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The Vancouver At Home Study: Overview and Methods of a Housing First Trial Among Individuals Who are Homeless and Living with Mental Illness

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Abstract

Objectives: The Vancouver At Home (VAH) Study is part of a multi-site Canadian program of research that seeks policy relevant evidence surrounding service interventions for adults who are homeless and mentally ill. This paper provides an overview of the local VAH study design, including demographic and mental health characteristics of the baseline sample.

Participants: Eligible participants included those aged 19 years or older, with a serious mental illness and who lacked a regular, fixed shelter or whose primary residence was a single room occupancy, rooming house, or hotel/motel. Participants were randomly assigned to a housing intervention or treatment as usual, based upon level of need.

Setting: Individuals were recruited for participation through referrals from a wide variety of agencies throughout Vancouver.

Intervention: Participants with high needs were randomized to Housing First with Assertive Community Treatment, Congregate Housing with on-site supports or treatment as usual. Participants with moderate needs were randomized to Housing First with Intensive Case Management or treatment as usual.

Outcomes: A majority of individuals in the high needs group presented with psychotic disorder and substance dependence problems while a substantial minority met criteria for major depression. Among the moderate needs group, just over half of the sample met criteria for major depression and substance dependence with one-third of the group meeting criteria for post-traumatic stress disorder.

Conclusion: The characteristics of the sample provide insight into the breadth and differential patterns of mental health problems facing homeless individuals and speak to the need for interventions that meet the broad service needs of this vulnerable population.

Keywords: Housing first; Mental health; Addictions; Homelessness

Introduction

Homelessness has become a major health and social problem across Canada. Over the past 30 years, a steady increase in the rate of homelessness has been documented [1,2]. This increase has been accompanied by a more diverse homeless population, including a large and rapidly rising number of women, families, youth, and aboriginal individuals [2-5]. Individuals who are homeless experience disproportionately high rates of psychiatric disorders [6], including substance use problems [7]. In Vancouver, the overlap between homelessness, mental illness, and substance use has become a civic crisis. Between 2005 and 2008, the Metro Vancouver Homeless Count found that 1,017 people had been homeless for a year or more in 2008, compared with 628 people in 2005 [8]. This finding represents a 62 percent increase in the number of people who have been homeless for a long period of time. During the same period, self-reported rates of mental illness and addictions also increased substantially [8].

The growth in the rate of homelessness, and mental illness among homeless populations, has coincided with the deinstitutionalization of long stay psychiatric institutions across North America and reductions in government-supported social housing [9]. Inadequate investments in the expansion and integration of community-based mental health programs and affordable housing have contributed to circumstances where many individuals with serious mental illness do not receive the health and social services they need to function adequately in the community [10]. Consequently, in many cities across Canada there has been a significant increase in the number of individuals with serious mental illness that are inadequately housed, homeless, and underserved by the current system.

Given high rates of mental illness among homeless individuals and the inadequacy of services, there is a growing need for effective approaches that integrate housing with intensive treatment and supports [11]. Obtaining a better understanding of how supported housing and services influence the health and well-being of homeless individuals is critical for the development of long-term, community-based solutions, and effective health and social policy.

In an effort to address these issues, Canada's federal government allocated $110 million to the Mental Health Commission of Canada (MHCC) to conduct a national demonstration project to identify the best housing and support services for individuals who are homeless and living with mental illness [12]. This project, entitled "At Home/Chez Soi", is being conducted in 5 sites across Canada including: Moncton, Montreal, Toronto, Vancouver and Winnipeg.

While the 5 sites share a common underlying study design, each site had the option to incorporate an additional intervention arm

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and measures that would best address the unique characteristics of their local context [12]. Growing evidence indicates that patterns of social, health, and substance use characteristics among disadvantaged populations vary considerably across urban locations in Canada. For example, precarious housing and illicit drug use patterns have been found to be more prevalent in Vancouver compared to other large Canadian cities, such as Toronto [13,14]. Other research points to high rates of drug-related mortality [15,16]. Geographic variation in housing and health problems highlight the importance of considering the local context as researchers seek to identify effective housing and support interventions for homeless individuals with mental illness.

This paper provides an overview of the Vancouver At Home (VAH) study and documents Vancouver site specific adaptations to the national protocol. Project implementation and the demographic and mental health characteristics of the sample are described. Details surrounding the national project have been reported elsewhere [12].

Methods

The VAH study is a 4-year randomized controlled trial designed to provide evidence about what service and system interventions achieve improved housing stability, health and well-being for the target population of adults who are homeless and mentally ill. The intervention arms include low-barrier housing where sobriety or active treatment services are not required as a condition of housing with support services that are provided directly by intervention teams or that are brokered via community service agencies. The study draws from a Housing First model where participants are assisted in community integration through the provision of independent, scattered-site housing and client-centred services [17].

The research design, presented in Table 1, was structured to assess the effectiveness of different models of care based on the participants' level of need. More specifically, individuals identified with High Needs (HN) were randomized to either treatment as usual (HNTAU) or to one of two housing and support interventions: Housing First with Assertive Community Treatment (ACT) or Congregate Housing with On-Site Support (CONG). Individuals identified with Moderate Needs (MN) were randomized to treatment as usual (MNTAU) or to Housing First with Intensive Case Management (ICM) (Goering et al. [12]). As the interventions were selected to meet the needs of individuals within each need level, neither ACT nor CONG will be compared directly with ICM. Outcomes will be assessed through direct comparison of the three high needs interventions and through a separate comparison involving the two moderate needs interventions.

The national study was powered for each site to detect an effect size of 0.5 between the treatment(s) as usual and intervention arms. Given the challenges of following a homeless population for 2 years, an attrition rate of 40 percent was assumed and recruitment was targeted at 100 participants per arm [12]. For the Vancouver site, this translated into a targeted sample size of 500 participants.

Interventions

Assertive community treatment: For HN participants assigned to ACT, housing is provided in scattered-site independent apartments. The ACT team philosophy is recovery-focused and is based on consumer choice for all services including housing type and location as well as support and treatment services [18]. The ACT team is

<table>
<tr><th colspan="3">High Needs (HN)
(n = 297)</th><th colspan="2">Moderate Needs (MN)
(n = 200)</th></tr>
<tr><td>Housing First & ACT
(n = 90)</td><td>Congregate Housing & Supports
(n = 107)</td><td>Treatment as Usual
(n = 100)</td><td>Housing First & ICM
(n = 100)</td><td>Treatment as Usual
(n = 100)</td></tr>
<tr><td colspan="5">Housing First:
• Provides immediate access to independent housing and support services
• No requirement to participate in psychiatric treatment or attain a period of sobriety to obtain housing
• Tenant must meet with a case worker once per week
• Philosophy of consumer choice</td></tr>
<tr><td colspan="5">Treatment as usual (TAU):
· No housing or supports provided through the study
· Some participants will receive housing and support through other programs and agencies</td></tr>
<tr><td colspan="3">Assertive Community Treatment (ACT):
• Trans-disciplinary team, including psychiatrist, nurse, occupational therapist, substance abuse specialist, and peer specialist
• Client/staff ratio of 9:1
• Program staff are closely involved in hospital admissions and discharges
• Team meets daily to review caseload</td><td colspan="2" rowspan="2">Intensive Case Management (ICM):
• Team of case managers who provide some supportive care, but broker specialized services to agencies existing in the community
• Client/staff ratio of 16:1
• Workers accompany clients to appointments
• Centralized assignment and weekly case conferences</td></tr>
<tr><td colspan="3">Congregate Housing & Supports (CONG):
· Self-contained units in a single building with common areas and meals provided
· Client/staff ratio of approx.12:1
· Onsite support staff, including psychiatrist, social worker, nurse, peer support, pharmacy and activity planning.</td></tr>
</table>

Table 1: Diagrammatic Outline of the Vancouver At Home Study Design.

situated within one service agency and meets daily to plan and review participants' care.

Congregate housing: In general, low-income housing in Vancouver for individuals with substance use and mental illness has been in congregate settings, and this trend has continued with recent municipal and provincial initiatives [19,20]. Given this, an intervention arm that provides congregate housing and on-site support for individuals with high needs was included in the Vancouver study design.

The congregate housing and support intervention consists of housing provided in a building with 100 self-contained units with private bathrooms. Kitchenettes are not included in the individual units. Shared meal and amenity spaces are provided with meals offered on site three times per day. A number of therapeutic and recreational activities are offered, and individual or group counseling is available on site.

Intensive case management: For MN participants assigned to ICM, housing is provided in scattered-site, independent apartments. Like ACT, the ICM team philosophy is recovery-focused and is based on consumer choice for all housing and treatment services. However, unlike ACT, the ICM team does not provide the majority of services directly. The ICM team consists of case managers who broker services to agencies within the community and meets weekly to plan and review participants' care.

Treatment as usual: The study does not directly intervene in the housing and services to individuals assigned to TAU. Rather, participants assigned to TAU remain eligible to access existing community services through established programs that operate in the community. It is recognized that some of the community services that TAU participants may access are comparable to intervention services provided by this study. It is this comparison to "real life" treatment as usual that is of interest [12].

Project implementation

Implementation of this study included not only identification of study participants and assignment to intervention groups, but the mobilization of intervention teams and the development of a Vancouver housing portfolio.

Mobilization of intervention teams: Intervention service teams had approximately six months prior to the start of participant recruitment to mobilize their staff and services. Each team successfully hired and trained staff and developed on-going relationships with existing service providers within the community to provide high-quality care for participants and to maintain fidelity to intervention standards.

Housing portfolio: A housing team was established to engage landlords and property managers for the purpose of acquiring a range of good-quality bachelor and one-bedroom apartments in 22 different neighbourhoods across the city.

Study procedures

Individuals were recruited through referrals from a wide variety of agencies in the community including shelters, drop-in centres, homeless outreach teams, mental health teams, inpatient hospital wards, and criminal justice programs. Eligible participants included those aged 19 years or older, with a serious mental illness and, who lacked a regular, fixed shelter or whose primary residence was a single room occupancy, rooming house, or hotel/motel. Individuals considered at-risk of homelessness (e.g., couch surfing), individuals with no legal status in Canada, and individuals who were already participating in an ACT or ICM program at the time of the screening were not eligible for participation [12]. Referrals were made by service providers in the community and involved an initial telephone screening to collect information about the individual's housing history, mental health status, and other factors related to assessment of individuals' level of need including substance use, psychiatric hospitalizations, criminal justice involvement, and suicidal ideation. Whenever possible, documented evidence of the individual's mental illness was obtained.

Following the telephone screening, a face-to-face screening interview was conducted to determine eligibility. The screening interview, conducted by trained interviewers who explained the study procedures and obtained informed consent, focused on individual's housing history and mental health status. Detailed information surrounding symptoms of mental illness was obtained through administration of the MINI-International Neuropsychiatric Interview [21]. Mental disorders screened for inclusion included: Major Depressive Episode, Manic or Hypomanic Episode, Post-traumatic Stress Disorder [22,23], Panic Disorder, Mood Disorder with Psychotic Features, Psychotic Disorder, Alcohol Dependence and Substance Dependence. Rather than a formal diagnosis, the eligibility criteria to establish a current mental disorder were: a documented mental illness, observation and confirmation by the referral agency, or positive screening by the interviewer using the MINI. All individuals who completed the screening interview received an honorarium of $5.

Specific details surrounding the number of individuals screened are not available. However, estimates indicate that approximately 85 individuals were determined to be ineligible following the screening interview. An additional 100 individuals were invited to meet with an interviewer for further eligibility screening but did not attend their scheduled screening appointment. To the extent possible, interviewers attempted to locate individuals in the community and screening appointments were rescheduled.

Individuals that met all study criteria were enrolled as participants and administered the baseline questionnaire. The baseline questionnaire consisted of a series of detailed questions surrounding socio-demographic characteristics, symptoms of mental illness, and patterns of substance use, physical health, and service utilization. Upon completion of the baseline questionnaire, participants were identified with a moderate or high level of need, respectively. To ensure consistency in assessment, level of need was identified drawing from a computer-based algorithm that considered the following factors: level of functional impairment as assessed by the Multnomah Community Ability Scale (MCAS--a 17-item scale that provides a measure of disability among individuals living in the community who have chronic mental illness) [24,25], mental disorder diagnosis, substance dependence, criminal justice involvement, and psychiatric hospitalization. All participants received an honorarium of $30 upon completion of the baseline interview.

Once assigned to either the HN or MN need level, participants were randomized to either TAU or an intervention arm. Adaptive randomization procedures were utilized at the national level to ensure, as best as possible, a balanced assignment across need levels and an even distribution of participants across all arms of the study [12,26]. This approach also accommodates any number of groups, allowing for randomization to a third arm. Finally, adaptive randomization allowed for sequential allocation of participants as they entered the study with

no detrimental impact on the predictability of group assignment as recruitment progressed [26].

Participants enrolled in the study will be followed for 2 years. Over the follow-up period, interviews with participants will take place every 3 months. More in-depth interviews will be conducted every 6 months following enrollment (at 6, 12, 18 and 24 months) while briefer interviews will be conducted every 6 months beginning 3 months post-enrollment (at 3, 9, 15 and 21 months). Participants will continue to receive cash honorariums upon completion of each follow-up interview.

This study has been registered with the World Health Organization's International Clinical Trials Registry Platform (ISRCTN66721740 and ISRCTN57595077) and has been approved by the Research Ethics Boards at Simon Fraser University and the University of British Columbia.

Data

Table 2 presents the primary sources of data and the major topic domains that are addressed by the VAH study. Survey data will be obtained from all study participants every 3 months, as outlined above. Major topics of focus in the questionnaires include: diagnosis and symptoms of mental illness and substance dependence, patterns of substance use, medical conditions including chronic and infectious diseases, and histories of homelessness, employment, and service utilization.

Survey Data Domains/Topics
➢ Mental Health Characteristics, including Alcohol and Other Drugs · Diagnosis and/or symptoms of: o *Major depressive episode* o *Manic or hypomanic episode* o *Post traumatic stress disorder* o *Panic disorder* o *Mood disorder with psychotic features* o *Psychotic disorder* o *Substance dependence* o *Alcohol dependence* · Substance use: ** o *Type of substance* o *Consumption patterns (amount, frequency, duration)* ➢ Medical Conditions · Infectious diseases · Chronic health problems · Physical health (including exam and basic blood work) ** ➢ History of Homelessness ➢ History of Employment ➢ History of Service Utilization · Type of service o *Social services* o *Health services* o *Mental health services* o *Criminal justice services* · Service setting (community, institution) · Number of visits · Duration of contact
Administrative Data Domains/Topics ** ➢ Health (e.g., psychiatric diagnoses and hospitalizations) ➢ Income Assistance (e.g., type of assistance, amount) ➢ Criminal Justice (e.g., arrests, incarcerations)
Narrative Data Domains/Topics ➢ Pathways to homelessness ➢ Life on the streets ➢ Experiences with mental health problems and services ➢ Key life events

** These measures are unique to the Vancouver site.

Table 2: Major Topics Covered by the National and Vancouver at Home Study at Baseline.

To supplement the survey measures, 50 VAH participants were randomly selected for a physical health exam. The exam, conducted at baseline and again at the 12-month follow-up, assesses major health systems (e.g., circulatory, respiratory), includes basic blood work and allows for an objective health assessment. Data surrounding the physical health exams and patterns of substance use are unique to the VAH data collection given concerns surrounding high rates of illicit drug use and drug-related mortality in Vancouver compared to other large Canadian cities [13-16].

Administrative data have been collected from provincial ministries for all participants who consented. These data are unique to the Vancouver site and include health, criminal justice and social assistance records.

Qualitative data were also obtained from a random subset of 50 participants. The semi-structured interviews document the personal narratives of participants and focused on pathways to homelessness, life on the streets, experiences with mental health problems and services, and key life events. These data provide further detail and context that can be dovetailed with findings drawn from the quantitative measures to permit a fuller and richer understanding of the issues and challenges facing individuals who are homeless and mentally ill.

Outcomes

Given the complexity of the interventions, a number of outcomes have been identified in order to reflect the multiple effects that are expected. Key outcome domains include housing stability, social functioning, mental and physical health status, community integration, quality of life, and service utilization. Costs associated with healthcare, social assistance and criminal justice system services are an important part of the analytic plan in Vancouver and include self-reported service utilization as well as administrative data for validation purposes. The statistical approaches for assessing the outcomes and addressing loss to follow-up will be conducted at both the local and national levels and have been described elsewhere [12].

Results

Sample characteristics

The demographic characteristics of the samples are presented in Table 3. Within the HN group, overall, the sample consists of predominately middle-aged, single, white, males with a moderate level of functional disability. The majority of the sample has not completed a high school education and most have no children under the age of 18 years of age. On the whole, the demographic characteristics of the MN group are very similar to the HN group. However, most of the MN group reported little to no functional disability and approximately half have completed a high school education.

Table 4 presents the mental health characteristics of the samples. As one would expect based upon the sample selection criteria, the HN group presents with high rates of psychotic disorder and substance dependence where the most common drugs used were marijuana (47 percent) and crack cocaine (33 percent) (results not shown). Almost one third of the sample met criteria for major depression and approximately 20 percent of the sample met criteria for each of the following disorders: mania or hypomania, PTSD, panic disorder, mood disorder with psychotic features, and alcohol dependence. Among the MN sample, major depression and substance dependence are the most common mental illnesses with just over half of the sample meeting criteria for both conditions. Like the HN group, the most common

			Level of Need			
			High Needs		Moderate Needs	
Demographic		**Overall**		**(HN)**		**(MN)**
Characteristics	**N**	**%**	**N**	**%**	**N**	**%**
Sex						
Male	359	72.8	218	74.1	141	70.9
Female	134	27.2	76	25.9	58	29.1
Ethnicity/Race						
White	280	56.3	170	57.2	110	55.0
Aboriginal	77	15.5	44	14.8	33	16.5
Other or mixed	140	28.2	83	27.9	57	28.5
background						
Age						
Less than 25 yrs.	36	7.2	24	8.1	12	6.0
25-44 yrs.	281	56.5	183	61.6	98	49.0
45 and older	180	36.2	90	30.3	90	45.0
Marital Status						
Single, never	343	69.6	214	73.0	129	64.5
married						
Married/partnered	25	5.1	12	4.1	13	6.5
Separated/widowed/	125	25.4	67	22.9	58	29.0
divorced						
High school education						
Yes	214	43.3	115	39.1	99	49.5
No	280	56.7	179	60.9	101	50.5
Children under 18						
Yes	122	25.1	69	24.0	53	26.8
No	364	74.9	219	76.0	145	73.2
Country of birth						
Canada	431	86.9	256	86.5	175	87.5
Other	65	13.1	40	13.5	25	12.5
Functional impairment (MCAS[a])						
Severe disability	111	22.3	102	34.3	9	4.5
Moderate disability	235	47.3	195	65.7	40	20.0
Little disability	151	30.4	0	--	151	75.5
Total	497		297		200	

a: The range for the overall MCAS scale is 17-85 with severe disability measured from 17-47, moderate disability measured from 48-62, and little to no disability measured from 63-85.

Table 3: Demographic Characteristics of the Study Samples.

drugs used were marijuana (42 percent) and crack cocaine (32 percent) (results not shown). Approximately one-third of the sample met criteria for PTSD and just over one-quarter of the sample met criteria for psychotic disorder and alcohol dependence.

Conclusion

The national At Home/Chez Soi study addresses a critical gap in the research evidence surrounding housing and services for a growing population of vulnerable individuals. The study's randomized trial design is the gold standard approach for evaluation of service provider interventions and provides a powerful opportunity to assess a broad range of outcomes.

While this analysis does not address co-occurring problems, the rates of substance dependence in the HN and MN groups indicate that co-occurring mental health and substance use problems are prevalent. This finding is of particular concern given other research that points to high rates of drug-related mortality outcomes among homeless populations [15,16]. While it is not clear if rates of substance dependence vary across the 5 national sites, it is reasonable to expect that rates of premature mortality will be higher in the VAH site, compared to the

			Level of Need			
			High Needs		Moderate Needs	
Mental Health	**Overall**			**(HN)**		**(MN)**
Characteristics	**N**	**%**	**N**	**%**	**N**	**%**
Major depression						
Yes	199	40.0	95	32.0	104	52.0
No	298	60.0	202	68.0	96	48.0
Mania or hypomania						
Yes	97	19.5	68	22.9	29	14.5
No	400	80.5	229	77.1	171	85.5
PTSD						
Yes	129	26.0	63	21.2	66	33.2
No	367	74.0	234	78.8	133	66.8
Panic disorder						
Yes	104	20.9	59	19.9	45	22.5
No	393	79.1	238	80.1	155	77.5
Mood disorder with psychotic features						
Yes	84	16.9	56	18.9	28	14.0
No	412	83.1	240	81.1	172	86.0
Psychotic disorder						
Yes	263	52.9	211	71.0	52	26.0
No	234	47.1	86	29.0	148	74.0
Alcohol dependence						
Yes	121	24.3	72	24.2	49	24.5
No	376	75.7	225	75.8	151	75.5
Substance dependence						
Yes	288	57.9	183	61.6	105	52.5
No	209	42.1	114	38.4	95	47.5
Total	497		297		200	

Table 4: Mental Health Characteristics by Need Group.

other sites, particularly given other research suggesting that patterns of substance use vary considerably across urban locations in Canada [13,14]. Future national analyses will be equipped to address this issue of differential mortality across the sites. For purposes of identifying local service interventions in Vancouver, the findings speak to a need for substance abuse treatment when considering interventions that target individuals who are homeless and living with mental illness. Future local analyses will examine how substance abuse treatment is related to mortality and other health and social outcomes.

Future analyses will also examine differential trajectories across diverse subgroups. For example, while a well documented literature speaks to sex differences in mental health, [27-29] there is also good reason to believe that the effectiveness of homeless services may vary by sex [30]. With this study, a unique opportunity exists to examine the effectiveness of various housing and support models by gender, and how social characteristics related to gender, such as parenting, contribute to outcomes. Other future analyses will examine a broad range of factors often associated with homelessness and mental illness including substance use, medical conditions, service utilization, criminal justice involvement, and quality of life. Of particular interest within the Vancouver context, evaluation of congregate housing compared to scattered-site housing will be a research priority.

In addition to its rich research potential, the At Home study has encouraged diverse stakeholder groups to overcome differences in organizational culture, mandates and styles of work and come together to establish a common framework for service delivery. This philosophy of shared leadership that can transcend organizational boundaries is vital for not only the success of the project, but for Canada to gain the knowledge needed to provide effective services to individuals in need.

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The national At Home/Chez Soi project team: Jayne Barker, PhD (2008-11) and Cameron Keller, MHCC National Project Leads; Paula Goering, RN, PhD, Research Lead and approximately 40 investigators from across Canada and the US. In addition there are 5 site coordinators and numerous service and housing providers as well as persons with lived experience.

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