar Project: Prospective Cohort
Number of Participants							
(n)	1013	620	620 unstable housing: 215	1813	2409	130	543
Percent of Sample			Unstable housing:	Precariously housed:			ever on streets >3 nights:
Homeless (%)	unstable housing: 60	18.71 67.9		100	100	27.7	67.2
Percent of Sample with							
Mental Illness (%)	not stated	not stated		not stated	33	33 not stated	Ever diagnosed: 28.73
2	Stable vs. Unstable		Stable vs. Unstable			F	
nousing status	libuality		lionalid	r i acailousiy ilousad	Cullelly Homeless	HOHICIGOS YGS/HO	
Male (%)	00	09.0	70.7	26	21	/ Z IIOt Stated	20
Female (%)	34	40.5	29.3	24	21	not stated	48
Mean Age (years)	not stated	median 31.9	median: 28	42	median 41	median 31.7	median 23
			; non-	Aboriginal: 28; non-		•	-
Ethnicity (%)	Aboriginal: 25;	Aboriginal: 32.7	Aboriginal: 79.07	Aboriginal: 72.	‰	not stated	Aboriginal: 100
!	•	•		•	Alone: 76; Partner/ spouse: 11;		•
Marital Status	not stated	not stated	not stated	not stated	Children:2; pet:3; other: 10		not stated
Substance Use (%)	100	100	100	100	61	100	100
Alcohol Use (%)	not stated	not stated	not stated	53	53 not stated	not stated	not stated
Suicidality (%)	not stated	not stated	not stated	not stated	not stated	not stated	Ever attempt: 35.91
Hepatitis C positive (%)	not stated	not stated	0	48	not stated	not stated	32.6
IDU (%)	100	100	100	40	40 not stated	100	55.43
Mean duration of	-	-	-	-	-	-	-
nomelessness (years)	not stated	not stated	not stated	not stated	median: 12 months	not stated	not stated
Recent Hospitalization	-	-		-		-	Ever hosp for a mental
(%)	not stated	not stated	not stated	not stated	Past Year: 33	not stated	illness: 15.29
Recent Ambulance Use	•	•				•	-
(%)	not stated	not stated	not stated	not stated	Past Year: 27	not stated	not stated
Recent incarceration	-	1		2	-	1	Ever in prison over night:
(/0)	ווטני אומופט	201010101010101010101010101010101010101	not stated	20 -	2) Doct Voor 44	71.12	
Recent ER use (%)	not stated	not stated	not stated	ي	39 Past Year. 44	not stated	Past 6 months: 30./6

4.3 Vancouver At Home Study Characteristics and Contrasts with Other Studies

Socio-demographic characteristics of the first 186 participants enrolled in the Vancouver At Home study are presented in Tables 5 through 7. Variables were selected for inclusion on the basis of their relevance in describing the nature of the homeless, mentally ill population in Vancouver, and to support comparisons with previously described samples of similar populations. The following presents the descriptive characteristics of the Vancouver At Home study sample alongside contrasts from the studies that were reviewed in previous sections. Similarities and differences between the Vancouver At Home study and all other studies are described here in order to contextualize findings, and will be explored further in the discussion section.

Similar to the studies reviewed in Tables 1 though 4, the majority of Vancouver At Home participants were men (75.8%) and the average age of participants was 41.9 years. The prevalence of major depression in the Vancouver At Home sample as shown in Table 5 was considerably higher (45.2%), while the prevalence of psychotic disorders (50%) and substance dependence (61.8%) were reported at similar frequencies across multiple studies. The prevalence of affective disorders was reported at higher prevalence in the three studies included in Table 3, and as such was similar to that of major depression in the At Home sample. Very few studies reported mental illness beyond major depression and psychotic disorders, and therefore no further comparisons between different categories of mental illness were made.

None of the studies from the United States reported Aboriginal ethnicity; therefore, comparisons of ethnicity were only considered in the Canadian context. The three studies from Toronto, ON included in Table 2 reported Aboriginal ethnicity as representing 5.0% to 15.0% of the samples, while in the Vancouver samples Aboriginal ethnicity was reported among 20.9% to 32.7% of participants. Compared to these, the 14.5% prevalence of Aboriginal ethnicity in the At Home Study was similar to the upper Toronto prevalence, but lower than all of the recent Vancouver estimates. Further, compared to the 2008 Metro Vancouver Homeless Count prevalence of 32%, the At Home prevalence of Aboriginal ethnicity was considerably lower. The remaining Vancouver At Home sample was 55.4% Caucasian and 29.5% were classified as mixed or other ethnicity.

Table 5: Socio-demographic characteristics of Vancouver At Home study participant enrolled from October 2009 - April 2010 (n=186).

Variable	Frequency	Percent
Housing Status		
Absolutely Homeless	155	83.3
Precariously Housed	31	16.7
Gender		
Male	141	75.8
Female	45	24.2
Country of Birth		
Canada	165	88.7
Other	21	11.3
Ethnicity		
Aboriginal	27	14.5
Caucasian	104	55.9
Mixed	34	18.3
Other	21	11.3
Level of Education		
Grade 8 or less	26	14.2
Incomplete High School	79	43.2
High School or Higher	78	42.6
Missing	3	1.6
Current Marital Status		
Single (never married)	123	66.1
Married/Partner	12	6.5
Separated/Divorced/Widowed	51	27.4
Diagnosed Mental illness	158	92.9
MINI Mental Status Exam Assessment (current)		
Major Depressive Episode	84	45.2
Manic/Hypomanic Episode	44	23.7
PTSD	52	28.1
Panic Disorder	45	24.2
Mood Disorder with Psychotic Features	42	22.7
Psychotic Disorder	93	50
Alcohol Dependence	55	29.6
Substance Dependence	115	61.8
Suicidality		
None	32	17.2
Low	77	41.4
Moderate	44	23.7
High	33	17.7

The percentage of homeless individuals hospitalized in the past year across

Tables 1 through 3 were highly variable, ranging from 3.0% to 42.0% of samples having

had hospital admissions in the past year. Due to differences in units of measurement, it was not possible to compare hospital admissions from other studies with At Home findings. In the context of emergency room use, 58.7% of At Home Study participants had used emergency room services at least once in the past 6 months, which was greater than all other studies reporting emergency room use in a comparable time period. Thirty-six percent of At Home Study participants had used ambulance services in the past six months, which could only be compared with 27% of participants who had used an ambulance in the past year from the 2008 Metro Vancouver Homeless Count, as no other studies assessed recent ambulance service use. Finally, other studies only measured justice system involvement in terms of incarceration, therefore, no direct comparisons with the At Home Study sample could be made.

Table 6: Health, Social Service and Justice System Use characteristics of Vancouver At Home participants enrolled from October 2009 - April 2010 (n=186).

Variable	Frequency	Percent
Primary Employment Status		
Unemployed	173	93
Employed	8	4.3
Other/Student	5	2.7
One or more nights in hospital/detox/jail/shelter in past 6 months	154	83.2
Health Service Use		
Hospitalized for mental illness >6 months (past 5 years)	20	10.9
Hospitalized for mental illness >/= 2 times in any one year (past 5 years)	74	41.1
Emergency room use (past 6 months)	108	58.7
Taken by ambulance to hospital (past 6 months)	67	36.2
Ever received harm reduction services for alcohol/drug use	124	67.4
Justice Service Use		
Arrested/imprisoned/probation/community sanction in past 6 months	75	40.8
Police Contacts (past 6 months)	114	62.3
Held in a police cell for <24 hours (past 6 months)	46	25.8
Court Appearances	66	36.1
Social Service Use		
Disability Income	89	47.8
Attended drop in centres/community meal programs (past 6 months)	137	74.1
Procured food from a food bank (past 6 months)	44	23.7

Certain variables included in the At Home Study were only measured in a few studies across all jurisdictions including Vancouver, so comparisons were considered independently of the groupings described by Tables 1-4. Among samples of homeless

people, the average lifetime duration of homelessness was reported as ranging from 3.7 to 4.7 years (study #: 3, 6, 8, 10), with an additional three studies reporting median lifetime durations of homelessness of 12, 18 and 30 months (study #: 21, 11, 13). Compared to the At Home sample, the mean lifetime duration of homelessness was 5.9 years with a median value of 48 months (4 years), which was more than a year longer mean lifetime duration of homelessness and 1.5 years longer median duration compared to the highest previous measures of central tendency.

Table 7: Characteristics of Vancouver At Home study participants enrolled from October 2009 - April 2010 (n=186)

		Standard			
Variable	Mean	Deviation	Median	Minimum	Maximum
Age at Enrolment (years)	41.9	9.8	42.4	20.8	66.3
Total Past Month Income (\$)	804.23	540.2	775	0	4000
Duration of Homelessness					
Age at First Homeless (years)	30.3	13.2	28	4	65
Longest Period of Homelessness					
(months)	34.9	45	23	0.5	240
Cumulative Length of Homelessness					
(months)	71.2	76.6	48	0.5	396

5: DISCUSSION

5.1 Findings

A general portrait of the homeless, mentally ill as described in previous work is a diverse array of individuals who are predominantly single men, in their late thirties to early forties, who are frequently in contact with health, social and justice services, many of whom are currently struggling with complications related to illicit substance and problem alcohol use (see all tables above). The process of reviewing the literature on homelessness and mental illness in North America proved challenging, as few studies have specifically recruited participants who are both homeless and mentally ill – particularly in the Canadian context. While a strong literature base dedicated to this population does exist, inconsistencies in operational definitions, study designs, data collection, and measurement techniques create barriers to comparison between studies and affect our ability to make population-level generalizations.

Through the review of relevant literature, and examination of the socio-demographic characteristics of participants enrolled during the first six months of the Vancouver At Home study, several important aspects of homelessness and mental illness in Vancouver emerge. Very few studies from other cities and no recent studies from Vancouver have specifically sampled individuals who are both homeless and mentally ill. Several studies have included analogous samples to the Vancouver At Home study and therefore were included in this review. Overall, the findings reflect previous descriptions of the homeless mentally ill as a heterogeneous population, with diverse needs and experiences of homelessness, mental illness, substance use and patterns of service utilization. Differences across studies present difficulties in making meaningful comparisons between populations; however, certain sample characteristics remain stable between studies despite using different methodologies.

A lack of consistency in definitions and subsequent measurement of homelessness and mental illness makes it difficult to adequately compare studies. Previous reviews have identified these definitional issues, but at present there has been no consensus on standard definitions of homelessness and many studies still rely on

non-standardized self-reported mental health status (Kyle and Dunn, 2007; Fazel, et al., 2008; Frankish, et al., 2005). The distinction between those who are *absolutely homelessness* versus those who are at high risk of homelessness or *precariously housed* is often not made or is poorly defined. If we consider that absolute homelessness and precarious housing situations are points along a housing continuum it is important to acknowledge these distinct groups so as not to obscure the needs of those at the extreme ends of the continuum (Casavant, 1999). By not distinguishing between different degrees of homelessness, we risk underestimating the severity of those with the most complex needs and potentially overestimating the needs of those requiring less intensive support. Moreover, many people living in precarious housing (i.e. rooming houses and SROs) live in very dire conditions (Evans and Strathadee, 2006). Anecdotally, front-line service providers frequently hear that living in an SRO is worse than living on the street. Also, many people cycle among various means of subsistence, so it is important to include a range of living conditions.

Operational definitions of homelessness vary considerably between studies, from having no fixed address or living in unstable or transitional housing situations (Folsom, et al., 2005), to having been absolutely homeless at least once in the past six months (Kim, et al., 2007), or most stringently having spent a minimum of 15 of the last 30 days living on the street or in some other public space and a history of homeless for at least the past six months (Padget, Gulcur and Tsemberis, 2006). While several studies included in this review had samples composed entirely of homeless people, each of these studies employed a different definition of homelessness. When such disparate definitions are used, participants may display dissimilar characteristics and respond differently to interventions. These dissimilarities have important implications for policy development and public health responses.

Despite acknowledgement of the diversity of homeless mentally ill populations, few studies report profiles of specific mental illness, patterns of service utilization and life histories of homelessness. The measurement of mental illness is particularly important when considering our ability to understand the burden of mental illness within the homeless population. As this population has been shown to be less likely to seek services or supports for mental illness, it is difficult to accurately estimate the demand for services and the diversity of mental health needs within this population (Power, et al., 1999). While some studies use standardized clinical diagnostic measures to assess

mental health status (primarily those conducting homeless intervention trials), many rely on unqualified self-reported mental health status, which is considered an unreliable means of assessment (Kertesz, et al., 2009). The use of standardized diagnostic measures and assessment of mental illness by clinically trained interviewers has been shown to yield more accurate assessments and lower prevalence estimates of mental illness in comparison to non-clinical forms of assessment including self-report (Fazel, et al., 2008). As such, additional standardized research is needed, and researchers across jurisdictions (both nationally and internationally) should agree on some shared metrics in order to sustain a coherent body of evidence.

5.2 Comparing Vancouver At Home Study to Other Studies

The majority of studies from outside of Vancouver were based on analyses conducted in the United States, in the context of the American health care, social and political climate. While similar strategies to address homelessness and mental illness have been employed in both Canada and the United States, it is important to acknowledge the structural differences between the two countries when considering the potential socio-demographic differences among homeless people. Differences in health care delivery, access to social supports and approaches to the administration of justice are likely to impact the experience of those who are homeless with mental illnesses (Kyle and Dunn, 2007).

No Canadian studies were found that exclusively focused on homelessness and mental illness. The only studies that fit this particular criterion, and as such most closely resembled the population under investigation in the At Home Study, were from the United States. A lack of comparable descriptive characteristics of the homeless mentally ill within Canada poses challenges in terms of validating our sampling strategy in the At Home Study, making it difficult to sufficiently confirm that the target population is being reached and that a representative sample is being collected. It is encouraging, however, that when comparing socio-demographic characteristics between Canadian and American studies, the samples of homeless individuals appear to be similar with respect to gender distribution, mean age and mean lifetime duration of homelessness.

A sizeable body of work involving marginalized populations in Vancouver has been published, and in many cases this work has included people experiencing both homelessness and mental illness. However, few studies have exclusively focused on the

homeless, mentally ill in Vancouver as the target population. The majority of research that has been carried out in Vancouver in the past five years has focused on the injection drug using population and the various health and social outcomes associated with this behaviour. While homelessness is frequently associated with the negative consequences of injection drug use and other illicit substance use, the participants in these studies were not recruited on the basis of their housing situation or their mental health status. Further, only three of the Vancouver-based studies included in this review acknowledged mental illness among their samples, which at most was present in less than 35% of individuals and the classification of mental illness was never specified by diagnostic category or confirmed by clinical assessment.

Descriptive findings from the At Home Study are consistent with other studies on several socio-demographic variables such as age and gender, while differing with respect to other variables including ethnicity and duration of homelessness. These similarities support the conclusion that the recruitment strategy employed by the At Home study thus far is reaching the target population, while differences highlight areas that warrant further consideration. With respect to deviations in At Home Study demographics such as Aboriginal ethnicity, the absence of a comparable Canadian study of people experiencing both homelessness and mental illness poses a challenge to the interpretation of findings. Without an established comparator in the Canadian context it is difficult to assert whether this difference is due to a possible recruitment bias, or whether there is a fundamental difference in the proportion of Aboriginal people who will be represented in the population of those who experience homelessness and mental illness as compared to the population who use illicit substances.

Among the first 186 participants enrolled in the Vancouver At Home study, the mean duration of lifetime homelessness is at least 14 months longer than that reported among all other samples considered in this review. This suggests that on average Vancouver At Home study participants have spent longer periods of their lives being homeless. As engaging those considered the *hardest to house* is a goal of At Home study, this finding does suggest that we are managing to recruit those who have experienced the longest duration of homelessness. As a potential consequence, we might also expect both physical and mental health to be worse among our sample population when compared to other samples of homeless, mentally ill individuals.

5.3 Strengths and Limitations

Compared to published findings, the Vancouver At Home Study collects data on variables that have the potential to better define the population of those who are homeless and experiencing mental illness through a rigorous and standardized process of assessment. The inclusion of more detailed categories of mental illness and patterns of health, social and justice service utilization will allow for a more comprehensive understanding of the needs of this population. Like previous studies, the At Home Study does rely on self reported data; however, where possible these data are collected using standardized research instruments, and in future administrative data will be included to corroborate these self-reported data including the domains of health, justice and income assistance services. The overwhelming conclusion articulated by previous researchers has been that this is a woefully underserved population with complex needs that are not being met within the structure of the current social and political climates in both Canada and the United States. The knowledge generated through the At Home Study will contribute to the empirical foundation of homelessness and mental health research in Canada, and will inform policy changes and public health interventions that work to better meet the needs of this population, both locally and internationally.

Overall, the findings in this paper suggest several important details about the Vancouver At Home study population and the state of research on homelessness and mental illness in Canada. In relation to homeless, mentally ill samples described in studies outside of Vancouver, the Vancouver At Home study sample appears to share several common characteristics – particularly as it relates to the gender and age profile. Apparent differences between the Vancouver At Home study sample and studies from outside of Vancouver can be largely reconciled through examination of analogous Vancouver-based studies. These findings suggest that there are unique features of the Vancouver homeless, mentally ill population - highlighting the importance of acknowledging the local realities of homelessness within the context of a larger societal problem. The results of these comparisons suggest that the emerging sample of participants enrolled in the Vancouver At Home study are representative of the parent population of homeless, mentally ill in Vancouver; however, it must be noted that no study within the Vancouver or Canadian context presently exists that allows for explicit comparison with the Vancouver At Home study.

5.4 Implications

The Vancouver At Home study appears to be the first study to assess the mental health status of homeless people in Vancouver using a psychometrically sound methodology, emphasizing the need for additional standardized research to improve the rigor and consistency between methodological approaches. Further, the At Home study is unique in that it is one of the first studies to simultaneously assess mental illness, substance use and health status in a standardized manner in any city. Given that the goal of research on supported housing for people with mental illness is to establish which supports and interventions are needed to ensure stable housing for various subpopulations, it is essential that we have clear and comprehensive descriptions of our samples. By better understanding the diversity of mental health needs in the homeless population, we have the opportunity to better design services capable of responding to the challenges facing these individuals.

Through the review of literature and comparison with descriptive characteristics from the Vancouver At Home study, it is apparent that the public health importance of homelessness and mental illness in Vancouver has not yet been adequately situated in a rigorous empirical knowledge base. The degree of variability between characteristics of homeless persons with mental illness in various cities is unclear, thus the applicability of strategies across jurisdictions or regions is uncertain. The findings from this preliminary assessment of Vancouver At Home study participants in relation to the body of literature should help to highlight the heterogeneity not only within the population of interest but the literature concerning it.

Until key definitions are more clearly and reliably articulated, and methodological shortcomings and inconsistencies are resolved, policy makers ought to be cautious when making decisions and allocating funding based on the existing body of evidence. Homelessness is a matter of socio-political marginalization, which results in community fragmentation and individual suffering. In order to improve the lives of the homeless, mentally ill we must develop the knowledge base that comprehensively describes these individuals and their needs, and use this knowledge to appropriately target interventions toward individuals that promote recovery and support community development.

REFERENCE LIST

- Beijer, U., Andreasson, A., Agren, G. & Fugelstad, A. (2007). Mortality, mental disorders and addiction: A 5-year follow-up of 82 homeless men in Stockholm. *Nordic Journal of Psychiatry*, 61(5), 363-368.
- Berry, B. (2007). A repeated observation approach for estimating the street homeless population. *Evaluation Review*, *31*(2), 166.
- Bonin, J. P., Fournier, L., & Blais, R. (2007). Predictors of mental health service utilization by people using resources for homeless people in Canada. *Psychiatric Services*, *58*(7), 936.
- Bryant, T. (2006) Politics, Public Policy and Population Health. In D. Raphael, T. Bryant & M. Rioux (Eds.), *Staying Alive: Critical Perspectives on Health, Illness, and Health Care* (pp 193-216). Toronto, ON: Canadian Scholars Press Inc.
- Cassavant, L. (1999). Definition of Homelessness. Parliamentary Research Branch, Political and Social Affairs Division. Retrieved April 17, 2010 from http://dsp-psd.pwgsc.gc.ca/Collection-R/LoPBdP/modules/prb99-1-homelessness/definition-e.htm#The%20Search-txt
- Corneil, T. A., Kuyper, L. M., Shoveller, J., Hogg, R. S., Li, K., Spittal, P. M., et al. (2006). Unstable housing, associated risk behaviour, and increased risk for HIV infection among injection drug users. *Health & Place*, *12*(1), 79-85.
- Cowan, L., Hwang, S., Khandor, E., & Mason, K. (2007). The street health report. *Street Health, Toronto, Ontario, Canada*
- Daiski, I. (2007). Perspectives of homeless people on their health and health needs priorities. *Journal of Advanced Nursing*, 58(3), 273-281.
- Evans, L., & Strathdee, S. A. (2006). A roof is not enough: Unstable housing, vulnerability to HIV infection and the plight of the SRO. *International Journal of Drug Policy*, *17*(2), 115-117.
- Fazel, S., Khosla, V., Doll, H., & Geddes, J. (2008). The prevalence of mental disorders among the homeless in western countries: Systematic review and meta-regression analysis. *PLoS Med, 5*(12), e225.
- Folsom, D. P., Hawthorne, W., Lindamer, L., Gilmer, T., Bailey, A., Golshan, S., et al. (2005). Prevalence and risk factors for homelessness and utilization of mental health services among 10,340 patients with serious mental illness in a large public mental health system. *American Journal of Psychiatry*, 162(2), 370.
- Frankish, C. J., Hwang, S. W., & Quantz, D. (2005). Homelessness and health in Canada. *Canadian Journal of Public Health*, *96*, 23-29.

- Gordon, A. J., Montlack, M. L., Freyder, P., Johnson, D., Bui, T., & Williams, J. (2007). The Allegheny initiative for mental health integration for the homeless: Integrating heterogeneous health services for homeless persons. *American Journal of Public Health*, *97*(3), 401.
- Grinman, M., Chiu, S., Redelmeier, D., Levinson, W., Kiss, A., Tolomiczenko, G., et al. (2010). Drug problems among homeless individuals in Toronto, Canada: Prevalence, drugs of choice, and relation to health status. *BMC Public Health*, 10(1), 94.
- Hahn, J. A., Kushel, M. B., Bangsberg, D. R., Riley, E., & Moss, A. R. (2006). Brief report: The aging of the homeless population: Fourteen-year trends in San Francisco. *Journal of General Internal Medicine*, *21*(7), 775-778.
- Hoch, J. S., Dewa, C. S., Hwang, S. W., & Goering, P. (2008). Health care cost matters for homeless people: An example of costing mental health and addiction services in homeless shelters in Canada. *International Journal of Mental Health and Addiction*, *6*(4), 476-483.
- Kertesz, S.G., Crouch, K., Milby, J.B., Cusimano, R.E. and Schumacher, J.E. (2009). Housing First for homeless persons with active addiction: Are we overreaching? *The Milbank Quarterly*, 87(2), 495-534.
- Kim, C., Kerr, T., Li, K., Zhang, R., Tyndall, M. W., Montaner, J. S., et al. (2009). Unstable housing and hepatitis C incidence among injection drug users in a Canadian setting. *BMC Public Health*, *9*, 270.
- Kloos, B., & Shah, S. (2009). A social ecological approach to investigating relationships between housing and adaptive functioning for persons with serious mental illness. *American Journal of Community Psychology*, *44*(3), 316-326.
- Kushel, M. B., Vittinghoff, E., and Haas, J. S. (2001). Factors associated with the health care utilization of homeless persons. JAMA, 285(2), 200-206.
- Kyle, T., and Dunn, J. R. (2008). Effects of housing circumstances on health, quality of life and healthcare use for people with severe mental illness: A review. Health Soc Care Community, 16(1), 1-15.
- Marmot, M., Friel, S., Bell, R., Houweling, T. A., & Taylor, S. (2008). Closing the gap in a generation: Health equity through action on the social determinants of health. *The Lancet*, 372(9650), 1661-1669.
- Metraux, S., & Culhane, D. P. (2006). Recent incarceration history among a sheltered homeless population. *Crime and Delinquency*, *52*(3), 504.
- Social Planning and Research Council of BC (SPARC BC), Eberle Planning and Research, Jim Woodward & Associates Inc., Graves, J., Huntala, K., Campbell, K., In Focus Consulting, and Goldberg, M. (2008). Still on Our Streets: Results form the 2008 Metro Vancouver Homeless Count. December 2008 Edition. *Greater Vancouver Regional Steering Committee on Homelessness*, 1-74. Retrieved on January 29, 2010 from http://www.metrovancouver.org/planning/homelessness/ResourcesPage/HomelessCountReport2008Feb12.pdf

- Nelson, G., Aubry, T., & Lafrance, A. (2007). A review of the literature on the effectiveness of housing and support, assertive community treatment, and intensive case management interventions for persons with mental illness who have been homeless. *American Journal of Orthopsychiatry*, 77(3), 350.
- Nelson, G., Sylvestre, J., Aubry, T., George, L., & Trainor, J. (2007). Housing choice and control, housing quality, and control over professional support as contributors to the subjective quality of life and community adaptation of people with severe mental illness. *Administration and Policy in Mental Health and Mental Health Services Research*, 34(2), 89-100.
- Padgett, D. K., Gulcur, L., & Tsemberis, S. (2006). Housing first services for people who are homeless with co-occurring serious mental illness and substance abuse. *Research on Social Work Practice*, *16*(1), 74.
- Patterson, K., Norris, K., Moniruzzaman, A., Craib, K. J. P., Schechter, M. T., & Spittal, P. M. (2008). The cedar project: Historical trauma, sexual abuse and HIV risk among young aboriginal people who use injection and non-injection drugs in two Canadian cities. *Social Science & Medicine*, *66*, 2185-2194.
- Patterson, M., Somers, J., McIntosh, K., Shiell, A., & Frankish, C. J. (2008). Housing and support for adults with severe addictions and/or mental illness in British Columbia. Vancouver, Centre for Applied Research in Mental Health and Addiction, Faculty of Health Sciences, Simon Fraser University
- Pauly, B. (2008). Harm reduction through a social justice lens. *International Journal of Drug Policy*, 19(1), 4-10.
- Power, R., French, R., Connelly, J., George, S., Hawes, D., Hinton, T., Klee, H., Robinson, D., Senior, J., Timms, P., and Warner, D. (1999). Health, health promotion and homelessness. *British Medical Journal*, 381: 590-592.
- Riddell, C., & Riddell, R. (2006). Welfare checks, drug consumption, and health: Evidence from Vancouver injection drug users. *Journal of Human Resources*, *41*(1), 138.
- Ross, N., Wolfson, M., Kaplan, G.A., Dunn, J.R., Lynch, J., & Sanmartin, C. (2006). Income Inequality as a Determinant of Health. In J. Heymann, C. Hertzman, M.L. Barer & R.G. Evans. *Healthier Societies: From Analysis To Action* (pp. 202-232). New York, NY: Oxford University Press.
- Sadowski, L.S., Kee, R.A., VanderWeele, T.J., Buchanan, D. (2009). Effect of a housing and case management program on emergency department visits and hospitalizations among chronically ill homeless adults: A randomized Trial. *Journal of the American Medical Association*, 301(17), 1771-1778.
- Schanzer, B., Dominguez, B., Shrout, P. E., & Caton, C. L. M. (2007). Homelessness, health status, and health care use. *American Journal of Public Health*, *97*(3), 464.
- Schutt, R. K., Hough, R. L., Goldfinger, S. M., Lehman, A. F., Shern, D. L., Valencia, E., et al. (2009). Lessening homelessness among persons with mental illness: A comparison of five randomized treatment trials. *Asian Journal of Psychiatry*, 2(3), 100-105.

- Shannon, K., Ishida, T., Lai, C., & Tyndall, M. W. (2006). The impact of unregulated single room occupancy hotels on the health status of illicit drug users in Vancouver. *International Journal of Drug Policy*, *17*(2), 107-114.
- Somers, J.M., Drucker, E., Frankish, J., and Rush, B. (2007). Housing for people with substance use and concurrent disorders: summary of literature and annotated bibliography. Centre for Applied Research in Mental Health and Addiction (CARMHA), Faculty of Health Sciences, Simon Fraser University. Retrieved November 25, 2009 from http://www.carmha.ca/publications/housing-for-people-with-substance-use-and
- Sylvestre, J., Nelson, G., Sabloff, A., & Peddle, S. (2007). Housing for people with serious mental illness: A comparison of values and research. *American Journal of Community Psychology*, 40(1), 125-137.
- Tsemberis, S., Gulcur, L., & Nakae, M. (2004). Housing first, consumer choice, and harm reduction for homeless individuals with a dual diagnosis. *American Journal of Public Health*, 94(4), 651.
- Werb, D., Wood, E., Small, W., Strathdee, S., Li, K., Montaner, J., et al. (2008). Effects of police confiscation of illicit drugs and syringes among injection drug users in Vancouver. *International Journal of Drug Policy*, 19(4), 332-338.
- Whitehead, M., and Dahlgren, G. (2007). Concepts and principles for tackling social inequities in health: Levelling up part 1. Copenhagen: WHO.
- Wright, N. M. J., and Tompkins, C. N. E. (2006). How can health services effectively meet the health needs of homeless people? *Br.J.Gen.Pract.*, *56*(525), 286-293.