



# VANCOUVER FINAL REPORT

At Home/Chez Soi Project



Mental Health  
Commission  
of Canada

Commission de  
la santé mentale  
du Canada

#### AT HOME/CHEZ SOI PROJECT: VANCOUVER SITE FINAL REPORT

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# MAIN MESSAGES

## FROM THE VANCOUVER AT HOME/CHEZ SOI PROJECT

In contrast to the affluence and physical beauty of its surroundings, Vancouver's Downtown Eastside (DTES) neighbourhood is among Canada's poorest communities. The homeless population in Vancouver is concentrated in the DTES, where the city's lowest cost rental units exist alongside a large but fragmented array of resources, including shelters, drop-in centres, and community health services. The Vancouver At Home (VAH) study is part of the national At Home/Chez Soi project investigating solutions to homelessness among people with mental illness. This report summarizes the results to date from VAH, including analyses based on narrative interviews, questionnaires, and administrative data sources.

**1 VAH recruited and retained individuals with multiple challenges and needs.** The VAH sample included 497 participants recruited from a wide variety of community and institutional settings, including emergency homeless shelters, local hospitals, drop-in centres, and community outreach. Seventy-eight per cent of participants were absolutely homeless at the time of recruitment and 22 per cent were precariously housed. Nearly three-quarters (72 per cent) of participants were male, most were born in Canada (87 per cent) of either European (57 per cent) or Aboriginal (15 per cent) descent, and the median age<sup>1</sup> was 41 years. On average, participants had their first experience of homelessness when they were 30 years old, and had experienced homelessness for about three years of their lives. Psychotic disorder was the most prevalent mental illness (53 per cent), over half of participants met criteria for two or more mental health problems or illnesses (52 per cent), and most reported two or more physical illnesses (81 per cent). One-third (37 per cent) of participants reported childhood learning difficulties, nearly two-thirds (65 per cent) had experienced traumatic head injuries, and participants reported high levels of serious adverse events in childhood such as sexual, physical, or emotional abuse, and family dysfunction. Substance dependence was observed among 58 per cent of the participants with 29 per cent reporting daily illicit drug use. Despite the transient nature of homeless populations and the complex challenges faced by our participants, our overall follow-up rate for the full sample was 82 per cent with 90 per cent follow-up<sup>2</sup> in the Housing First (HF) groups and 75 per cent in the treatment as usual (TAU) groups.

**2 Housing First is a viable intervention for people experiencing chronic homelessness in Vancouver.** Housing stability outcomes were significantly better for participants assigned to HF compared to TAU. Further, HF was equally effective in achieving stable housing for participants with and without substance dependence. Of the comparatively small proportion of the TAU group who received some stable housing, the quality of their accommodations was significantly worse than the quality of HF apartments.

**3 Housing First impacts the use of health, social, and justice system services.** Within the high needs (HN) group, one year after entering the study, administrative data shows that participants in TAU were visiting emergency departments roughly seven times per person, while in HF, the number of emergency department visits per person was about three and a half. Over 24 months, HF participants reported higher average use of outpatient services and lower average use of acute services compared to TAU. Prior to VAH involvement, the majority of participants had histories of involvement with the criminal justice system; following enrollment in VAH among HN participants, administrative data analysis showed that HF resulted in significantly fewer criminal convictions compared to TAU.

**4 Housing First achieves positive outcomes in quality of life and community functioning in diverse neighbourhoods.** Significant and meaningful improvements in community functioning and quality of life were observed among HF participants. Over the 24-month study period, these improvements were significantly greater in HF than in TAU.

**5 Housing First in Vancouver delivers economic benefits.** A thorough study of changes in self-reported service use concluded that the VAH HF intervention cost \$28,282 per person per year on average for HN participants, and \$15,952 per person per year for moderate need (MN) participants. Over the two-year follow-up period, every \$10 invested in HF services resulted in an average savings of \$8.55 for HN participants. For MN participants, the intervention did not result in any offset, but the additional cost for every \$10 invested in HF services was very small at \$1.67.

**6 VAH results have important and practical policy implications.** Our findings demonstrate the effectiveness of HF in improving health, housing stability, public safety, and quality of life for people experiencing homelessness, and support the implementation of HF in the Vancouver context.

<sup>1</sup> The median is the value where half the participants were younger and half were older.

<sup>2</sup> Defined as having at least one instrument administered at the final interview.

# EXECUTIVE SUMMARY

## FROM THE VANCOUVER AT HOME/CHEZ SOI PROJECT

The health and social consequences of homelessness are staggering. The most visible example of this in British Columbia is Vancouver's Downtown Eastside (DTES) neighbourhood, bearing the unfortunate distinction as one of Canada's most disadvantaged communities. Responding to the needs of people experiencing homelessness and mental illness in Vancouver has been an ongoing challenge for civic officials, service providers, researchers, and advocates.

Compared to the rest of British Columbia and Canada, Vancouver's homeless population appears to be distinct in terms of the high rates of active substance use, as well as its geographic concentration. The housing options available for people in these circumstances are limited and often of poor quality, which contributes to worsening health conditions and social exclusion. This report describes a range of outcomes assessed at the conclusion of the Vancouver At Home (VAH) study. Findings from both quantitative and qualitative analyses are presented in the context of homelessness in Vancouver and unique aspects of the VAH intervention are highlighted. Our findings are based upon self-report data collected as part of the VAH study, as well as administrative data collected by provincial government agencies.

The VAH study consisted of two parallel, randomized controlled trials (RCT), differentiated by the intensity of support provided in the intervention (i.e., HF) groups. The moderate needs (MN) group (n=200) included 100 participants randomly assigned to intervention groups including scattered-site Housing First (HF) housing and

Intensive Case Management (ICM), and 100 participants assigned to a "treatment as usual" (TAU) group who did not receive housing or supports through the study but continued to have access to a wide array of existing services and housing available to them in Vancouver. The high needs (HN) group (n=297) included two HF groups and 100 participants assigned to TAU. Ninety participants were assigned to scattered-site HF with Assertive Community Treatment (ACT), and 107 participants were assigned to a congregate (CONG) setting with onsite supports. The CONG intervention was unique to the VAH study site and all participants were housed in the Bosman Hotel, located in downtown Vancouver. CONG participants were provided with a private room and bathroom, daily meals, and a 24-hour staffed reception desk with access to a range of health and social support services. Despite the transient nature of homeless populations and the complex challenges faced by our participants, our overall follow-up rate for the full sample was 82 per cent, with 90 per cent follow-up in the intervention groups and 75 per cent in the treatment as usual (TAU) groups.

## Sample Characteristics

The VAH sample at baseline consisted of 497 participants. The median age of participants was 41 years, and the majority were male (72 per cent), born in Canada (87 per cent), of European (57 per cent) or Aboriginal (15 per cent) descent, and met criteria for absolute homelessness (78 per cent). Most participants were single and never married (70 per cent), unemployed (92 per cent), and 57 per cent had not completed high school. The median duration of lifetime homelessness was three years and the median age when participants first experienced homelessness was 28 years. The most prevalent mental disorders in the sample were psychotic disorder (53 per cent) and major depressive episode (40 per cent), followed by post-traumatic stress disorder (PTSD) (26 per cent), panic disorder (21 per cent), and manic or hypomanic episode (19 per cent). Approximately half (52 per cent) of participants had two or more mental disorders. Criteria for substance dependence were met by 58 per cent of the participants and alcohol dependence by 24 per cent, with 28 per cent of the sample reporting poly-drug use (two or more types), and 29 per cent reporting daily illicit drug use. Physical illnesses, including infectious and chronic conditions, were highly prevalent, with most participants (81 per cent) reporting having two or more physical illnesses, including the presence of hepatitis C among 30 per cent of participants. Additionally, nearly two-thirds (66 per cent) had experienced traumatic head injuries, more than one third (37 per cent) reported having learning difficulties during childhood, and, overall, participants reported high levels of serious adverse events in childhood, such as sexual, physical, or emotional abuse, and family dysfunction.

Seventy-six per cent of participants reported using drugs or alcohol in the month prior to recruitment. Twenty-nine per cent of these participants reported daily substance use (DSU), a significantly higher rate than that

observed by previous HF interventions. Within the DSU group, the most common drug use reported was marijuana (49 per cent), followed by crack cocaine (27 per cent), alcohol (18 per cent), heroin (15 per cent), and amphetamines (eight per cent). Although most participants reporting DSU reported only one type of drug (78 per cent), 22 per cent reported using multiple types of drugs daily. Individuals reporting DSU experienced longer lifetime durations of homelessness, were more likely to inject drugs, and reported more mental illness symptoms than participants who reported using drugs less frequently or abstained.

## Service Use

In the month prior to recruitment, 49 per cent of participants reported being seen by a health service provider and 27 per cent reported seeing a psychiatrist. Historically, 53 per cent of participants had been hospitalized for a mental illness two or more times in the preceding five years, and 12 per cent had been hospitalized for more than six months in the same time period. In the six months prior to recruitment, the majority of participants (58 per cent) had visited an emergency department (ED) and 40 per cent had arrived at a hospital via ambulance. Analysis of ED data collected from Vancouver area hospitals revealed that, for the HN group, prior to randomization, the mean number of past year ED visits was 4.8 visits per person. The majority of presenting complaints were psychiatric (32.8 per cent), followed by general or minor complaints (19.8 per cent). One-year after study entry, HF+ACT participants had significantly lower ED use, compared to TAU. Reductions were also observed in the CONG group compared to HN TAU, however, these reductions were not statistically significant<sup>3</sup>. These results suggest that HF, particularly in the scattered-site model, leads to significant reductions in ED use among adults experiencing homelessness and mental illnesses.

## Housing Outcomes

HF participants were stably housed significantly more of the time than TAU participants. In the final six months of the study, we found that HF participants were housed 59 per cent of the time, while TAU participants were only stably housed 26 per cent of the same time period. Further, 42 per cent of TAU participants had no stable housing, while only 14 per cent of HF participants had no stable housing during the last six months of the study. Housing quality for a random sample (including quality of the housing unit and the building) was significantly higher for HF residences compared to TAU residences (effect size is .79). Housing quality was also significantly more consistent (less variable) for residences procured for HF participants compared to residences that TAU participants were able to get on their own or by using other housing programs and services for those housed for at least two months over the study period.

## Social and Health Outcomes

Quality of life was assessed across all study groups at baseline and every six months thereafter. One of the completed publications based on the VAH study reported that participants randomized to any HF group (ACT, CONG, or ICM) reported significantly greater quality of life after one year compared to the respective TAU group, regardless of specific intervention type. Specifically, housed participants reported significantly more positive perceptions of their safety and living situations. Additional unpublished results indicate significant improvements from baseline to 24 months in all housing groups compared to TAU. Overall, HF participants showed improvements in interviewer-rated community functioning over the course of the study. Community functioning was evaluated over a wide range of domains, including activities of daily living, as well as mental and physical health.

<sup>3</sup>Statistical significance is the probability that an effect is not observed due to chance alone. In this report, the significance level is generally set at  $p < 0.05$  (less than five per cent chance of the result having occurred by chance), unless otherwise indicated.

The majority of the sample (67 per cent) had been involved in the criminal justice system with a mean of 8.7 convictions per person in the decade prior to recruitment. Property crimes (mean 4.09) were the most common category of crime among participants. Post-randomization, HF+ACT was associated with a significantly lower number of sentences compared to the HN TAU group. CONG was associated with marginally significant reductions in sentences as compared to TAU.

## Economic Analysis<sup>4</sup>

The economic impact of the VAH programs was evaluated, considering many of the costs incurred by society. The scattered-site intervention cost \$28,282 per person per year on average for HN<sup>5</sup> participants, and \$15,952 per person per year for MN participants. These costs include salaries of all front-line staff and their supervisors, additional program expenses such as travel, rent, utilities, etc., and rent supplements provided by the Mental Health Commission of Canada (MHCC) grant. The HF intervention for HN participants was more costly mainly because of the higher staff-to-participant ratio. Over the two-year follow-up period, we compared the costs of services incurred by participants who received HF services with those of TAU participants. We found that receipt of HF services resulted in average reductions of \$24,190 per person per year in the cost of services for HN participants, but an overall increase of \$2,667 for MN participants. Thus every \$10 invested in HF services resulted in an average savings of \$8.55 for HN participants. For MN participants, the intervention did not result in any cost offset when differences between the groups at study entry are taken into account. Every \$10 invested in HF services

resulted in an increase in spending of \$1.67. These differences in costs arose from a combination of decreases in the costs of some services (cost offsets), and increases in the costs of others. For HN participants, the main cost offsets were hospitalizations in psychiatric hospitals (\$15,646 per person per year), hospitalization in medical units of general hospitals (\$9,740 per person per year), hospitalizations in psychiatric setting (\$5,487 per person per year), overnight stays in emergency shelters (\$4,066 per person per year), office visits in community health centres and other community providers (\$3,016 per person per year), occupation of single rooms with support services (\$1,331 per person per year), ED visits (\$1,183 per person per year), drugs or alcohol treatment or residential recovery program (\$1,172 per person per year), stays in detox facilities (\$1,059 per person per year), and stays in nursing homes and long-term care facilities (\$1,007 per person per year). At the same time, one cost in particular increased: stays in a residential program for psychiatric rehabilitation (\$2,920 per person per year). For MN participants, the main cost offsets were visits at day centres (\$1,910 per person per year), occupation of single rooms with services (\$1,376 per person per year), stays in nursing homes and long-term care facilities (\$1,100 per person per year), and ED visits (\$1,025 per person per year). At the same time, several costs increased significantly: office visits in community health centres and to other community providers (\$4,531 per person per year), incarceration in jail or prison (\$2,234 per person per year), and hospitalizations in a medical unit in a general hospital (\$1,862 per person per year). Other cost offsets and increases were less than \$1,000 per person per year.

## Implications for Policy and Practice

The findings from the VAH study indicate that HF can be implemented and effective in the Canadian context, including in a setting like the DTES of Vancouver where many highly traumatized, marginalized, and disadvantaged Canadians can be found. Despite a short follow-up period of only two-years, a broad range of positive outcomes were observed, highlighting the potential and importance of expanding supported housing programming. The unique inclusion of a congregate housing intervention, (CONG) and the high prevalence of substance use-related problems in the VAH sample, helps us to better understand the need to tailor supported housing interventions to be responsive to a broad range of individual needs, while adding to the body of knowledge supporting the effectiveness of HF for individuals experiencing both mental illnesses and active substance use. The significant reductions in ED use and offending, alongside improvements in quality of life, housing outcomes, and activities of daily living underscore the need to implement HF for people experiencing homelessness and mental illness in Vancouver. The VAH study is making important contributions to the ongoing reform of services in Vancouver and the rest of British Columbia. The study participants will be followed through at least 2015 with support provided by Vancouver Coastal Health Authority and the MHCC. The study will continue to yield important results that can inform practice for the benefit of vulnerable people.

<sup>4</sup> Economic analysis provided by the At Home/Chez Soi - Montréal Research Team.

<sup>5</sup> Excluding Congregate (CONG) High Needs Group.



# CHAPTER 1

## INTRODUCTION

This section introduces the Vancouver At Home (VAH) study within the context of the situation for people experiencing homelessness and mental illness in the City of Vancouver. Details regarding the specific interventions employed by VAH, recruitment of participants, and follow-up over time are described.

### Background and Context

The purpose of this report is to describe and discuss outcomes of the VAH study. As part of the multi-site At Home/Chez Soi<sup>6</sup> project, the VAH study implemented parallel, randomized controlled trials (RCTs) with the goal of advancing knowledge regarding the type of housing and supports that best support recovery for people experiencing both homelessness and mental illness in the City of Vancouver [1,2]. Findings will be discussed in relation to the context of homelessness in Vancouver, and unique features of the Vancouver research design will be highlighted. Analyses involving self-report interview data will be presented alongside analyses involving provincially collected administrative data sources spanning multiple ministries. In addition to quantitative findings, qualitative findings are presented based on a representative subsample of participants who participated in in-depth narrative interviews.

Compared to the rest of British Columbia and Canada, Vancouver's homeless population appears to be distinct in terms of the high rates of active substance use, as well as its geographic concentration.

### Description of Homelessness in Vancouver

In contrast to the affluence and natural beauty of the City of Vancouver, British Columbia, is the highly visible homeless population that has emerged in the past few decades. Responding to the needs of people experiencing homelessness and mental illness in Vancouver has been an ongoing challenge for civic officials, service providers, and advocates. Compared to the rest of British Columbia and Canada, Vancouver's homeless population appears to be distinct in terms of the high rates of active substance use, as well as its geographic concentration. The Downtown Eastside (DTES) of Vancouver has been labeled "Canada's poorest postal code" and is notorious for its visible homeless population, high crime rates, open drug market, high prevalence of infectious diseases, and premature mortality [3-5]. The prevalence of chronic medical conditions has been well documented in Vancouver's homeless population [3-8], as has the finding that many individuals experiencing homelessness are not connected to the formal health care

system and are thus at elevated risk of adverse medical outcomes, including drug overdose [6,9]. Vancouver Coastal Health estimated that 3,200 individuals in the DTES have significant health problems and an additional 2,100 require intensive supports and services. Unfortunately, many individuals do not receive treatment for their conditions other than medical care through Emergency Departments [9-11].

The DTES community is home to approximately 16,000 individuals, many of whom are homeless or live in unstable housing. For many years, the most affordable housing option in this neighbourhood has been single room occupancy (SRO) hotels, many of which are of exceedingly poor quality and often in need of major repairs, infested with bedbugs and other vermin, and characterized by the presence of illicit drugs and other criminal activity [12-14]. This high concentration of SRO hotels is also unique to downtown Vancouver. A high demand for low-income housing is



evidenced by the 0.5 per cent vacancy rate for bachelor suites in Vancouver. As a result, affordable housing is far beyond the shelter allowance of people receiving income assistance. The average rent for a one-bedroom apartment in 2011 was \$934 per month, more than double the \$375 monthly shelter allowance. In general, housing in Vancouver for people with multiple challenges including poverty, substance use, and mental illnesses has been in congregate settings, and this trend is continuing with the purchase and renovation of a

<sup>6</sup> See <http://bmjopen.bmj.com/content/1/2/e000323.full> for a description of the complete At Home/Chez Soi protocol.

For many years, the most affordable housing option in this neighbourhood has been single room occupancy (SRO) hotels, many of which are of exceedingly poor quality and often in need of major repairs, infested with bedbugs and other vermin, and characterized by the presence of illicit drugs and other criminal activity [12-14].

number of SROs and the development of congregate housing on 14 city sites. Alongside the SROs, a high concentration of drop-in centres, community health clinics, outreach support services, and emergency shelters can be found in the DTES, which comprise a substantial proportion of usual care services for people experiencing homelessness and mental illnesses in Vancouver.

To inform the implementation of VAH, the 2008 Metro Vancouver Homeless Count and a variety of community stakeholders were consulted to estimate the characteristics and distribution of a representative sample of individuals who were both homeless and mentally ill. The 2008 count found 1,372 people who were homeless in the City of Vancouver.<sup>7</sup> This number of individuals experiencing homelessness represented a 23 per cent increase since the previous count in 2005. Notably, between 2005 and 2008, the percentage of people who experienced

homelessness for one year or more increased by 65 per cent, representing 48 per cent of people counted in 2008. In addition to the significant increase in the rate of homelessness, self-reported rates of mental illness and substance use have also increased significantly, by 86 per cent and 63 per cent, respectively. A 2007 provincial estimate of the population of adults with severe mental illness (including substance use) estimated that 1,800 adults in Vancouver were absolutely homeless and an additional 2,280 adults were at risk for homelessness [37]. These reports document not only a significant increase in the rates and severity of homelessness in Vancouver, but that a substantial number of people are affected.

Recently, public and civic concern in Vancouver has been directed toward improving the health and quality of life among those experiencing homelessness and mental illness. The City of Vancouver has a stated goal to “end street

homelessness” by 2015, and there have been a variety of City-led initiatives to try to achieve this goal. In addition to supporting the establishment of temporary, low-barrier, cold-weather shelters, part of the City’s plan includes the construction of apartment buildings to provide housing and support for the homeless. Several city and province led initiatives have recently addressed challenges related to homelessness, including justice system innovations (e.g., Community Court), expanded mental health services (e.g., Burnaby Centre for Mental Health & Addiction), access to income assistance, and investments to stabilize housing stock (e.g., purchase of SROs and development of additional supportive housing). If these activities and commitments fulfill their promise, they will significantly improve the standard of “usual care” for people experiencing homelessness and mental illness in Vancouver.

...housing in Vancouver for people with multiple challenges including poverty, substance use, and mental illnesses has been in congregate settings, and this trend is continuing with the purchase and renovation of a number of SROs and the development of congregate housing on 14 city sites.

<sup>7</sup> The 2008 Metro Vancouver Homeless Count also identified an additional 1,037 homeless individuals in suburban areas adjacent to the City of Vancouver.

# CHAPTER 2

## DESCRIPTION OF PROGRAMS

### Description of Programs

Prior to the introduction of VAH, Assertive Community Treatment (ACT) and Intensive Case Management (ICM) did not exist in the city. The effectiveness of HF for individuals with substance dependence has previously been questioned [23] and therefore the high prevalence of substance use within Vancouver's homeless population was an important focus for research. Additionally, low vacancy rates and high rental costs for quality apartments made the likelihood and feasibility of securing housing units for HF participants uncertain. SROs and congregate housing models comprised the city's most affordable housing and were central to the plan to address homelessness, and therefore required study alongside the more traditional scattered site configuration of HF. The VAH presented the opportunity to not only test the effectiveness of HF for people experiencing homelessness and mental illness in Vancouver, but to also evaluate the feasibility of mounting support services, and the logistics of locating and negotiating housing options in a highly competitive rental market.

The effectiveness of HF for individuals with substance dependence has previously been questioned [23] and therefore the high prevalence of substance use within Vancouver's homeless population was an important focus for research.

The VAH project consisted of two Randomized Controlled Trials (RCTs),<sup>8</sup> differentiated by the intensity of support provided in the intervention groups. During the baseline interview, participants were sorted into either a high need (HN) or moderate need (MN) group, depending on criteria related to type of mental illness, functional impairment, criminal justice system involvement, history of psychiatric hospitalization, and substance use. The HF model was employed in all interventions and an evolving portfolio of available housing units was acquired and managed by the VAH Housing Team. The following are brief descriptions of the interventions; further details of the study design including interventions and research methods are available elsewhere.<sup>9</sup>

#### Moderate Needs

Participants in the MN group were randomly assigned to either a group that included ICM support and HF independent housing, or a treatment as usual (TAU) (existing services) group. The Coast Mental Health Foundation ran the ICM team and services were delivered by case managers with assigned caseloads of participants.

#### High Needs

Individuals in the HN group were randomly assigned to one of three possible study groups including ACT with HF independent housing, congregate (CONG) housing in the Bosman hotel with ACT-like onsite supports, or TAU. Participants in the HF+ACT group received supports from the multidisciplinary RainCity Housing ACT team, which included a peer support worker and other professionals. Collectively the team managed the emergent needs of the 90 HF+ACT participants.

#### CONGREGATE

The CONG group of the study housed 107 participants in the Bosman Hotel located in downtown Vancouver (formerly a motor-in hotel). CONG participants were provided with a private room and bathroom, daily meals prepared in a communal kitchen, and a 24-hour staffed reception desk with access to medication management, and other necessary health and social support services. Services provided at the Bosman Hotel were managed by the Portland Hotel Society and were resourced at a level comparable to an ACT team. In addition to the supportive

<sup>8</sup> Trial Registration: Current Controlled Trials: ISRCTN5759077 (Vancouver At Home study: Housing First plus Assertive Community Treatment versus congregate housing plus support versus treatment as usual) and ISRCTN66721740 (Vancouver At Home study: Housing First plus Intensive Case Management versus treatment as usual).

<sup>9</sup> See <http://www.biomedcentral.com/content/pdf/1745-6215-14-365.pdf> for full description of VAH study design, methods, research instruments and Vancouver site-specific features.

services available at the Bosman Hotel, participants also had the opportunity to participate in paid volunteer activities, including kitchen work and local neighbourhood improvement activities. Onsite group activities included support groups, arts and crafts, movie nights, road hockey, basketball, and other social activities that were organized at the Bosman for participants to take part in.

### Treatment as Usual in Vancouver

In both the HN and MN studies, TAU participants did not receive any housing or support services through the study but were supported by existing services for people experiencing homelessness and mental illness in Vancouver. As described previously, many of the services accessible to those in the TAU groups are concentrated in the DTES. The resources available to TAU participants included emergency shelters, SROs, and community services such as meal programs, drop-in centres, community health clinics, and food banks. A very limited supply of permanent supported housing was available, and no ACT or ICM teams were addressing the needs of people experiencing homelessness outside of our study.

### Service Providers

The local organizations selected to provide services within VAH were chosen through a competitive “request for proposals” process. Applications were reviewed by a panel of senior individuals drawn from homelessness research, management of services, and community granting agencies. Assessment was made on the basis of organizational experience, implementation plan, and budget. Service providers received specific training in the principles and delivery of HF, and the HF programs underwent fidelity assessments by external review teams at two points during the study. Fidelity assessments were intended to ensure that the principles and procedures of the HF model were being appropriately upheld and carried out by VAH service providers. Services were based on the model defined by Pathways to Housing [15-17], including expertise that anticipated the needs of local clients (e.g., addiction severity), and configured to support participants in both scattered and congregate housing settings. Participants randomized to HF were transitioned to a case manager within two days of study entry.

In order to promote community integration, a maximum of 20 per cent of the units in any building could be allocated to program participants (for scattered site apartments).

### SCATTERED-SITE APARTMENTS

An inventory of apartments in a variety of neighbourhoods throughout the city was developed by the Motivation Power Achievement (MPA) Society as the Housing Lead for VAH. These apartments were drawn from private market rentals with numerous landlords. In order to promote community integration, a maximum of 20 per cent of the units in any building could be allocated to program participants. A housing portfolio manager from MPA was responsible for building and maintaining relationships with landlords, including relocating participants to more suitable residences when needed. Participants in the scattered-site (HF+ACT and HF+ICM) groups received support in their homes and were expected to meet with program staff on a weekly basis. In keeping with HF principles, tenancy in any of the HF groups was not contingent on compliance with any therapy (e.g., addiction treatment or treatment for mental illness).

### Recruitment, Retention, and Follow-up

Participants were recruited from more than 40 different community agencies and institutions, representing approximately 13 different types of services. Referral sources included homeless shelters, drop-in centres, homeless outreach teams, hospitals, community mental health teams, and criminal justice programs. Prospective participants were approached directly by research team members or were referred to the VAH research team by agency staff. In many cases, prospective participants were discussed by a referral agent and a VAH staff member to pre-assess eligibility, and rule out obviously ineligible individuals. Final eligibility was confirmed with an in-person screening interview. Approximately 800 individuals were assessed for eligibility. Among those who did not ultimately participate in the study, approximately 300 were excluded due to: ineligibility (n=200); being eligible, but losing contact following screening (n=100); declining to participate (n=3); and, not being able to complete the baseline interview (n=3). Eighty-eight per cent of the 497 participants randomized provided consent to access administrative data collected by government ministries, bolstering the VAH research team's ability to follow participants over time [2].

Extensive contact information including physical descriptions, locations of daily activities, social contacts, and services used was collected from participants to increase the likelihood of maintaining contact with them long term. Between 92 and 100 per cent of participants were successfully followed over the two years of follow-up among the five different study groups. The primary reasons for loss to follow-up following randomization were death (n=29) or being unable to locate the participant. The overall retention rate<sup>10</sup> through 24 months was 97 per cent (CONG: 100 per cent; ACT: 100 per cent; HN TAU, ICM: 98 per cent; and MN TAU: 92 per cent). The high rates of retention and follow-up are unprecedented in the research literature and are attributed to extensive outreach, a welcoming field office, relationships with community service providers, and a committed team of interviewers [2].

<sup>10</sup> Defined as having completed at least one follow-up interview.

# CHAPTER 3

## CHARACTERISTICS OF THE VANCOUVER SAMPLE

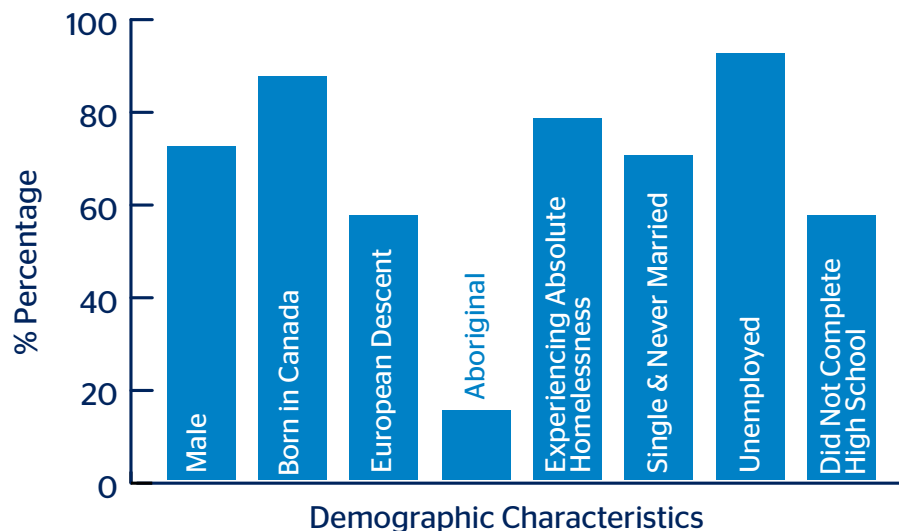
This section describes results based on unpublished analyses developed by the At Home cross-site research team and peer-reviewed publications to date produced by the VAH (Vancouver At Home) research team over time. Reported results are based on data at single points in time, as well as data collected on standard questionnaires in participant interviews, administrative data, and qualitative information collected in narrative interviews.

### Descriptive Characteristics

The final sample at baseline consisted of 497 participants. The median age of participants was 41 years, and the majority were male (72 per cent), born in Canada (87 per cent), of European (57 per cent) or Aboriginal (15 per cent) descent, and were experiencing absolute homelessness (78 per cent). Most participants were single and never married (70 per cent), unemployed (92 per cent), and 57 per cent had not completed high school [2].

The mean duration of lifetime homelessness was 60 months and the mean age when participants first experienced homelessness was 30 years. A baseline analysis of duration of homelessness examined individual characteristics associated with “prolonged” and “persistent” homelessness. “Prolonged” was defined as a single episode of homelessness lasting one or more years, and was found to be independently predicted by older current age, younger age at first homeless experience, current substance dependence, daily illicit drug use, and not seeing a psychiatrist in the past month. Male gender, older current age, younger age at first homeless experience, incomplete high school, past month alcohol use, and daily illicit drug use were predictive of “persistent” homelessness (defined as a life-time duration of homelessness of three or more years) [18]. Similar to findings reported previously in other literature, illicit drug use and younger age at first experience of homelessness were important predictors of both prolonged and persistent homelessness among those with mental illnesses, underscoring the need for earlier intervention and programming that integrates treatment for both substance use and mental illness [18].

The mean duration of lifetime homelessness was 60 months and the mean age when participants first experienced homelessness was 30 years.



MEDIAN AGE  
**41**  
YEARS

Table 3.1 Participant Demographic Characteristics – Vancouver\*

	TOTAL SAMPLE N =497 %	HN N =297 %	MN N =200 %
<b>AGE GROUPS</b>			
34 or younger	34	41	24
35-54	55	49	65
55 or older	11	10	11
<b>GENDER</b>			
Male	72	73	71
Female	27	26	29
Other	1	1	<1
<b>COUNTRY OF BIRTH</b>			
Canada	87	87	88
Other	13	13	12
<b>ETHNIC STATUS</b>			
Aboriginal	15	15	16
Other ethnocultural	23	24	23
<b>MARITAL STATUS</b>			
Single, never married	70	73	65
Married or common-law	5	4	6
Other	25	23	29
<b>PARENT STATUS</b>			
Any children	25	24	27
<b>EDUCATION</b>			
Less than high school	57	61	50
High school	21	21	22
Any post-secondary	22	18	28
<b>PRIOR MILITARY SERVICE (for Canada or an ally)</b>			
	5	6	5
<b>Prior month income less than \$300</b>			
	15	15	15
<b>Prior employment (worked continuously at least one year in the past)</b>			
	65	63	69
<b>Currently unemployed</b>			
	92	93	92

\* All information was reported by participants.

Thirty-seven per cent recalled being told that they had a LD as a child.

The most prevalent mental illnesses in the sample were psychotic disorder (53 per cent) and depression (40 per cent), followed by post-traumatic stress disorder (PTSD) (26 per cent), panic disorder (21 per cent) and bipolar disorder (19 per cent). Approximately half (52 per cent) of participants had two or more mental illnesses. Substance dependence was observed among 58 per cent of the participants and alcohol dependence among 24 per cent, with 28 per cent of the sample engaged in poly drug use (two or more types), and 29 per cent reporting daily illicit drug use. Physical illnesses, including infectious and chronic conditions, were highly prevalent, with most participants (81 per cent) reporting having two or more physical illnesses, including the presence of hepatitis C among 30 per cent of participants. Additionally, nearly two-thirds (65 per cent) had experienced traumatic head injuries, and participants reported high levels of serious adverse events in childhood such as sexual, physical, or emotional abuse, and family dysfunction [2].

49 per cent of participants had been seen by a health service provider and 27 per cent had seen a psychiatrist.

### Baseline Health Service Use

In the month prior to recruitment, 49 per cent of participants had been seen by a health service provider and 27 per cent had seen a psychiatrist. Historically, 53 per cent of participants had been hospitalized for a mental illness two or more times in the preceding five years, and 12 per cent had been hospitalized for more than six months in the same time period. In the preceding six months, the majority of participants (58 per cent) had visited an emergency room, and 40 per cent had arrived at a hospital via ambulance. Statistical analysis of health service use among the full sample of VAH participants found that individuals with more severe mental illnesses (e.g., psychotic disorder, bipolar disorder, mood disorder with psychotic features), used significantly fewer health services compared to those with less severe mental illnesses (e.g., major depression, panic disorder, PTSD) ( $p \leq 0.05$ ) [19].

### Early Childhood Indicators

Thirty-six per cent of the sample reported that they had a learning problem or disability (LD) during childhood. Thirty-seven per cent recalled being told that they had a LD as a child. Twenty-seven per cent endorsed both items [20]. Participants reporting a childhood LD were significantly more likely to report negative health outcomes related to physical health (e.g., blood-borne infectious diseases, migraines, and seizures), mental health (e.g., major depression, panic disorder, and high suicidality), and negative patterns of substance use, including early initiation of drug use, daily current drug use, alcohol dependence, and injection drug use (IDU).

Table 3.2 Homelessness History – Vancouver\*

	TOTAL SAMPLE N =497 %	HN N =297 %	MN N =200 %
HOMELESS STATUS AT ENROLMENT			
Absolutely homeless**	78	78	78
Precariously housed	22	22	22
FIRST TIME HOMELESS			
The year prior to the study	17	16	18
2008 or earlier	83	84	82
LONGEST PERIOD OF HOMELESSNESS IN MONTHS (lowest and highest rounded to next month)			
	31 (1-240)	32 (1-240)	29 (1-240)
TOTAL TIME HOMELESS IN LIFETIME IN MONTHS (lowest and highest rounded to next month)			
	60 (1-720)	62 (1-432)	58 (1-720)
AGE FIRST HOMELESS (lowest and highest rounded to next month)			
	30 (4-74)	29 (4-74)	33 (6-65)

\* all information was reported by participants

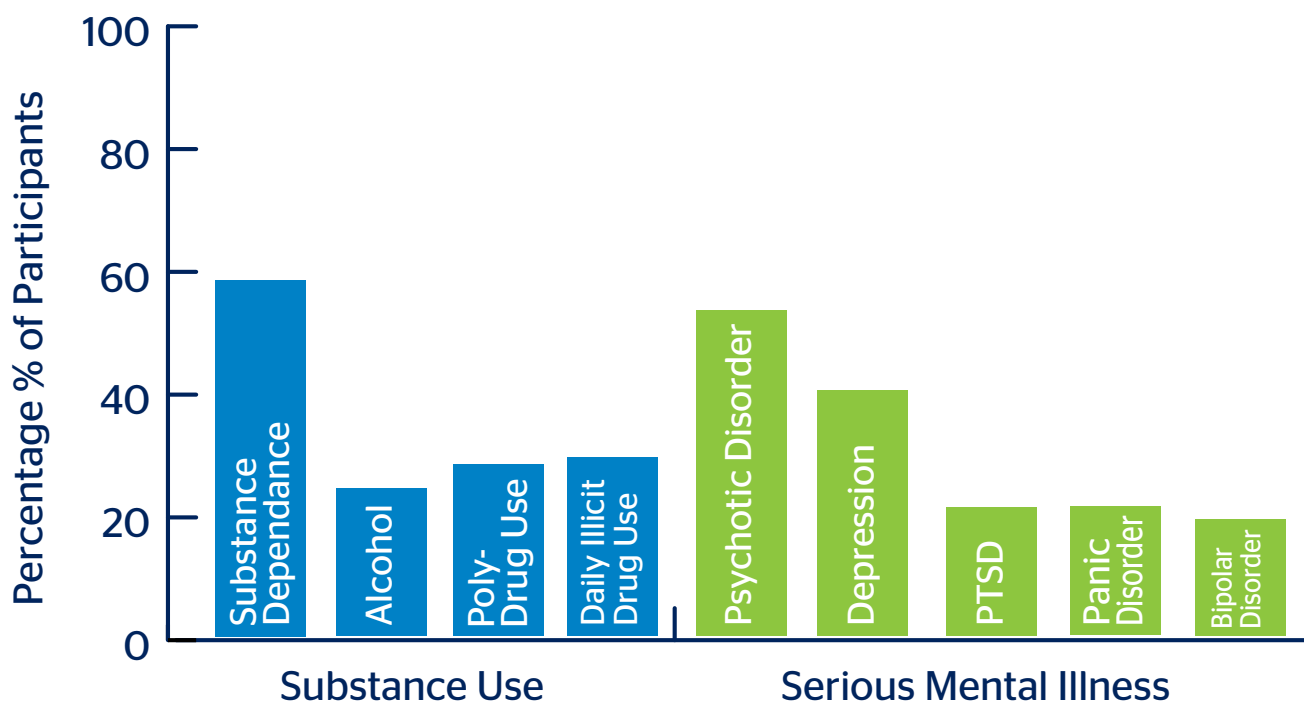
\*\* See <http://bmjopen.bmj.com/content/1/2/e000323.full> or see Appendix D of the National Team report for definitions of absolutely homeless and precariously housed

Statistical analysis showed that reporting a childhood LD independently increased the likelihood of not entering high school, experiencing a lifetime duration of homelessness greater than three years, less severe mental illnesses, and poor or fair overall health [20].

### Daily Substance Use

Although previous studies have shown that HF can be effective for people experiencing homelessness with active substance use [10,11], the frequency and severity of such drug use has not been well understood in this respect. In order to determine the relationship between severity of drug use and mental health symptoms, we defined drug use in terms of daily substance use (DSU) or less than daily use [12]. Within the total VAH sample, 76 per cent of participants reported

Statistical analysis showed that reporting a childhood LD independently increased the likelihood of not entering high school, experiencing a lifetime duration of homelessness greater than three years, less severe mental illnesses, and poor or fair overall health [20].



Risk Characteristics Reported by Participants

Table 3.3 Past and Current Personal, Health, and Social Circumstances – Vancouver\*

	TOTAL SAMPLE N =497 %	ACT N =297 %	ICM N =200 %
Need level (determined by study screening)			
High need	60	100	0
Moderate need	40	0	100
Adverse Childhood Experiences (ACE)			
Mean score (out of a possible 10)	3.9	3.8	4.0
COGNITIVE IMPAIRMENT			
Got extra help with learning in school	45	43	48
Has a learning problem or disability	37	38	37
DIAGNOSIS AT ENROLMENT			
Psychotic disorder	53	71	26
Non-psychotic disorder	62	54	74
Substance-related problems	71	75	64
SUICIDE RISK AT ENROLMENT			
Moderate or high	34	31	37
COMMUNITY FUNCTIONING AT ENROLMENT (rated by interviewers)			
Average MCAS score* (lowest and highest scores)	56 (33 - 79)	51 (33 - 62)	64 (42 - 79)
HOSPITALIZED FOR A MENTAL ILLNESS <sup>‡</sup> (for more than six months at any time in the past five years)	12	16	5
HOSPITALIZED FOR A MENTAL ILLNESS <sup>‡</sup> (two or more times in any one year in the past five years)	53	69	29
SERIOUS PHYSICAL HEALTH CONDITIONS			
Asthma	21	17	27
Chronic bronchitis/emphysema	18	17	19
Hepatitis C	30	28	31
Hepatitis B	5	5	6
HIV/AIDS	9	6	12
Epilepsy/seizures	14	17	9
Heart disease	7	6	8
Diabetes	6	6	6
Cancer	4	5	2
TRAUMATIC BRAIN/HEAD INJURY			
Knocked unconscious one or more times	66	66	67
JUSTICE SYSTEM INVOLVEMENT (arrested > once, incarcerated or served probation in prior six months)	45	56	30
JUSTICE SYSTEM INVOLVEMENT TYPES			
Detained by police	23	27	16
Held in police cell 24 hours or less	23	28	16
Arrested	36	44	23
Court appearance	36	43	26
Attended a justice service program	11	12	9
VICTIMIZATION			
Theft or threatened theft	36	36	37
Threatened with physical assault	48	48	49
Physically assaulted	36	35	37
Lack of social support			
Lacking a close confidante	53	48	60

using drugs or alcohol in the past month. Among this group, 29 per cent reported DSU, which is significantly higher than previous housing intervention studies using HF. Within the DSU group, the most common drug used was marijuana (49 per cent), followed by crack cocaine (27 per cent), alcohol (18 per cent), heroin (15 per cent), and amphetamines (eight per cent). Most participants reporting DSU reported using only one type of drug (78 per cent), however, 22 per cent used multiple types of drugs daily. Individuals reporting DSU were found to have experienced longer lifetime durations of homelessness, were more likely to inject drugs, and reported more mental illness symptoms than participants who used drugs less frequently or abstained [4,12].

Given the high prevalence of illicit drug use in this population, any program that does not acknowledge and address the role of drug use, runs the risk of limiting its effectiveness. As drug use has been shown to disrupt housing stability and increases the risk of relapsing into homelessness, housing program providers need to consider this likelihood when providing housing and support services. In models of service delivery, such as HF, that do not require abstinence or drug treatment, it is crucial to recognize the role of drug use in people's lives [7,8,12,21].

...participants reported high levels of serious adverse events in childhood such as sexual, physical, or emotional abuse, and family dysfunction [2].

\* all information was reported by participants except where noted

‡ See <http://bmjopen.bmj.com/content/1/2/e000323.full> for definitions of high and moderate need

\* Multnomah Community Ability Scale - higher scores indicate better functioning; a score of 62 and below represents moderate to high disability or moderate to poor functioning; items include daily living independence, money management, coping with illness, and social effectiveness

‡ self-report of psychotic illnesses and related hospitalizations are likely to be under-estimates due to the nature of the illness



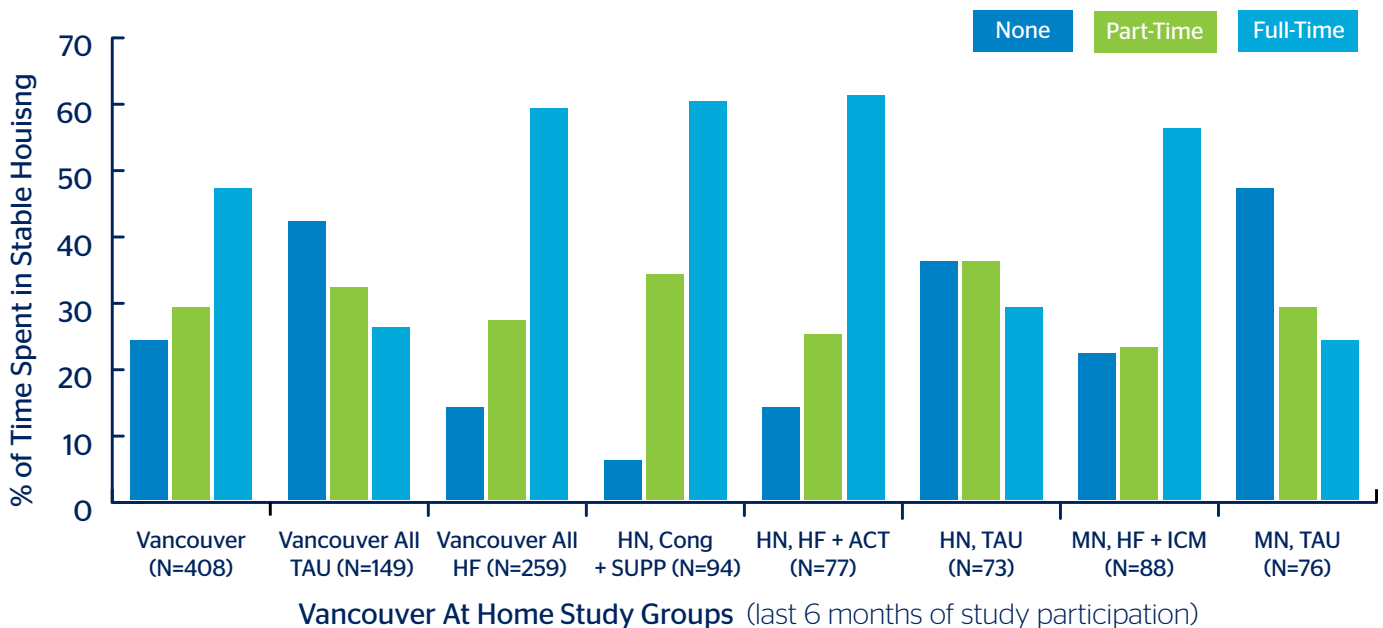
# CHAPTER 4

## HOUSING OUTCOMES

### Housing Stability

Evaluating the impact of VAH on housing stability was a major objective of the study at both the local and national levels. Findings from the At Home cross-site research team showed that in Vancouver, participants in all intervention groups spent a greater proportion of time housed than TAU participants. Overall, participants in the HF intervention groups spent 59 per cent of the last six months in stable housing, 27 per cent spent some of the last six months in stable housing, and 14 per cent spent no time in stable housing. In contrast, TAU participants spent only 26 per cent of the last six months in stable housing, 32 per cent spent some of the last six months in stable housing, and 42 per cent spent no time in stable housing. Housing stability varied among the study groups as shown in Figure 6.1, however, a greater proportion of HF participants in all HF groups – ACT, CONG and ICM – were stably housed than those in TAU.

Figure 4.1 Proportion of time VAH participants spent in stable housing in the final six months of the study



Among a subsample of participants, objective housing quality was assessed. Trained interviewers visited participant's homes (both HF and TAU) and evaluated the quality of their residences in terms of neighbourhood, the building as a whole, and the individual's unit. Housing quality for residences of HF participants, for the building and unit combined, was found to be significantly higher than TAU residences. Further, the quality of HF units and buildings were also much more consistent (less variable) than the quality of TAU units and buildings that TAU participants were able to get on their own or using other housing programs and services for those housed for at least two months over the study period.

In addition, the Vancouver site team conducted analyses examining the relationship between housing stability and substance use. Substance use among individuals who are homeless has an estimated prevalence of between 29 per cent and 75 per cent and has been shown to be associated with lower levels of treatment retention, greater likelihood of post-treatment relapse, premature mortality, and longer durations of homelessness [22]. Further, critiques of the HF approach have questioned the viability of HF for people with concurrent mental illness and substance use, as most studies have not included individuals experiencing both [23]. Since substance dependence was present for 58 per cent of the VAH sample at baseline, it was important that we examine the relationship between housing stability and substance use. For the purposes of this analysis, residential stability was defined as the number of days in stable residences in the past 12 months [22]. After adjusting for housing intervention, employment, socio-demographic characteristics, chronic health conditions, severity of mental illness, psychiatric symptoms, and lifetime duration of homelessness, we found no significant association between substance dependence and residential stability. From this we conclude that concurrent mental illness and substance dependence does not preclude individuals from achieving similar levels of housing stability in Housing First, compared to those without concurrent substance dependence [22].

# CHAPTER 5

## SERVICE USE OUTCOMES

An indirect outcome of supportive housing provision is an effect on health and justice system service use. Though not a main outcome of At Home/Chez Soi, the hope was that providing stable housing with supports would help reorient participants to more appropriate service use. In the context of health service use, HF (Housing First) may help to shift presentations for primary health care needs more appropriately toward primary care services (i.e., family physicians), rather than acute care services (i.e., emergency departments [ED]). Stable housing offers safety and protection and has previously been shown to reduce contacts with the criminal justice system. As such, we might expect to see a reduction in the number of police and justice system contacts among HF participants. In this section, we consider preliminary findings related to service use based on participant self-report, alongside published analyses of administrative data concerning emergency department use and criminal convictions.

Outpatient visits increased for HF, while for TAU, the level of outpatient service use decreased over time.

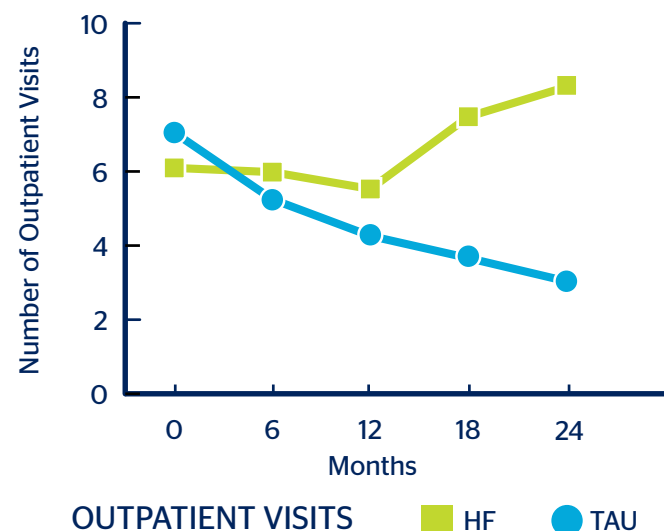
### Self-Reported Trends in Service Use

Trends in service use across the domains of ED visits, outpatient visits, ambulance rides, drop-in centre use, and use of food banks were observed from baseline and every six months thereafter for 24 months (Figure 7.1). Though not formally tested for statistical significance, differences between HF and treatment as usual (TAU) groups were observed over time in terms of the mean level of use of these different services. At recruitment, the mean number of emergency department visits per person in the past six months was approximately 2.5. Overall, ED use appears to have decreased in both HF and TAU over the course of the study period.

Figure 5.1 Mean number of self-reported emergency department visits from baseline through 24 months.



Figure 5.2 Mean number of self-reported outpatient visits from baseline through 24 months.



Outpatient visits increased for HF, while for TAU, the level of outpatient service use decreased over time (Figure 7.2). These trends could suggest that HF participants are more readily gaining access to primary health care and using such services instead of acute care. As the support component of HF is meant to facilitate access to primary care services through Assertive Community Treatment (ACT) staff or Intensive Case Management (ICM) caseworker service brokerage, it is expected that access to primary healthcare should be improved. A dearth of family physicians in Vancouver may explain the trend of decreasing outpatient use among TAU participants.

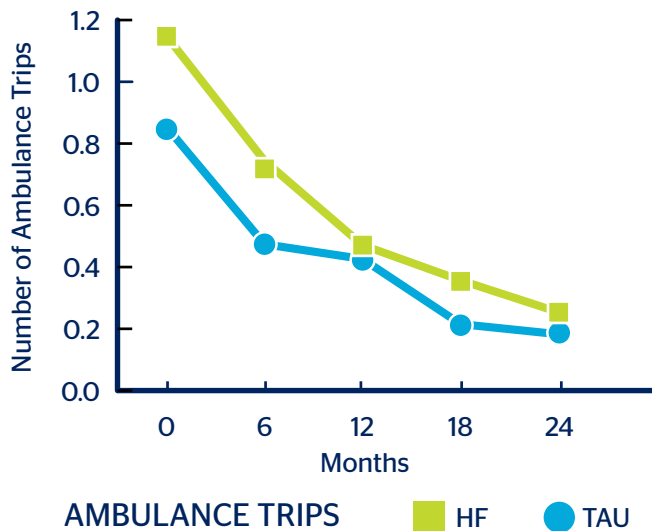


Figure 5.3 Mean number of self-reported ambulance trips from baseline through 24 months.

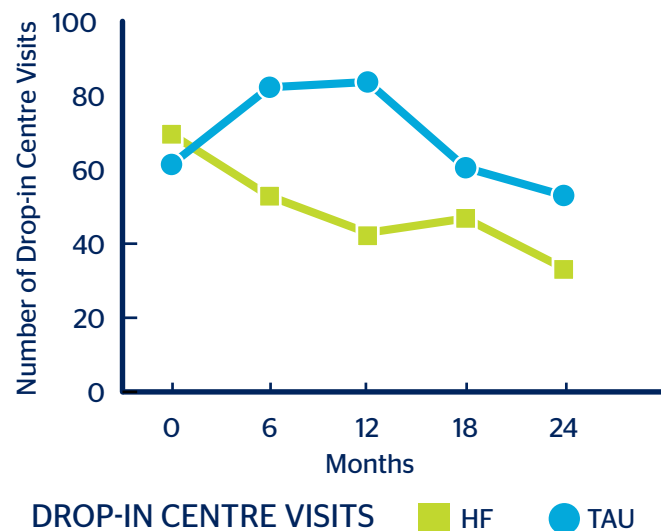


Figure 5.4 Mean number of self-reported visits to community drop-in centres from baseline through 24 months.

Although most participants in both HF and TAU groups had no ambulance trips over the study follow-up period, there was a wide range in the number of ambulance trips in both groups at all time points. Overall, we observed a decreasing trend in the mean number of ambulance trips over the course of the study in both HF and TAU groups (Figure 7.3).

A similar decreasing trend in the use of drop-in centres was observed over time, and this trend appears to be particularly pronounced for the HF group (Figure 7.4). Given the support services available to HF participants, it was expected that use of drop-in centres may decrease after assignment to HF. Further,

much of the housing provided by the study was located outside of the DTES, where most of these services are located.

Food bank use appears to have decreased overall for both TAU and HF groups (Figure 7.5). Overall, HF participants accessed food banks somewhat more frequently than those in TAU. This may be explained by the fact that compared to those who remain homeless, people in housing have a greater ability to both store and prepare their own food. People experiencing homelessness may not have access to facilities to store and prepare their own food and thus rely on food provided through meal programs at various community organizations. It is also important to note that participants assigned to a congregate setting (CONG) had meals prepared onsite as part of the programming at the Bosman Hotel, and therefore the need to access food banks for this group of participants would have been lower than for HF participants housed in scattered-site apartments.

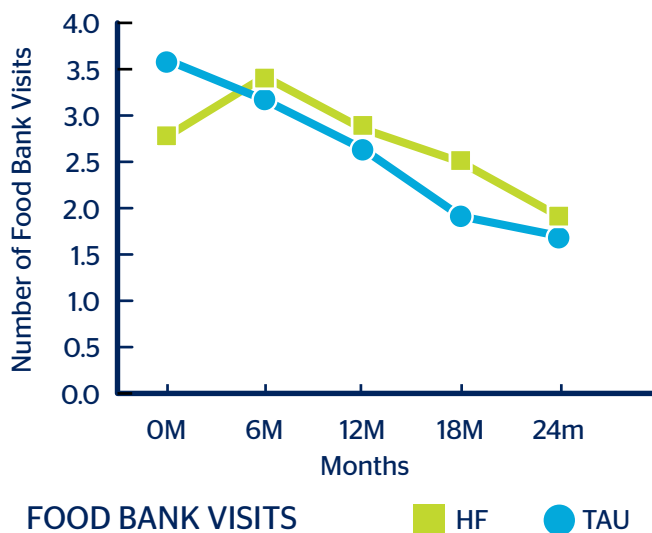


Figure 5.5 Mean number of self-reported visits to food banks from baseline through 24 months.

## Emergency Department Use

Previous studies have shown that adults who are homeless with mental health issues tend to use emergency department (ED) services at higher rates than stably housed adults [24,25]. As such, administrative ED data was collected and analyzed from all Vancouver area hospitals to examine whether the HF intervention implemented in the VAH study would reduce ED use compared to TAU. Focusing only on the high needs (HN) group, it was found that in the year prior to study entry, the mean number of visits was 4.8 visits per person [26]. Further the majority of presenting complaints were psychiatric (32.8 per cent), followed by general or minor complaints (19.8 per cent). One year after study entry, compared to TAU, significantly lower ED utilization was observed in the HF-ACT group. These results suggest that HF, in particular the scattered-site model, leads to significant reductions in ED use among adults who are homeless with mental illness [26].

These results suggest that HF effectively reduces crime and should be an area of continued research focus and implementation.

### Housing First and Reductions in Offending

Homelessness is commonly associated with crime and public disorder. Previous evidence suggests that individuals who are homeless are at greater risk of being involved in the criminal justice system compared to those who are stably housed. While HF is associated with greater housing stability, little is known about the effect of HF on criminal behaviour [3,5]. The majority of the VAH sample (67 per cent) had been involved in the criminal justice system with a mean of 8.7 convictions per person in the decade prior to recruitment [6]. Property crimes (mean 4.09) were the most common category of crime among participants. Post study entry, the scattered site HF group had a significantly lower number of sentences compared to TAU. The CONG group had a marginally significant reduction in sentences as compared to TAU. These results suggest that HF effectively reduces crime and should be an area of continued research focus and implementation [6].

Post study entry, the scattered site HF group had a significantly lower number of sentences compared to TAU.

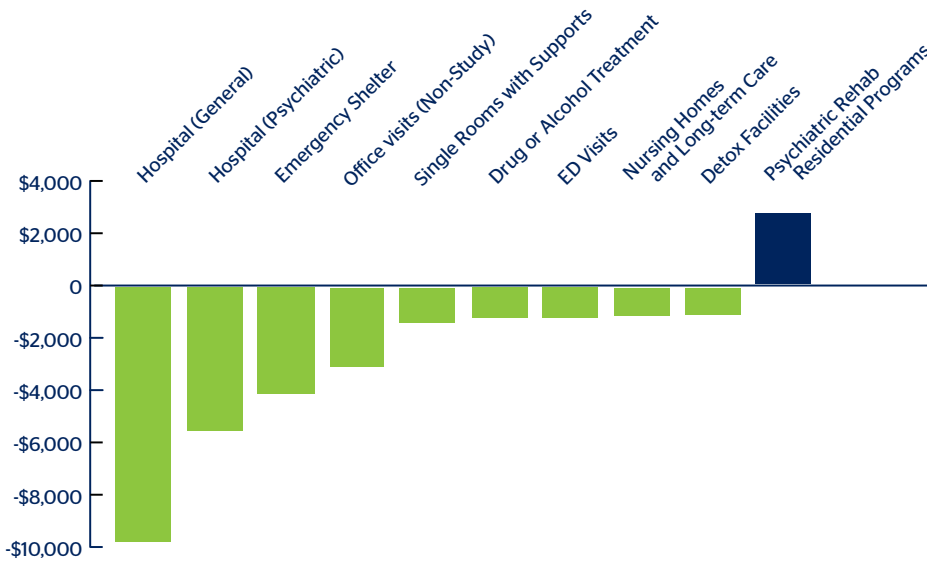
### Validation Findings

Examining how similar data are from different sources and assessing the impact of possible biases is an important research task in any study. We compared administrative data and self-report data, and found that, overall, there was no difference between the frequencies of ED visits and ambulance trips between the two data sources. Over the course of a longitudinal study, inaccurate recall is also a concern as individuals who are part of the HF group may recall information and experiences differently than participants in the TAU group. To test this, we compared the self-reported number of ED visits and ambulance trips against administrative data and found no meaningful differences in recall between HF and TAU. Further, we tested the agreement of self-report with administrative data within study arms and again found that overall there were no meaningful differences between HN and MN when compared to TAU.

# CHAPTER 6

## COSTING OUTCOMES

Main Costs Offsets and Increases for High Needs Groups



The economic impact of the VAH (Vancouver At Home) Housing First (HF) programs was evaluated, considering almost all of the costs of resources spent by society for people who are homeless.<sup>11</sup> The scattered-site interventions cost \$28,282 per person per year on average for high need (HN) participants, and \$15,952 per person per year for moderate need (MN) participants. These costs included salaries of all front-line staff and their supervisors, additional program expenses such as travel, rent, utilities, etc., and rent supplements provided by the Mental Health Commission of Canada (MHCC) grant. The intervention for HN participants was more costly, mainly because of the higher staff-to-participant ratio. Over the two-year follow-up period, we compared the costs of services incurred by participants who received HF services with those of treatment as usual (TAU) participants. We found that receipt of HF services resulted in average reductions of \$24,190 per person per year

in the cost of services for HN participants, but an overall increase of \$2,667 for MN participants. Thus every \$10 invested in HF services resulted in an average savings of \$8.55 for HN participants. For MN participants, the intervention did not result in any cost offset when differences between the groups at study entry are taken into account; every \$10 invested in HF services resulted in an increase in spending of \$1.67. These differences in costs arose from a combination of decreases in the costs of some services (cost offsets), and increases in the costs of others. For HN participants the main cost offsets were hospitalization in medical units of general hospitals (\$9,740 per person per year), hospitalizations in psychiatric setting (\$5,487 per person per year), overnight stays in emergency shelters (\$4,066 per person per year), office visits in community health centers and other community providers (\$3,016 per person per year), occupation of single rooms with support services (\$1,331 per

person per year), emergency department (ED) visits (\$1,183 per person per year), drugs or alcohol treatment or residential recovery program (\$1,172 per person per year), stays in detox facilities (\$1,059 per person per year), and stays in nursing homes and long term care facilities (\$1,007 per person per year). At the same time, one cost in particular increased: stays in a residential program of psychiatric rehabilitation (\$2,920 per person per year). For MN participants, the main cost offsets were visits at day centres (\$1,910 per person per year), occupation of a single rooms with services (\$1,376 per person per year), stays in nursing homes and long term care facilities (\$1,100 per person per year), and ED visits (\$1,025 per person per year). At the same time, several costs increased significantly: office visits in community health centres and other community providers (\$4,531 per person per year), incarceration in jail or prison (\$2,234 per person per year), and hospitalizations in a medical unit in a general hospital (\$1,862 per person per year). Other cost offsets and increases were less than \$1,000 per person per year.

<sup>11</sup> Analysis and interpretation prepared by the Montréal At Home/Chez Soi Research Team.

# CHAPTER 7

## SOCIAL AND HEALTH OUTCOMES

### Quality of Life

Quality of life (QoL) was assessed across all study groups at baseline and every six months thereafter. The association between self-reported QoL at baseline, six, and 12 months was examined for each need level. It was found that participants randomized to any HF group (Assertive Community Treatment [ACT], congregate setting [CONG], or Intensive Case Management [ICM]) reported significantly greater QoL over time compared to TAU, regardless of specific intervention type [9,27]. The safety and living situation subscores of the QoL questionnaire were also significantly better for all HF compared to TAU at both six and 12 months after study entry. Despite the number of challenges that persisted beyond acquiring housing for people with mental illness and other complex challenges, HF in both scattered site and congregate settings resulted in significantly improved QoL compared to those who did not receive HF [9,27].

In addition to the published analyses above, the At Home cross-site research team produced QoL analyses that examined comparisons between HF groups and TAU at both the final time point (24-month interview) and the average group differences over the course of the study. These analyses are consistent with improvements shown in the first year of Vancouver At Home [VAH] and found that, overall, there was an average improvement in QoL scores of 5.39 units ( $p=0.002$ ) in HF compared to TAU (Figure 91). Further, this same association was observed between ACT [5.89 ( $p=0.03$ )], ICM [4.95 ( $p=0.04$ )] and CONG [7.11 ( $p=0.01$ )] HF groups when compared to TAU.

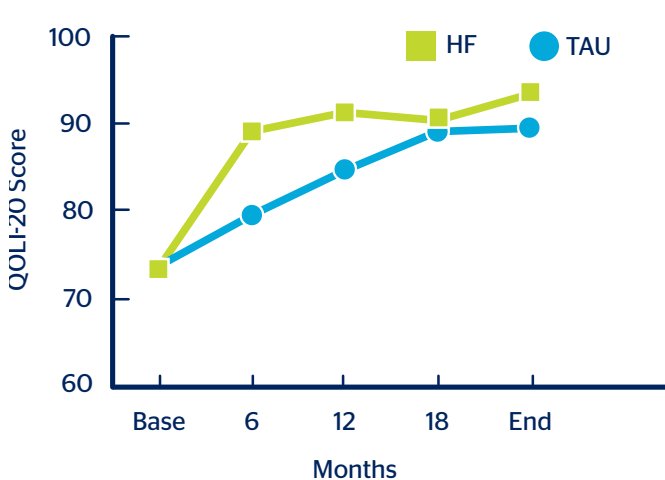


Figure 71 HF and TAU average group differences in quality of life among VAH participants over the course of the study.

### Community Functioning

Overall, HF participants also showed improvements in interviewer-assessed community functioning over the course of the study. Community functioning was evaluated over a wide range of domains using the Multnomah Community Ability Scale (MCAS). The MCAS is a standard assessment tool that uses ratings across several different types of community functioning, including social relationships, activities of daily living, and mental and physical health. HF participants consistently received higher ratings on this tool throughout the study period. Comparisons between HF groups and TAU were analyzed at both the final time point (24-month interview) and the average group differences over the course of the study. Overall, HF participants showed significant improvements in community functioning at both the 24-month time point [317 ( $p=0.001$ )] and over the course of the study where the average post-baseline difference in improvement of community functioning was 2.89 units ( $p<0.001$ ) for HF compared to TAU (Figure 9.2). Although these differences are not large, because the TAU group also had access to a wide range of existing services, they represent the additional benefit of HF relative to usual services.

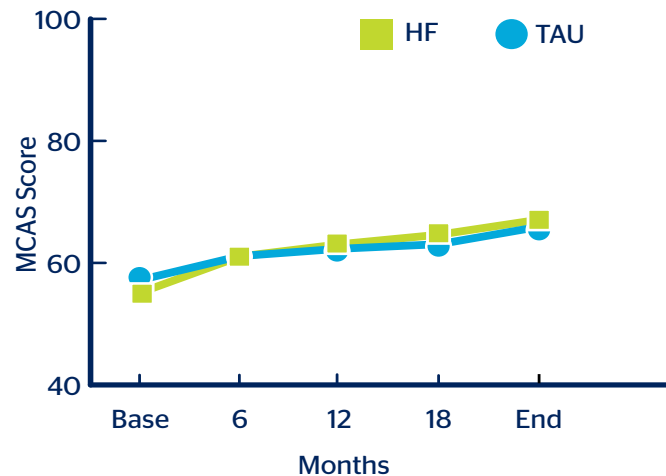


Figure 72 HF and TAU average group differences in community functioning among VAH participants over the course of the study.

# CHAPTER 8

## QUALITATIVE FINDINGS

Qualitative data can add rich contextual information to quantitative data. Within one month of study entry, a representative sample of participants were asked to participate in a “personal story interview.” Participation was voluntary, and two out of 54 participants declined. Of the 52 individuals who were interviewed within one month of recruitment, 43 were re-interviewed 18 months later. Reasons for loss to follow-up for the second interview were: death (one), declined participation (one), incarcerated (two), moved out of town (one), and unable to locate (four). Baseline interviews (n=52) included 32 Housing First (HF) participants and 20 treatment as usual (TAU) participants; follow-up interviews (n=43) included 28 HF participants and 15 TAU participants [28].

### Importance of Mixed Methods

The narrative style of the “personal story interviews” creates a unique opportunity to understand the context, meaning, and personal significance associated with different outcomes. The personal narratives also facilitate the analysis of trajectories over time and the impacts of cumulative adversity including various adverse experiences in childhood and adolescence (e.g., poverty, abuse, domestic violence, etc.) [15-17,29]. Homelessness, substance use disorders, and other negative health and social outcomes can be observed through timelines constructed through the analysis of personal narratives, and such timelines can be used alongside other forms of qualitative and quantitative analysis to better understand various outcomes. Analysis of baseline narratives revealed the following themes: social devaluation, feeling trapped in homelessness, and lack of autonomy [29]. Homelessness can limit the contact that individuals have with mainstream society, restricting their experience as citizens, and preventing their opportunity to access the rights of the mainstream. Further, awareness of this exclusion and low position on the social hierarchy was expressed by participants as shame, indignity, and resistance [29].

### Patterns of Recovery

Using narrative data over time, patterns of recovery during the study were examined. Positive, negative, mixed, and neutral trajectories were identified across multiple domains, and change over time was assessed. It was expected that HF participants would describe more positive trajectories of recovery compared to those assigned to TAU [2,28]. Among the 43 participants who participated in both baseline and 18-month follow-up narrative interviews, HF participants (n=28) were most likely classified as having positive or mixed trajectories. Positive trajectories involved positive outcomes associated with quality, stable housing, positive expressions of self-identity, reduced substance use, and greater social support. Those assigned to TAU were generally classified as having neutral or negative trajectories including hopelessness; continued hardship related to eviction, substance use, or continued involvement in the criminal justice system; and perceived failures and loss. In these analyses, published by the Vancouver team, HF was associated with positive trajectories of recovery for study participants [18,28].

### Exiting Homelessness

Using the same sample described above, the process of exiting homelessness was examined in our qualitative analysis. Personal narrative interviews were analyzed to assess the nature of perceived changes, barriers, and facilitators that helped or hindered people's exit from homelessness [18,30]. Most participants assigned to HF reported positive changes across a broad range of factors that they attributed to having stable housing. Greater sense of security and belonging, trust, family relationships, and positive future outlook emerged as major themes. Stable housing and the corresponding sense of security, safety, and pride were the dominant factors that supported change. While HF participants experienced positive change overall, several participants described difficulties around adjusting to their new lifestyle and the responsibilities that go along with having and maintaining housing [2,30]. Barriers to exiting homelessness included cumulative effects of past traumas and ongoing substance use. TAU participants overall experienced very little change overtime and few managed to exit homelessness over the 18-month period between narrative interviews [19,30].

Those assigned to TAU were generally classified as having neutral or negative trajectories including hopelessness; continued hardship related to eviction, substance use, or continued involvement in the criminal justice system; and perceived failures and loss.

# CHAPTER 9

## IMPLICATIONS FOR PRACTICE AND POLICY

In this section, we integrate the main findings from the published analyses described earlier and discuss the relevance of these findings in the context of the Vancouver At Home (VAH) study and with respect to informing public policy and practice.

### Housing First is Possible in Vancouver

Prior to VAH, the feasibility of implementing Housing First in Vancouver was unknown. Mounting the VAH study required inputs and coordination among a variety of different stakeholders, who successfully managed to engage individuals across various sectors. These stakeholders include service providers, people with lived experience, civic and provincial officials, researchers, and community members. The absence of existing Assertive Community Treatment (ACT) and Intensive Case Management (ICM) services necessitated the creation of new models of care, including the selection of appropriate agencies to manage such teams, hiring and training team members, and immersion in the principles of the Housing First (HF) model. The research, service, and housing team members worked collaboratively to move people through the study, to maintain follow-up, and to ensure that the needs of participants were being met. Despite the challenges associated with setting up new support services, low vacancy rates, and a limited stock of affordable rental housing units, we found that HF could be effectively established in the Vancouver context.

### Recruitment and Retention of Participants

The VAH study was the first time that homelessness and mental illness had been studied prospectively in Vancouver, and thus the feasibility of recruiting and retaining participants was uncertain. Previous descriptions of people experiencing homelessness in Vancouver had noted a high prevalence of comorbid mental illness and substance dependence. However, the true prevalence of these conditions was unknown and no previous studies had followed a group experiencing both homelessness and mental illness – with or without concurrent substance use illnesses. We successfully recruited a full sample of 497 individuals who met the study's inclusion criteria, and maintained a high rate of follow-up with the entire sample for the 24 months of the study [2].

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### Discussion of Findings About the VAH Sample at Study Entry

A series of analyses using information collected at study entry have been conducted that characterize the VAH sample. As expected, the burden of illness among participants was very high. Psychotic disorder was the most common mental illness and over half of participants were experiencing two or more mental illnesses at the time of recruitment. More than 80 per cent reported currently suffering from two or more physical illnesses. Many participants reported histories of learning difficulties, traumatic head injuries, and serious adverse childhood events, and the majority of participants (58 per cent) met criteria for substance dependence at the time of study enrolment. The median duration of lifetime homelessness was very high at a cumulative three years prior to study enrolment. This lengthy lifetime duration of homelessness, compounded by the high prevalence of significant physical and mental illness and histories of trauma, suggests that in addition to meeting the inclusion criteria for the VAH study, we also successfully managed to recruit from the population of those deemed “hardest to house.”



The results further underscore the need for earlier intervention as well as services that integrate treatment for both substance use and mental illnesses.

Specific analyses concerning health service use, childhood learning difficulties, and duration of homelessness, sought to understand the factors that may have precipitated or exacerbated the experience of homelessness prior to VAH involvement. Analysis of self-reported health service use prior to VAH involvement showed that participants with objectively more severe mental illnesses (e.g., psychotic disorder, bipolar disorder) were accessing significantly less health service than participants with less severe mental illnesses (e.g., depression, panic disorder, PTSD) [19,20]. This finding suggests a gap in the current health service landscape that makes health services less accessible to those with the most complex mental health needs. Other results indicated that histories of childhood learning difficulties were associated with a variety of negative outcomes later in life, including incomplete high school education, early initiation of substance use, current daily drug use, poor overall health, and longer lifetime durations of homelessness. These findings demonstrate that our participants had been identified early in life with specific challenges, and reveal missed opportunities to provide assistance and divert people away from trajectories that result in homelessness and use of crisis and acute health care services [20].

Additionally, an analysis of data collected at study entry showed significant associations between negative life-course histories, daily substance use, and the experience of prolonged and persistent homelessness [20]. Similar to other studies, we found that illicit drug use and younger age of first experiencing of homelessness were important predictors of both prolonged and persistent homelessness among those with mental illnesses. The results further underscore the need for earlier intervention as well as services that integrate treatment for both substance use and mental illnesses. Individuals reporting DSU were found to have experienced longer lifetime durations of homelessness, were more likely to inject drugs, and reported more mental illness symptoms

than participants who used drugs less frequently or abstained [12]. These findings highlight the importance and value of a life course perspective when attempting to address issues related to homelessness and mental illness. Participants' personal histories revealed longstanding patterns of problems that were identified by educators, carers, and medical professionals. Yet these problems went under-treated or neglected, with the result of progressive worsening of social, financial, and health status prior to eventually becoming chronically homeless and facing either unabated long-term chronic homelessness or a slow and difficult path to recovery.

## Outcomes Over the Course of the Study

We also compared changes in participants' life courses and outcomes over the course of the study. Outcomes related to ED use, criminal justice system involvement, housing stability, trajectories in and out of homelessness, community functioning, and quality of life were analyzed. In all of these domains, participants in HF experienced significantly superior outcomes than those in TAU. In the realm of public service use, we examined the impact of HF on ED use and criminal convictions. These analyses used provincial administrative data, focused specifically on the HN group, and found significant reductions in both ED use and criminal convictions after participants had been in HF for at least one year compared to TAU [26]. ED use significantly decreased in the HN+ACT group and remained constant in the CONG group, while increasing substantially in the HN+TAU group. With respect to convictions, HN+ACT participants experienced significantly fewer convictions, and CONG participants experienced a marginally significant decrease in convictions after one year of HF compared to HN+TAU [6]. These findings show the important impact of HF on use of public services, with important health, social, and economic implications.

Housing stability was examined with a focus on the relationship between substance use and achieving housing stability in the HF model. Previous studies have questioned the appropriateness of extrapolating HF findings to individuals with concurrent substance use illnesses, without making explicit comparisons [22,23]. We found that after one year of HF, housed participants with and without substance use illnesses showed no significant differences in housing stability [22,23]. This finding supports the conclusion that HF can work for individuals experiencing mental illnesses regardless of the presence or absence of concurrent substance-related problems.

Adjusting to the new reality of stable housing for HF participants was not without its challenges and several participants reported difficulties adjusting to life indoors and the responsibilities of maintaining a home. However, the experience of safe and secure HF housing was overwhelmingly positive and described as instrumental to the recovery process.

Significant improvements in quality of life (QoL) were observed across all HF groups compared to TAU, a finding supported through both quantitative and qualitative analyses. Housed participants reported significant improvements in their QoL compared to scores at study entry, whereas TAU participants did not report significant changes [22,27]. Analysis of personal narrative transcripts showed that participants assigned to any HF group were more likely to report positive or mixed trajectories over their first 18 months participating in VAH compared to TAU, who reported more neutral or negative trajectories [22,28]. Reduced substance use, positive expressions of self-identity, greater social support, and improved life outlook characterized the positive trajectories of housed individuals,

while continued involvement in the criminal justice system, continued substance use, housing instability, and hardship characterized the trajectories of TAU participants. Adjusting to the new reality of stable housing for HF participants was not without its challenges and several participants reported difficulties adjusting to life indoors and the responsibilities of maintaining a home. However, the experience of safe and secure HF housing was overwhelmingly positive and described as instrumental to the recovery process [30]. Many participants needed to move one or two times before they were able to settle in to a specific place. The ability for HF programming to accommodate moves and be responsive to the dynamic needs of different individuals is, therefore, essential to a successful HF program.

Historically, projects in Vancouver that have tried to house people who were formerly homeless or experiencing mental illnesses in neighbourhoods outside of the DTES have met opposition and sentiments of “not in my backyard.” That has not been the case for VAH participants, who have successfully joined neighbourhoods scattered throughout the City of Vancouver.

## Conclusions

HF is a viable intervention for people experiencing homelessness and mental illness in Vancouver. The VAH study has demonstrated that HF has significant and measurable impacts on ED use and criminal convictions, with potential to affect the health and quality of life of individual participants, and with social and economic implications that extend beyond the individual. Additional published and unpublished results from VAH report significant and meaningful improvements in quality of life, housing stability, and community functioning across all housing conditions compared to usual care. The public perception of VAH has been consistently very positive. Historically, projects in Vancouver that have tried to house people who were formerly homeless or experiencing mental illnesses in neighbourhoods outside of the DTES have met opposition and sentiments of “not in my backyard.” That has not been the case for VAH participants, who have successfully joined neighbourhoods scattered throughout the City of Vancouver. Further, the portrayal of VAH in the media throughout the study period and through to the dissemination of findings has been prominent and positive.

In summary, the VAH study addresses a critical gap in the research evidence surrounding housing and services for a growing population of vulnerable individuals. While service agencies and institutions have struggled to overcome differences of organizational cultures, mandates, and styles of work, the VAH study has encouraged diverse stakeholder groups to come together and establish a common framework. The development of a shared leadership philosophy among high performance teams that can transcend organizational boundaries is vital for not only the success of the project, but for the country to gain the knowledge needed to provide effective housing, health, and social services to individuals in need. The VAH study is making important contributions to the ongoing reform of services in Vancouver and the rest of British Columbia. VAH investigators have been asked to join a number of government initiatives designed to improve services for people experiencing homelessness and mental illness, including the recently struck Vancouver Mayor’s Task Force on Mental Health and Homelessness, as well as provincial service planning initiatives. The study participants will be followed through at least 2015, with support provided by Vancouver Coastal Health Authority and the MHCC. The study will continue to yield important results that can inform practice for the benefit of vulnerable people.

...the VAH study addresses a critical gap in the research evidence surrounding housing and services for a growing population of vulnerable individuals.

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# APPENDIX

## Site-Specific Measures

Site-specific measures were selected based on study hypotheses and the anticipated characteristics of the Vancouver homeless population. Major areas of hypothesis testing were: that addictions, cognitive impairment, and psychiatric severity would influence housing stability; that Housing First (HF) would result in superior outcomes when compared to treatment as usual (TAU) including reduced use of crisis services and justice system encounters, superior housing stability and quality of life; and that HF would produce superior health outcomes compared to TAU.

The Maudsley Addiction Profile [24,25,31,32] is a multi-dimensional instrument assessing alcohol and drug use and related harms and was administered at six-month intervals. The Montréal Cognitive Assessment (MoCA) [33,34] assesses several cognitive domains and is indicated for the screening of neurological deficits in younger populations (e.g., traumatic brain injury, brain tumors, vascular cognitive

impairment). The Foster Care History (VFC) was administered once at 12 months after baseline. The MoCA, the Conflict Tactics Scale [35,36], and the Pain Scales (assessing acute and chronic pain; Schutz, unpublished) were administered at 21 month only.

Ten participants in each study group (n=50) were invited to participate in open-ended, qualitative interviews planned for baseline and again eighteen months after recruitment. Participants were selected purposively in order to represent differences across gender, ethnicity, duration of homelessness, and degree of functional impairment. Interview questions were organized around the following themes: pathways into and out of homelessness; high, low, and turning points in life; challenges and enabling factors related to recovery.

In addition, fifty participants were asked to provide consent to undergo physical

health examinations involving basic physician assessment and blood work (e.g., Hepatitis B/C, HIV/AIDS). These assessments were included in order to examine the possibility of undetected illness among members of the study cohorts. Finally, all participants were asked to provide consent for the researchers to send their identifying details to public agencies in order to then receive administrative data regarding their use of health, justice, and social welfare services (separate consent was sought for each category of agency). An inter-agency data sharing protocol was created by a prior project and was used as the basis for the current data extract. The fields of data specified for inclusion were: physician services, hospital services, pharmaceutical services, community mental health and substance use services, vital statistics, justice events including convictions and sentences, and financial assistance.

## Vancouver At Home Outcomes

Primary outcome domains for both trials are: housing stability, health status, quality of life, and service use. Secondary outcome domains are: cost avoidance and cost effectiveness. Primary outcomes will be compared between HF and TAU, including examination of similarities and differences between congregate and scattered site configurations of HF in the HN sample. Particular attention will be paid to the role of substance use in relation to primary outcomes. Service use outcomes and economic analyses will be conducted using administrative data sources as specified.

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