UNDERSTANDING THE POPULATION HEALTH NEEDS OF RESIDENTIAL CARE FACILITY TENANTS

The purpose of this study is to gain an understanding of the health needs of individuals living in Hamilton's Residential Care Facilities (RCFs) which will be used to inform health care delivery, systems planning and enhanced supports for these individuals.

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Executive Summary

Greater Hamilton Health Network (GHHN), along with healthcare providers in Hamilton, Ontario have built upon collaborative work during COVID-19 pandemic in Residential Care Facilities (RCF) to support greater understanding of this population and their improved care. The focus has been on improved care delivery in these settings as the challenges facing many residents in congregate care facilities became apparent during this time. This study provides a population description of current tenants in Hamilton's RCFs to inform service planning for tenants in Hamilton's RCFs.

Method

A cross-sectional, mixed methods design was selected for this study, to capture multiple variables relevant to understanding the healthcare needs of this population which may include care needs across multiple domains (chronic disease management, mental health and addictions, development disabilities and impaired cognition). Data were collected across four sites using interviews, surveys, and retrospective chart reviews.

Results

Thirty-six individuals participated in this study ranging in age from 24 to 82 years with 75% of the participants over the age of 50. This study identified a high burden of psychiatric illness in a medically complex group. Participants were diagnosed with multiple chronic physical illnesses and a corresponding high rate of polypharmacy was identified. Additionally, over 80% of residents were diagnosed with a serious mental illness, 50% were identified as having had a substance use disorder, and 47% had identified cognitive impairment.

Conclusions

While the coordinated care led by the Greater Hamilton Health Network to support improved care delivery for individuals living in RCF settings has continued into COVID-19 recovery, the authors of this paper call for a much more systematic approach to the provision of health care for this population. This study aims to inform this type of planning and service delivery at a local level within Hamilton, Ontario.

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Background

In December 2020, in response to the COVID-19 pandemic, healthcare providers in Hamilton, Ontario began collaborating with Retirement Homes (RH), Long Term Care Homes (LTCH), and Residential Care Facilities (RCF) to assist congregate care staff to develop expertise in Infection Prevention and Control (IPAC) and to implement effective strategies to contain and resolve outbreaks. Working across organizational boundaries, healthcare partners helped teams care for and treat individuals who were infected with, or at high risk for, COVID-19. The Greater Hamilton Health Network (GHHN), our local Ontario Health Team, built upon this initiative to support improved care delivery in these settings as the challenges facing many residents in congregate care facilities became apparent. This research focuses specifically on the needs of residents who live in Hamilton's RCFs.

Domiciliary Hostels, known as RCFs in Hamilton, emerged in Ontario in the 1970s to provide housing for low-income adults who required support for successful community living, but not daily onsite nursing care (Hwang, 2009). During the mid-1980s, in response to the ongoing deinstitutionalization movement, the population of these homes expanded to include former patients of the Hamilton Psychiatric Hospital (St. Joseph's Healthcare Hamilton) who needed affordable community housing and support (City of Hamilton, 2011). In 2022, 98 private and two not-for-profit RCFs were operating in Hamilton with a further subset of 48 facilities participating in the RCF Subsidy Program. The Subsidy Program, which serves approximately 680 low income individuals, transfers funds from the province's Homelessness Prevention Program to operators to cover the full RCF fee for those who would otherwise be homeless. In addition to this financial support, RCFs provide 24-hour supervision, meals, laundry, housekeeping, and medication administration. Accommodation is mostly in shared rooms (City of Hamilton, 2022).

RCFs are built on a custodial model of care which has been widely criticized in research focused on the needs and preferences of mental health consumers (Centre for Addiction and Mental Health, 2012; Parsell and Moutou, 2014; Rog et al., 2014). This debate, and concerns about the standards and program model for RCFs, have led multiple stakeholders, including the governing municipality of Hamilton, to review and recommend changes in this space for the past three decades (City of Hamilton, 2011, Edge, & Wilton, 2009; Taylor, Elliot, & Kearns, 1986). Unfortunately, due to systemic and political barriers, this work has not resulted in any substantive changes. And, while there is a clear need for a renewed focus on the RCF housing model, any changes to the housing model are outside the scope of this research. Given this, and the gap service planners have identified in data to support service planning for this population,

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this research project focuses on understanding the needs of these residents by providing a population description of current tenants in Hamilton's RCFs. Indeed, aside from one 2009 Ontario-wide survey (Hwang, 2009), there is an almost complete absence of data with respect to the current RCF population in the Hamilton community. This study was initiated to fill this gap and to inform service planning. Grounded in a community-based approach to population health research, three overarching questions were identified for this purpose: 1. Who is living in Hamilton's RCFs? 2. What are their health and social service needs? and 3. What do persons living in Hamilton's RCFs identify as their overall quality of life and the adequacy of their social supports?

Several population health trends in individuals with serious mental illness underline the timeliness of this planning: the health disparity between individuals with serious mental illness and the general population has widened over time, persons who enter supportive housing tend to be older and to have poorer health profiles with high rates of chronic disease, persons in supportive housing are aging in place and have declining health, and homelessness serving systems are prioritizing access to housing for individuals with the poorest medical profiles and highest mortality risk based on vulnerability assessments (Barken et. al., 2015, Launders, et. al., 2022, Stefancic, et. al., 2020). While the coordinated care led by the Greater Hamilton Health Network to support improved care delivery for individuals living in RCF settings has continued into COVID-19 recovery, the authors of this paper call for a much more systematic approach to the provision of health care for this population. This study aims to inform this type of planning and service delivery at a local level within Hamilton, Ontario.

Method

A cross-sectional, mixed methods design was selected for this study. This design was chosen to capture multiple variables relevant to understanding the healthcare needs of this population which clinical experience suggests may include care needs across multiple domains (chronic disease management, mental health and addictions, development disabilities and impaired cognition). Data were collected across four sites using interviews, surveys, and retrospective chart reviews.

Site Selection Criteria

The specific sites for this research project were chosen based on a combination of factors to ensure a representative sample of Hamilton RCFs. This included a combination of three privately owned and operated facilities and one not-for-profit facility to reflect the administrative/management models for these homes, a range in

the capacity of RCFs from 14 to 45 tenants to encompass differently sized facilities, and RCFs which were reported by healthcare partners to be "hot spots" for high emergency care use. The high use of acute care resources suggested that tenants in these RCFs may have unmet needs and they would benefit most from early focused attention. Lastly, these sites had GHHN partner physicians and healthcare staff present and there were established working relationships with owners/operators which was critical as management agreement and support was required to conduct this research study. See Figure 1.

Privately Owned	Not-for-Profit	Sites
• 3 sites • 2 mixed gender • 1 site all male	• Additional supports including health available to tenants	• 14-45 tenants • Wards 1, 2, 3 • All sites have high emergency care use

Figure 1: RCF Site Selection

Participant Selection and Inclusion Criteria

A convenience sampling method was used to select participants. Each RCF site was given advance notice that researchers would be onsite with study details and a notice was posted in each site to support participant recruitment. Participants who met the research study criteria were enrolled in this study on a first come first served basis: participants had to be English speaking, over 18 years of age, a resident of one of the four RCF sites in this study, and willing and able to provide informed consent to participate. The total number of participants enrolled in this research study was approximately 25% of each RCF's total tenant population at capacity to provide a sample population which had a representative distribution from each of the four sites. An honorarium was provided to each participant for their time, and a proposal for this research study was submitted to the Hamilton Integrated Research Ethics Board and given full approval (#14154).

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Data Collection

This study was conducted onsite in four RCFs based on the resource capacity of this research project and the pragmatic reality of completing this research project during the COVID-19 pandemic. At the time of our interviews (April 27, 2022 – June 1, 2022) capacity restrictions were implemented in shared spaces across programs with services moved to virtual care when at all possible. These realities made the use of alternate locations for this research project highly impractical. Additionally, clinical experience demonstrated that RCF tenants develop trust in healthcare providers through a consistent and reliable onsite presence. By conducting interviews onsite, we were able to meet RCF tenants where they live and to build on the experience of our partners. Finally, with this study's main focus on the health profile of RCF tenants, we did not wish to exclude residents whose compromised medical status would have made their participation in this research impossible were interviews completed offsite.

Data Collection Tools

Three validated tools were used to gather relevant population health data appropriate for use with the diverse population of individuals suspected to be living in RCFs, namely the Multidimensional Scale of Perceived Social Support (MSPSS), the World Health Organization Quality of Life BREF (WHO QOLBREF), and a validated tool used to measure healthcare needs (EQ-5D-5LI). To identify themes not captured by the standardized tools, participants were asked four pre-approved qualitative questions about their concerns, needs and recommendations for any changes in RCFs. Researchers conducted a retrospective review of each participant's electronic medical record through St. Joseph's Healthcare Hamilton over a five-year period (March 31, 2017 – April 1, 2022) to identify the number and specifics of medical conditions with which participants had been diagnosed, the number of medications prescribed, and the frequency of hospital use. The latter included the number of visits to emergency rooms, admissions to inpatient units in any of the 14 hospitals in the GHHN region, and the length of stay during admissions (for a map of this region see Appendix 1). See figure 2 for a list and description of the tools used.

Instrument	Description
1. **Housing and Demographic Survey**	This survey identifies participants' demographics and housing history including age, gender identity, race and place of residence prior to moving to their current RCF.
2. **EQ-5D-5LI**	This widely used, validated instrument provides a descriptive profile of each participants' health status along five dimensions

	(mobility, self-care, usual activities, pain/discomfort, anxiety/depression).
3. World Health Organization Quality of Life BREF (WHO QOLBREF)	This standardized, validated tool asks participants to rate their quality of life along specific dimensions as well as to rate their overall quality of life.
4. Multidimensional Scale of Perceived Social Support (MSPSS)	This validated survey identifies participants' perception of their level of social supports in terms of family, friends and significant others.
5. Qualitative Questions	These four qualitative, open-ended questions were asked to hear participants' concerns, support needs, and any recommendations for improvements to RCFs in Hamilton.

Figure 2: Table of data collection tools (see Appendix 2 - 6 for tools)

In addition to the health needs reported for study participants, the demographic profile of participants was reported in aggregate. Adhering to the GHHN's Health Equity Framework which mandates an overall approach that is anti-oppressive, anti-racist, sex-gender based, and intersectional, questions were asked to identify participants' ages, gender, preferred language, race and sexual orientation.

Data Analysis

Standardized tools were analyzed as prescribed and the health profiles of participants were compiled using key information from the available medical records as identified. All data were reported in aggregate form with the goal to provide a portrait of the tenants living in Hamilton's RCFs. Common comorbidities which might inform health systems interventions, such as concurrent disorders and dual diagnosis, were reported as well as known causes of impaired cognition. All diagnoses made by a physician for any health conditions were identified and rates of common chronic diseases were tabulated and reported in aggregate. Data were analyzed by the use of Power BI, a Microsoft Business Intelligence tool, through which different data points are compared and contrasted, such as age and number of diagnoses.

For the qualitative questions, two independent researchers reviewed written notes to identify participants' responses, and, where differences emerged, data were further reviewed and interpretations discussed until consensus was reached.

Results
Demographics

Thirty-six individuals participated in this study with 20 cisgender males (55.6 %) and 16 cisgender females (44.4 %). The age of participants (April 1, 2022) ranged from 24 to 82 years (mean age 56.1 years; median age 59.5 years). 60% of participants in this study were over the age of 55 and 75% of the participants were over the age of 50. No cisgender females aged 35-44 years old participated.
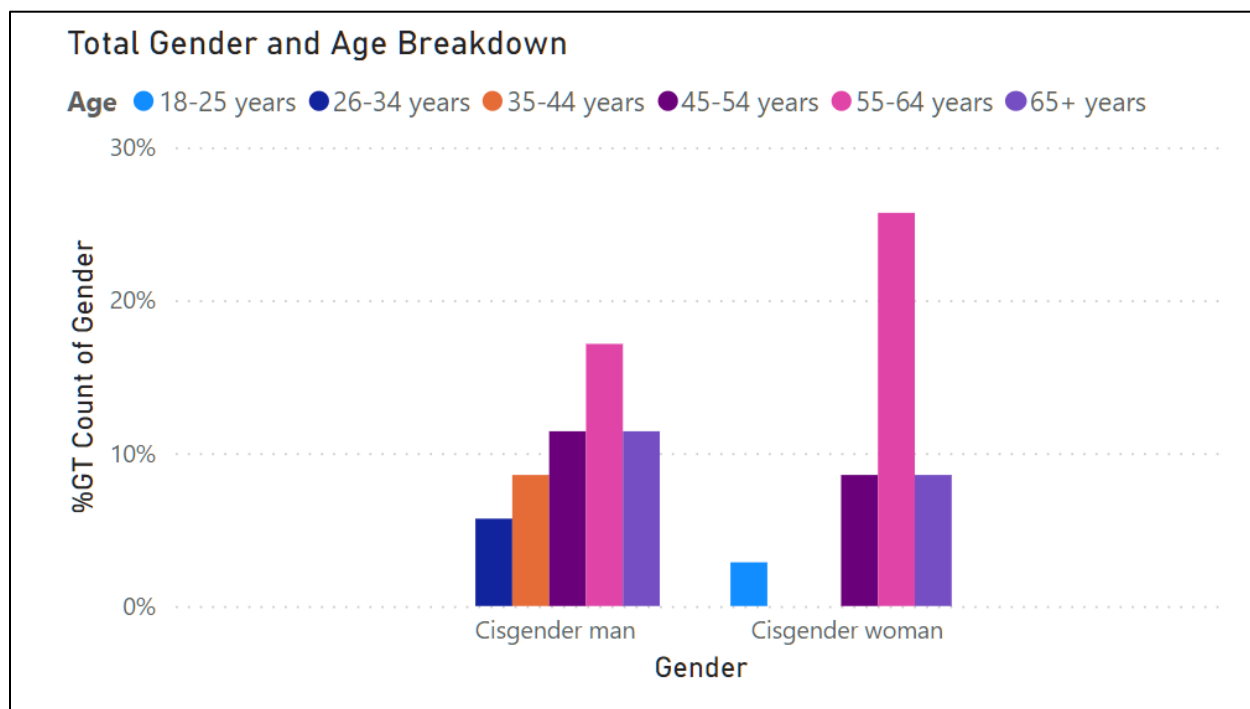

Figure 3: Participant Ages

Thirty-four participants identified English as their first language (94%), while two participants identified growing up with a different language of origin (6%), Italian and Dutch. Six participants identified as Indigenous (16.7%). Twenty-eight participants identified as white (77.8%), while one participant identified as black (3%) and one participant identified themselves to have mixed heritage, black and white (3%). Twenty-nine identified as heterosexual (80.5%); two identified as bisexual (6%); two identified as lesbian (6%); one identified as unsure or questioning (3%); and two identified as asexual (6%).

Summary of Housing Surveys

Participants reported that they had lived at their current RCF from between four months to 30 years with an overall average length of tenancy of 6.97 years (Figure 4). Two

participants could not remember when they moved into their RCF though one stated it was "years ago" and this was not reported.
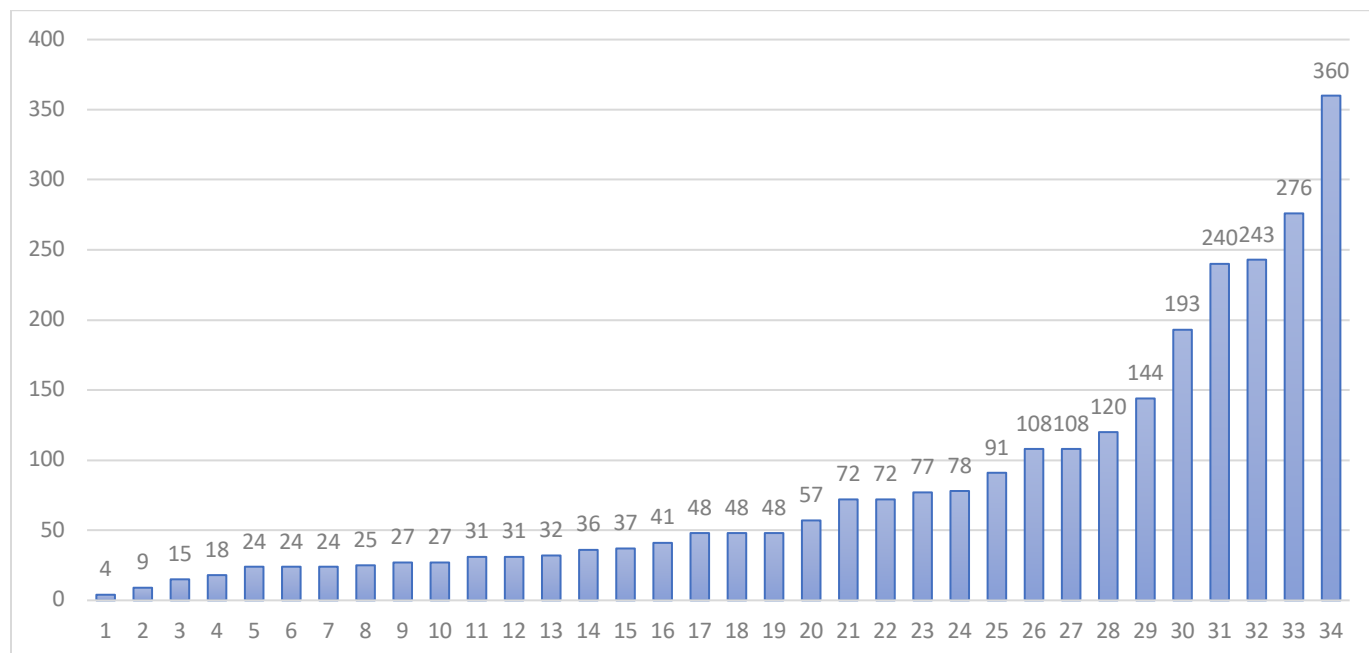

Figure 4: Length of tenancy at RCFs in months

Prior to their current RCF, participants reported that they had lived in another RCF (n=7), were homeless (n=7), had been living with family (n=3), lived outside the City of Hamilton (n=3), or had been in jail (n=2). Ten participants reported they had lived independently previously, alone or with a partner, and due to relationship loss, illness or other circumstances, which included an assault and a fire, they lost their housing and were referred to an RCF in a crisis. A review of participants' medical charts identified that approximately 65% of participants had documented experiences of homelessness. This is quite likely to be a conservative number given that medical charts do not explicitly capture homelessness status as the focus is on healthcare and discharge planning. Additionally, with the length of time which had elapsed between some participants' hospital admissions and their initial moves to their RCFs, some notes which predate the current electronic medical record were unavailable. Referrals to RCFs were made by professionals involved in the care of participants or family and friends, namely, a hospital social worker (n=15), shelter staff (n=5), staff at another RCF (n=2), friends (n=2), a community mental health worker or developmental service agency staff (n=4), and staff, most likely a social worker, from jail (n=2).

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Access to Information

Participants were asked if they had access to the internet, email or a cell phone as this access is increasingly essential for accessing care and for full community participation and integration. This includes participation in some healthcare services during COVID-19, such as recovery groups for individuals who have substance use disorders. Six individuals identified that they had a cell phone, internet and email (16.7%), seven participants identified access to the internet and email but no cell phone (19.4%) and 23, the majority of participants (63.9%), indicated they have no access to either the internet, email or a phone.

Medical Profiles

The majority of participants in this study (over 80%) were diagnosed with mental illnesses, and many were also diagnosed with multiple chronic physical illnesses. There is a corresponding high rate of polypharmacy when using the most common definition of five or more medicines taken daily (Masnoon et. al., 2017). The number of medical diagnoses made by a healthcare professional ranged from a low of two to a high of 15 with 5.6 the average number of diagnoses per participant (see Figure 5). Diagnoses of chronic diseases impacting the physical health of participants included diabetes in 11 (30.6%), chronic obstructive pulmonary disease 10 (28.0%), hypertension eight (22.0%), gastroesophageal reflux disease seven (16.7%), asthma five (13.8%), seizures four (11.0%), and pancreatitis two (5.5%). Other diagnoses included one or more of the following conditions: Addison's disease, adrenal insufficiency, below the knee amputation, bilateral venous stasis disease, celiac disease, end stage kidney disease, epilepsy, gallstones, hepatitis C, hepatic cirrhosis, hiatal hernia, high cholesterol, hyperparathyroidism, hypogammaglobulinemia, interstitial lung disease, irritable bowel syndrome, lithium nephropathy, low thyroid, multiple sclerosis, neck lymphadenopathy, peripheral neuropathy, sciatic nerve pain, sleep apnea, stroke, thyroid disease, ulcerative colitis and vestibular schwannoma.
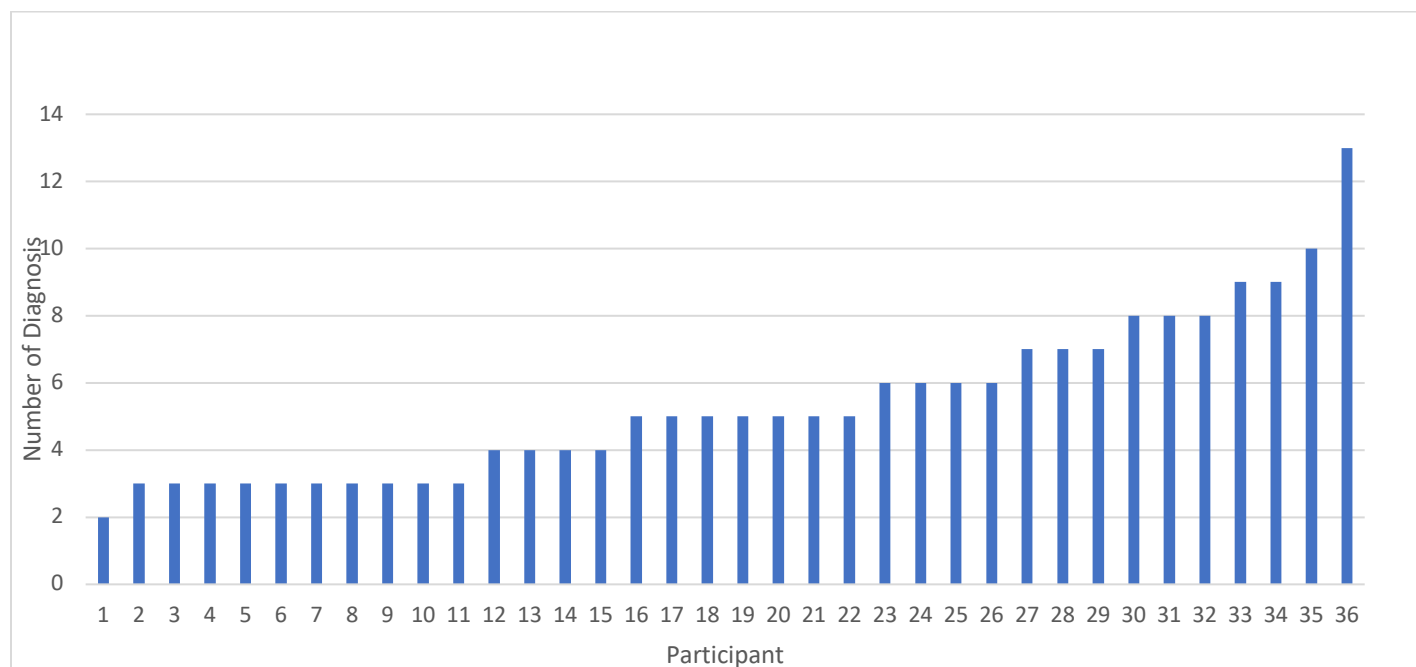
Figure 5: Total number of diagnoses

In terms of mental health, substance use disorders and cognitive functioning, 29
participants were diagnosed with a serious mental illness (80.6%); 18 were identified as
having had a substance use disorder (50.0%), and 17 participants had identified
cognitive impairment (47.2%). The causes and the frequency of conditions for impaired
cognition in participants was varied: intellectual developmental disorder - eight
(22.2%), acquired brain injury - two (5.6%), autism spectrum disorder - two (5.6%),
major neurocognitive disorder - two (5.6%), Korsakoff's syndrome - one (2.7%),
cognitive decline not otherwise specified - one (2.7%), cognitive delay - one (2.7%),
down's syndrome - one (2.7%) and learning disability - one (2.7%) (participants may
have more than one cause identified for cognitive impairment). To illustrate the range
of co-occurring mental health disorders, substance use issues, and cognitive impairment
in participants, the frequency with which these co-occur in participants is shown by
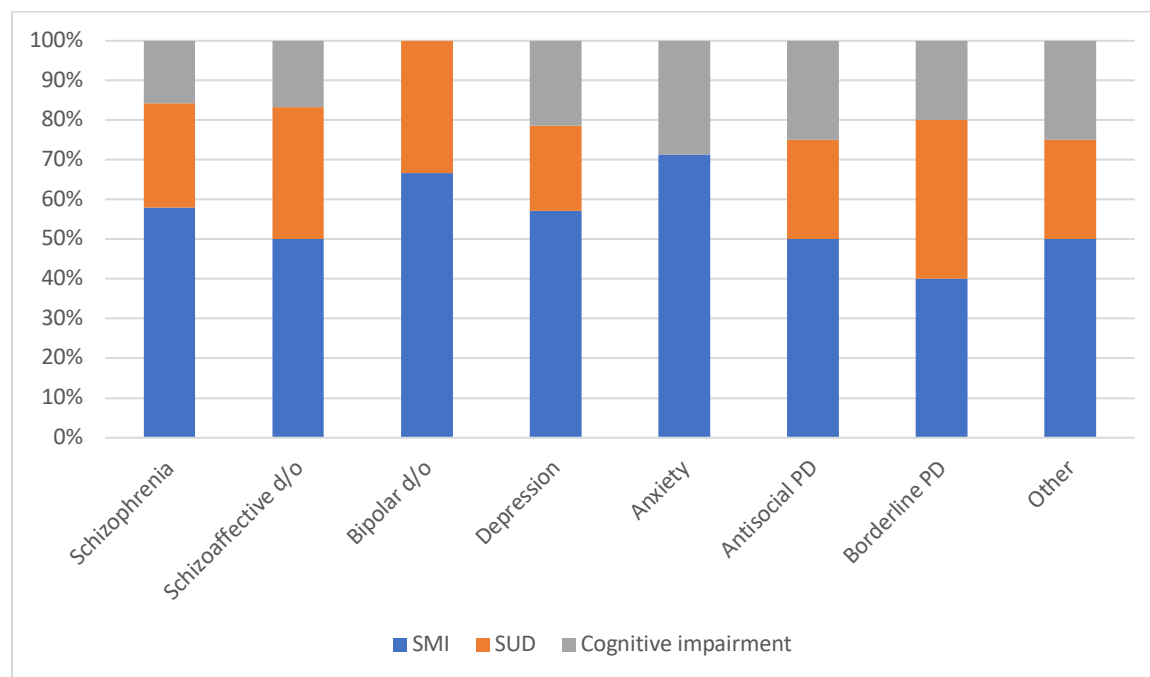specific mental health diagnoses (see Figure 6).

Figure 6: Rates of serious mental illness, substance use disorders and impaired cognition

There is an overall correlation between advancing age and the increased number of chronic diseases and medical conditions diagnosed. This increase in comorbidity peaks between the ages of 55-64 (see Figures 7, 8).
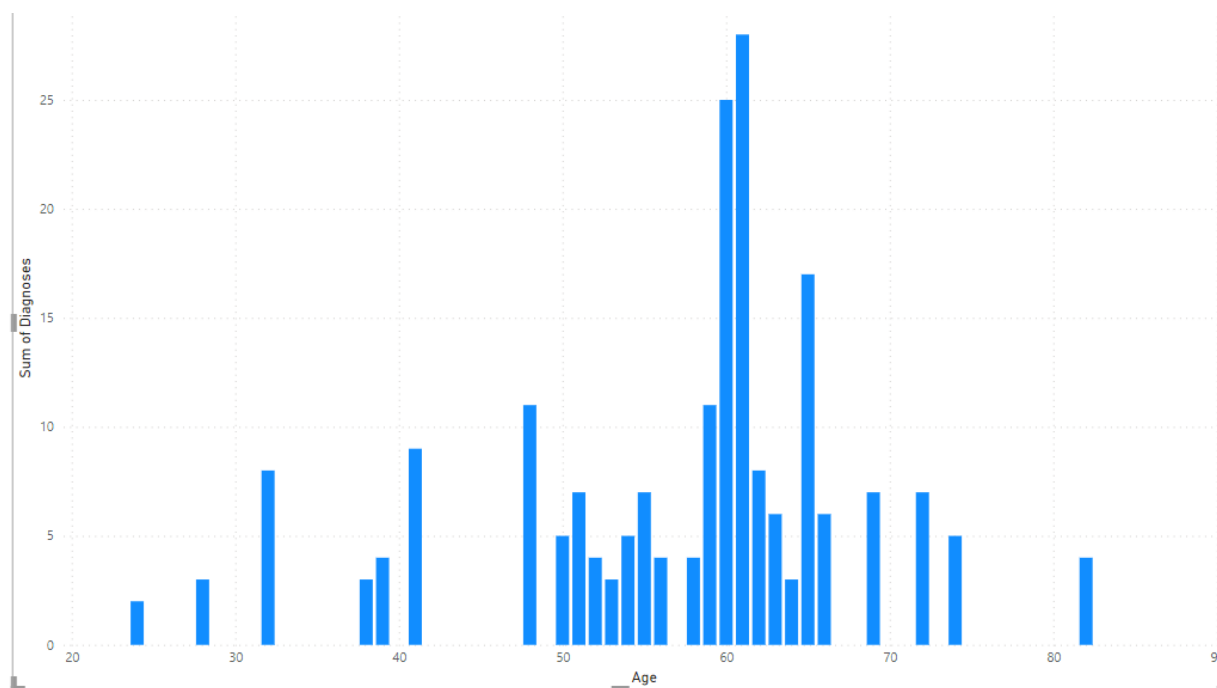
Figure 7: Participant ages and number of diagnosed medical conditions
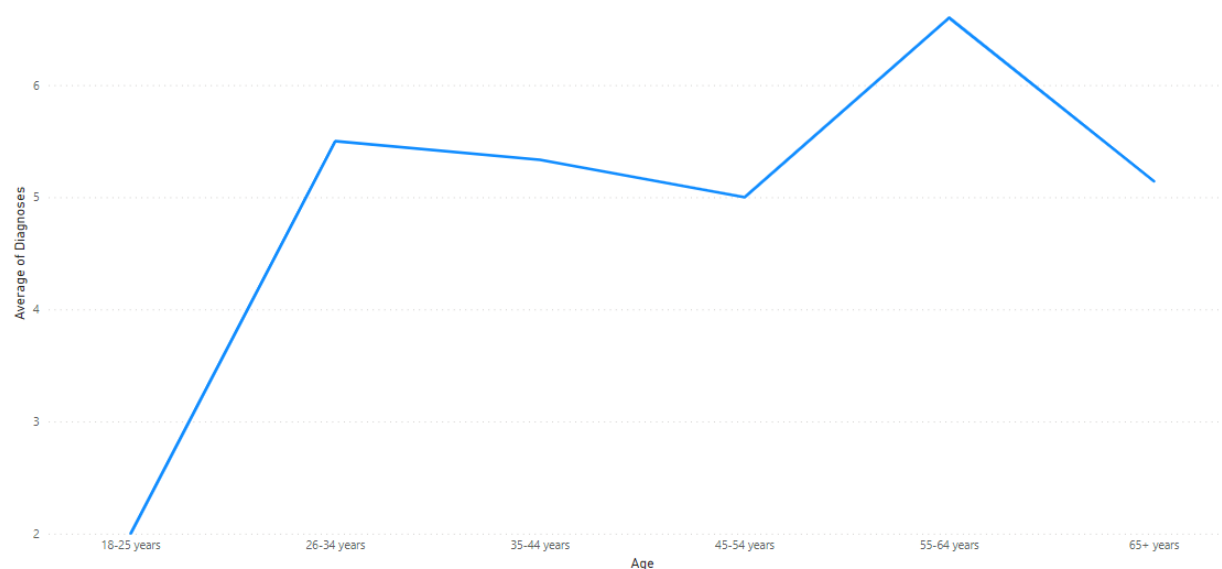

Figure 8: Participant ages and number of diagnosed conditions

Number of Prescription Medications

The number of medications prescribed by a medical professional ranged from two to 20 with an average of 9.2 medications per participant (see Figure 9). Due to limitations in data availability we were unable to identify the number of prescription medications for

13

four participants. Polypharmacy, defined as more than five medications daily (Masoon, et. al., 2017) impacted 26 participants (76.5%).
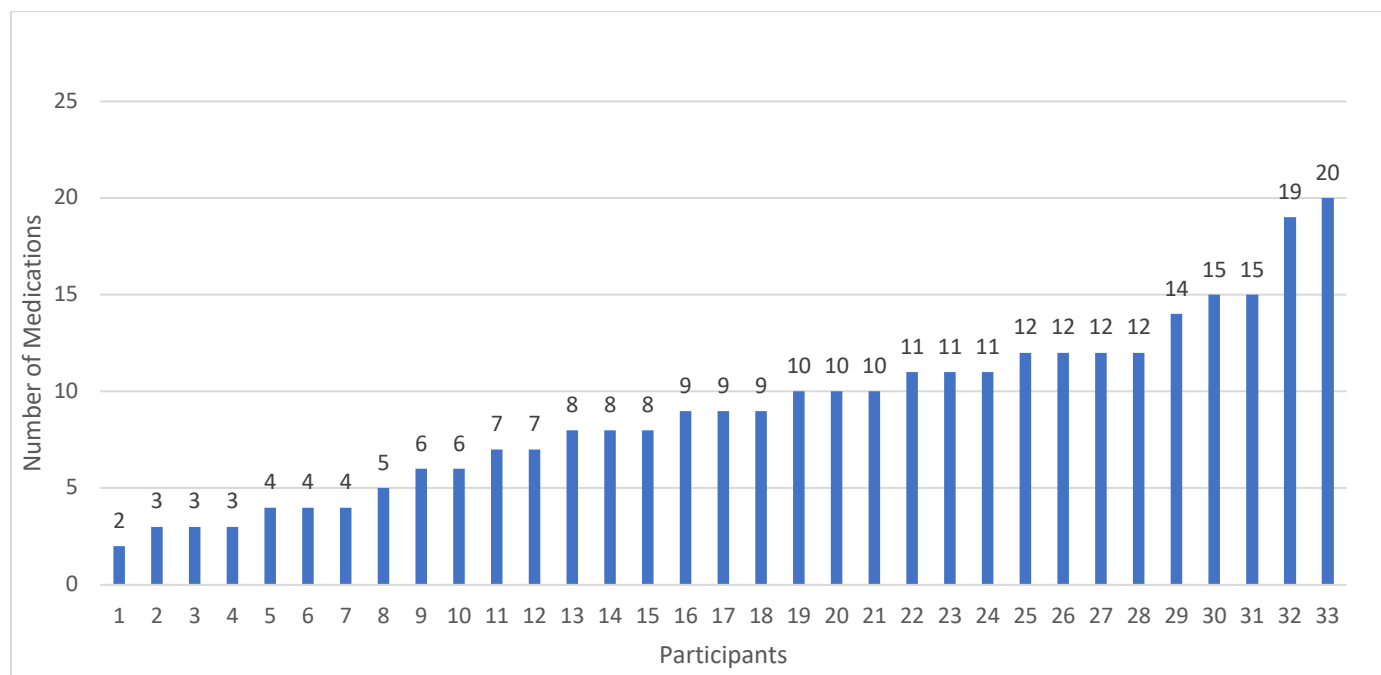

Figure 9: Prescribed medications

Frequency of Hospital Use

The frequency of hospital use was reviewed for the last five years from the medical records of participants (March 31, 2017 – April 1, 2022). This included all 14 hospitals within the GHHN region. When a participant's admission was continuous at the start of the review period used for this study, the length of stay was tabulated using the actual admission date as day one. This information was separated into emergency department visits, admissions, and the length of stay for each admission (see Figures 10, 11, 12). The number of emergency room visits ranged from 0 to a high of 62 visits and the average number of emergency room visits for each participant was 9.4. The number of admissions ranged from a low of 0 to a high of 15 with 2.9 as the average number of admissions. The total length of stay per hospital admission ranged from a low of 0 days to a high of 1,308. The average length of stay was 118.6 days.
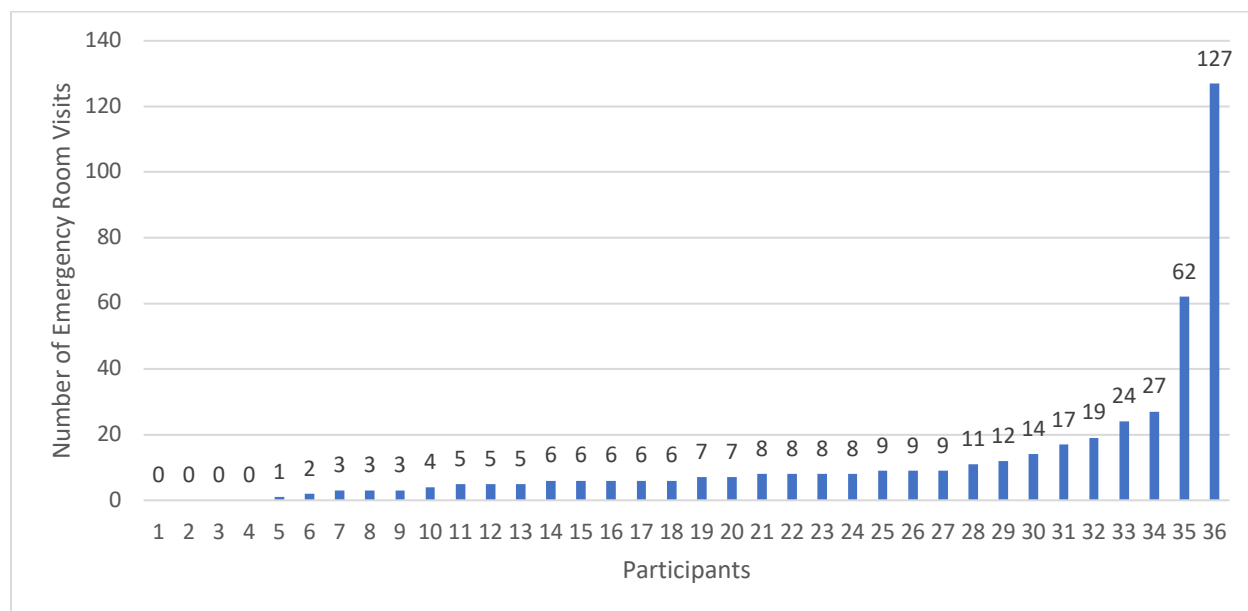
Figure 10: Number of emergency room visits (over 5 years)
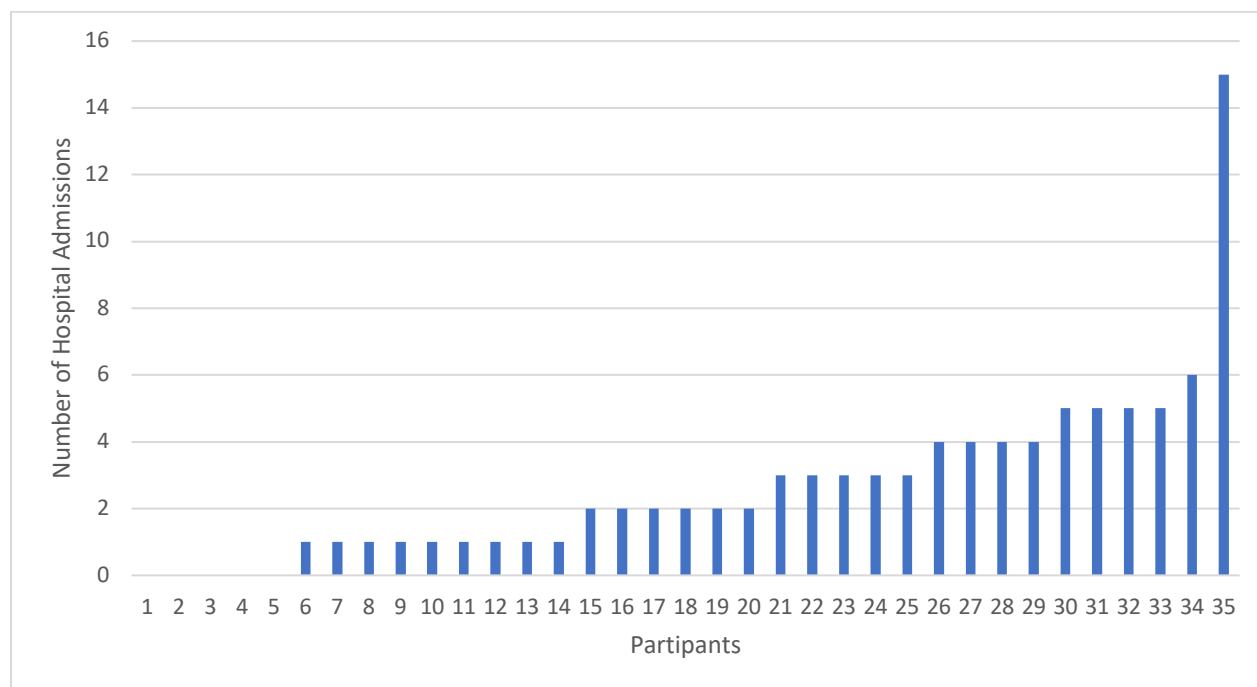
Figure 11: Number of hospital admissions (over 5 years)
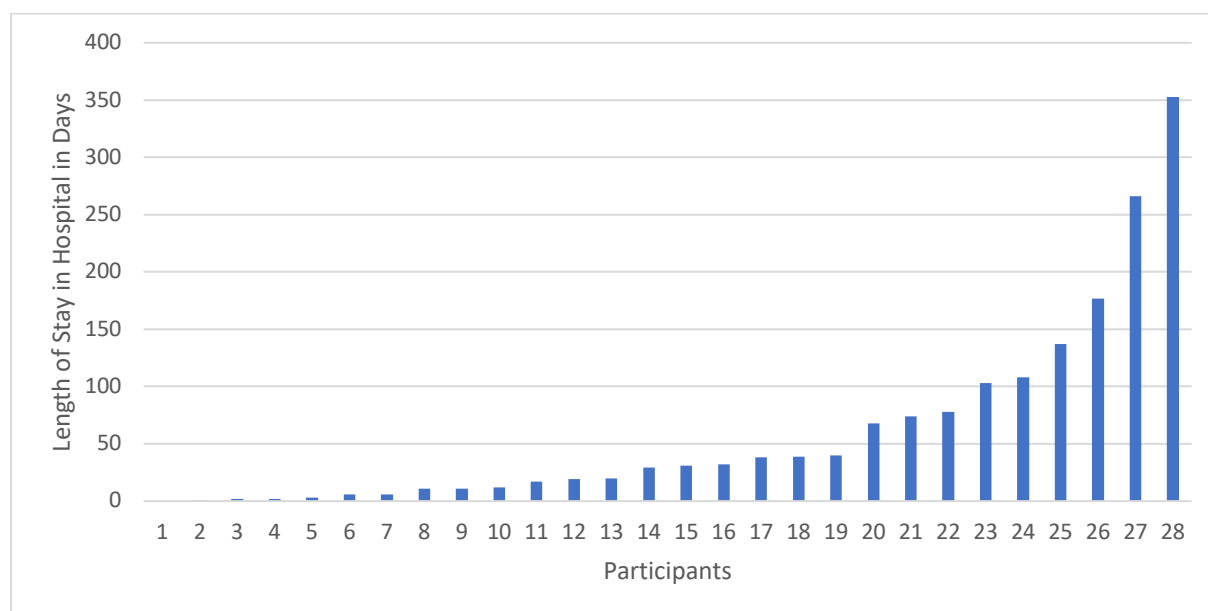
Figure 12: Length of stay per hospital admission under one year (during past 5 years)*

*Three participants were excluded as outliers with each having a length of stay over one year (755, 1,277 and 1,997 days)

Correlation between Age and Chronic Diseases and Medical Conditions

The overall correlation between older age and a higher number of chronic diseases and medical conditions is not unexpected though we note the increase in comorbidity increased and peaked after ages 55-64 (see Figure 13 & 14).
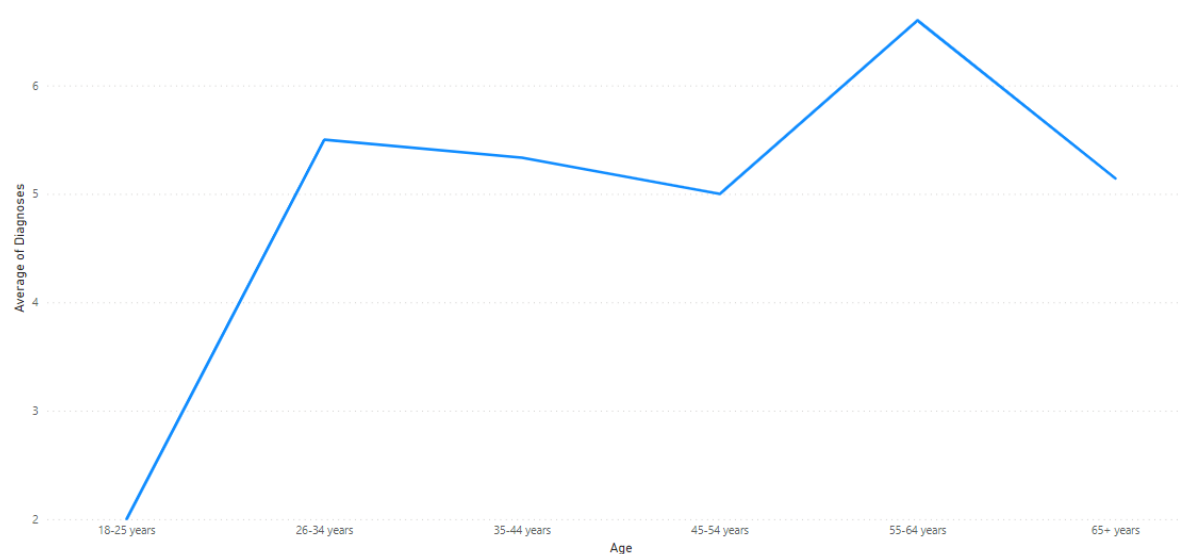
Figure 13: Participant ages and number of diagnosed conditions
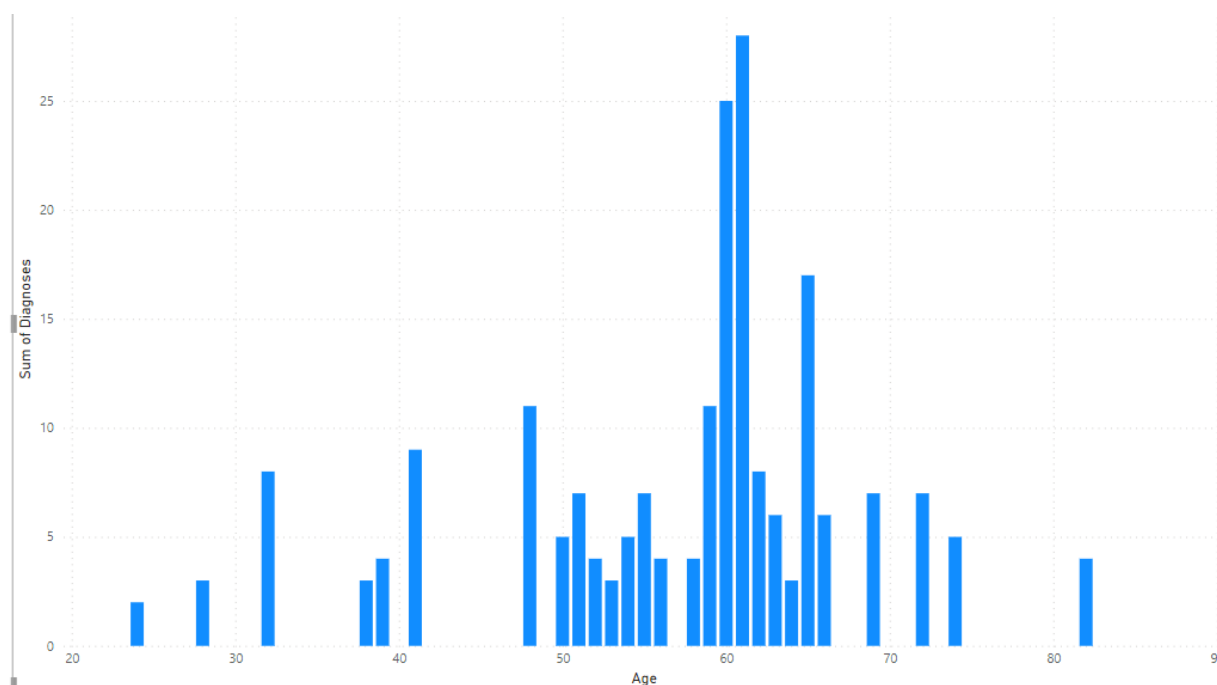
Figure 14: Participant ages and number of diagnosed medical conditions

Self-Rated Health Status and Functioning

Answering questions about their functioning across four dimensions, participants rated their functioning and abilities. In terms of self-care and usual activities, the majority of participants identified only slight or no problems (53% and 78% respectively). In contrast, close to half or more of participants identified that they experienced moderate or severe/extreme problems in terms of mobility (47%), pain (58%), and anxiety/depression (53%) (see Figure 15).

Health Dimension & Rating	# of Responses	% Sample
MOBILITY		
Slight/no problems	19	53%
Moderate	12	33%
Severe/extreme problems	5	14%
(Moderate/severe 47%)		
SELF-CARE		
Slight/no problems	29	80%
Moderate problems	4	11%
Severe problems	3	8%

(Moderate/severe 19%)		
USUAL ACTIVITIES		
Slight/no problems	28	78%
Moderate	5	14%
Unable to do	3	8%
(Moderate/unable to 22%)		
PAIN		
Slight/no problems	15	42%
Moderate	10	28%
Severe/extreme problems	11	30%
(Moderate/severe 58%)		
ANXIETY/DEPRESSION		
Slight/no problems	17	47%
Moderate problems	9	25%
Severe/extreme	10	28%
(Moderate/severe 53%)		

Figure 15: Summary of self-reported health status

Fourteen participants rated their overall perceived social support to be high (38.8%), 12 rated this as moderate (33.3%), and 10 rated their overall social support as low (27.8%). The domain in which participants most frequently rated their social support to be high was with respect to a significant other - 18 participants rated a significant other as a high source of social support (50%). The other participants were divided into two groups of nine with one group rating their social support from a significant other as moderate (25%) and the other group rating this to be a low source of social support (25%). In terms of their family support, 15 participants identified their social support in this area as high (41.7%), 10 rated this as moderate (27.8%) and 12 rated their family support as low (33.3%). Lastly, with respect to the domain of social support from friends, this was tied three ways with one group of 12 scoring this as a high source of social support, another 12 participants identified friends as a moderate source of social support and the last group of 12 participants rated their social support from friends to be low (each group 33.3%) (see Figure 16).
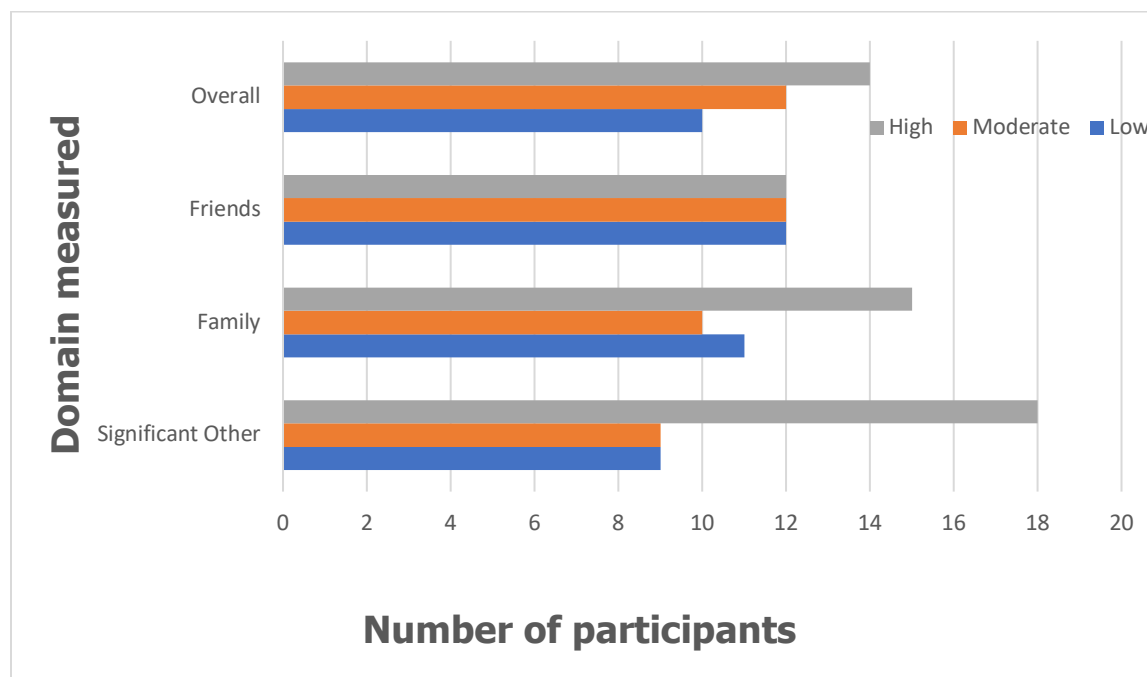
Figure 16: Perceived Social Support

Quality of Life

Using the WHO Quality of Life Brief tool, participants were asked to rate their quality of life. This tool provides an overall quality of life score and an overall satisfaction with their physical health. The tool further identifies quality of life across the four domains of physical, psychological, social relationships and environment. Participants rated their overall quality of life as neither good nor bad (the average score was 3.6 with an answer of 3.0 neither poor nor good) and they rated their overall satisfaction with their physical health as neither satisfied nor dissatisfied (the average score was 3.0 which correlates with neither satisfied nor dissatisfied). Raw scores were converted to a score out of 100, with a higher score correlating to greater satisfaction and the average of these for each domain was as follows: 1. physical domain - 55.9; 2. psychological - 59.4; 3. social relationships - 52.6; and 4. Environment - 60.5 (See Figure 17). These scores suggest an average rating of neutral in respect to the overall satisfaction with each domain of life surveyed.

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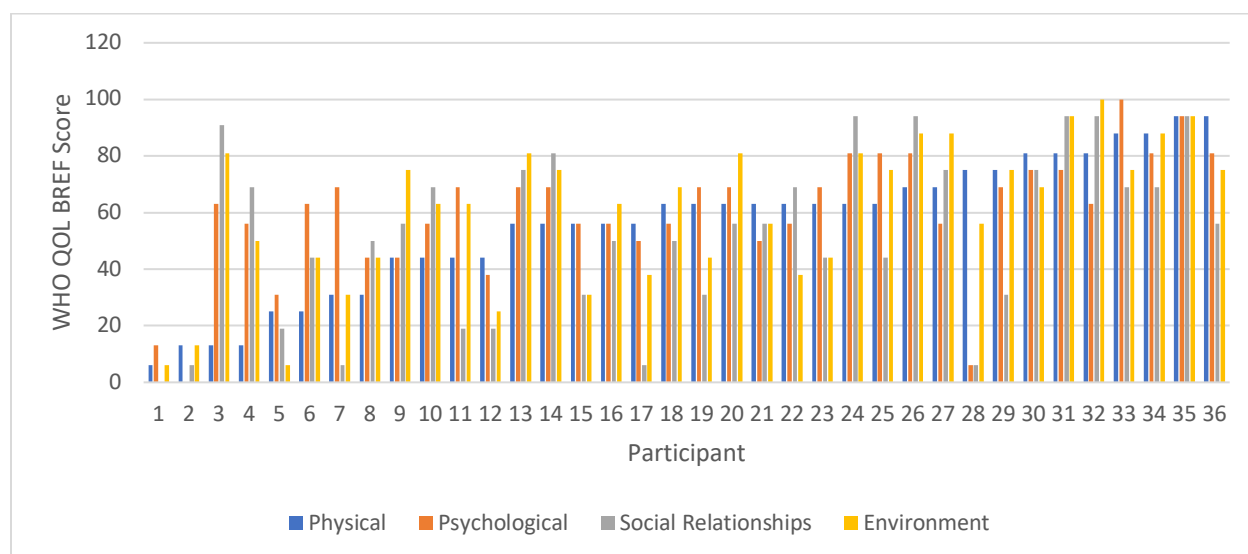*Figure 17: WHO Quality of Life BREF Scores of Physical, Psychological, Social Relationships and Environment*

Summary of Responses to Qualitative Questions

The most frequent concern participants identified in response to open-ended qualitative questions was their declining physical health and the potential impact that the progression of their chronic diseases might have on their housing status. Participants responses suggested an understanding that maintaining their current RCF residency depends upon them retaining a certain level of independent functioning. Participants expressed appreciation for the PSW support they received to help them with bathing, cooking and advocacy for services to help address their health concerns.

The next most common concern raised by participants was the inadequacy of the personal needs allowance (PNA) they were provided with each month. The majority of tenants are supported by the Ontario Disability Support Program (ODSP). For tenants who are dependent upon ODSP, the municipality takes their income and adds a subsidy from which operators receive the full payment for tenants' room and board. Tenants are then provided with a monthly PNA of $150. Tenants need to purchase all personal care items including clothing, gifts, transportation, cellphone, entertainment expenses and other various personal items. Aside from those living in the not-for-profit home, internet access would also need to be purchased from participants' PNA. Multiple participants indicated these funds were inadequate to provide for their needs: [it is] "very difficult to survive on the funds given", "no, it is too much money for too little support," "[we should receive] more than $40 a week".

Additional concerns included the lack of access to meaningful activities, "I am bored," concerns about access to dental care, ongoing issues with bed bugs, and the poor quality and quantity of food. Participants who had a private room expressed the

importance of this to help them to cope with living with other tenants while several other participants who had shared accommodation complained about the lack of privacy and their desire for greater independence.

Follow-Up

This research reviewed the healthcare follow-up provided to tenants. Over 80% of participants were diagnosed with mental health illnesses and 14 participants (38.9%) were identified through chart reviews to have support from outpatient community mental health programs. One participant identified support from the Canadian Mental Health Association and a chart review identified ongoing follow up support from the Hamilton Mental Health Outreach Program for another participant. All RCFs are required by the licensing act under which they are governed to have a physician who can provide primary care services to tenants, the "house doctor" (City of Hamilton, 2009). Each RCF reviewed complied with this requirement.

Discussion

The findings from this study highlight that tenants living in Hamilton's RCF system have complex care needs in terms of both their psychiatric and physical health.

While there is no standard definition of 'complexity' and 'complex care needs' in the field of community mental health, Nicholaus et al (2022) identifies that there is a general agreement that 'complexity' encompasses both medical and non-medical factors, and the ways diagnoses and social factors intersect. More limited definitions of 'complexity' rely on the number of medical conditions and diagnoses, typically defining 'complex' care cases as people living with more than three diagnoses/conditions (Newcomer, 2011; Harrison, 2014; Horn et. al., 2016).

Within this study, we were able to learn about the health conditions and social factors that impact the lives of RCF tenants and characterize their needs as 'complex.' While all tenants had complex care needs, when drawing on studies that exclusively define complex as the number of diagnosis (minimum of three), we found that 28 participants (77.8%) would be considered as having complex care needs.

It is commonly accepted that multiple factors influence a patient's complexity which includes, but is not limited to, their social supports, level of health literacy, education attainment, cognitive and functional status, presence or absence of a trauma history, mental disorders, the type and nature of their coping strategies, and their socioeconomic status (Nicolaus et. al., 2022). Using this broader understanding of patient complexity, all research participants fit into at least one of these definitions, and in fact, the majority of participants fit into all definitions of complexity.

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One participant in our study who was diagnosed with only two medical conditions and who would therefore not be identified as 'complex' by the number of diagnosed medical conditions, would fit all other definitions of complexity. This participant had a lack of insight into their mental illness, a legal history with a lengthy forensic hospitalization, and they reported experiencing profound trauma beginning early in their childhood. The other seven participants who were diagnosed with only three medical conditions each would also, by most commonly used understandings of this concept, be described as complex. Three participants have significantly compromised decisional capacity and two have significant concurrent disorders (schizophrenia and substance use disorders).

Among the larger group of participants, many have significant experiences of homelessness, poverty, and follow up needs from different treatment and support service systems, namely the mental health system, addiction services, developmental, legal or forensic services. The combination of these issues results in greater complexity of follow-up for healthcare professionals.

In terms of the demographic data, this study found an overrepresentation of individuals who identify as Indigenous in participants with 16.7% participants identifying themselves to be of Indigenous heritage while in the City of Hamilton's general population only 2.2% identify as Indigenous (Statistics Canada 2021). This overrepresentation is reflected in the number of Hamilton's homeless population with 23% identifying as Indigenous (2021 Point in Time Count Appendix B p.6). Service planning to address, in a culturally appropriate manner, the needs of individuals who identify as Indigenous is critical for service planning in RCFs. This may include bringing in culturally relevant health care supports and resources to promote wellness.

Our demographic data in relation to gender also provided some key findings. Cis-gender male participants were represented across all identified adult age groups; however there were no cisgender female participants in our study between the ages of 35-44. Anecdotal evidence would suggest that cisgender women without housing decline referrals to RCFs when in emergency shelter, because of the lack of safety they identify in shared rooms in co-ed settings. There is a need to investigate bringing a gendered lens into the RCF system to create safety and comprehensive care for women and women-identified tenants.

Within this study, 75% of study participants were age 50 and over. This age group had a high frequency of experiencing homelessness (65-80%). The threshold of age 50 is well-established in the literature as the most appropriate age to identify adults as seniors among the homeless population because of the ways the social determinants of health impact aging (Barken, et. al., 2015, Brown, 2022, Suk, et. al., 2022). When homeless individuals endure exposure to extreme environmental and physical conditions, they have a high risk of traumatic experiences including violence and

victimization, they defer medical care, and adopt a "survival-oriented" mentality which, while adaptive when without housing, often becomes entrenched and then results in a lack of health-promoting behaviours even when housed (Stefancic, et.al., 2021). Individuals who are aging, have complex care needs and histories of homelessness, require unique health care approaches to support their tenancy and wellness in RCF settings.

Our findings also illustrate that the number of chronic diseases and medical conditions with which participants are diagnosed increases as participants age, but peaks after ages 55-64 (see Figure 13 & 14). This may reflect the early morbidity and mortality seen in individuals who have experiences of homelessness and mental health diagnosis and/or that as tenants reach this age range and experience increased disease burden, their care needs exceed the support available in RCFs and they must move to a more supportive environment. For individuals with a low income this is by default a long-term care home. The average age of an Ontario LTCH resident is 83. Regardless, the opportunity identified by some authors to systematically engage individuals in supportive housing in plans for medical follow up may be also seen for these tenants.

The current approach to provide housing first, while it addresses a major social determinant of health, may not be enough to address the complexity of chronic diseases management for this population as they age (Schneiderman et. al., 2021). A brief review of the staffing and supervision guidance for RCFs under Schedule 20 helps to elucidate this connection. RCF facilities must have either the operator, or one employee over the age of eighteen, "on duty at all times" with the further requirement that enough employees must be on duty "to meet all tenants' care needs" (p.6). The expectation for staff to keep all tenants safe, while they simultaneously provide support to a tenant who reports or appears to be unwell, when they may be working alone and may lack medical or clinical training, makes the use of emergency services understandable.

Ensuring that tenants of RCFs, and the staff in these facilities, have rapid access to a trained healthcare professional for support and guidance when responding to the healthcare concerns of tenants may be achieved through a number of potential solutions, including after-hours access to a Primary Care provider or the recently trialed Community Paramedicine at Home program, through which Paramedics attend RCFs to provide healthcare monitoring and advice to tenants.

The need for effective planning to address the healthcare needs of individuals who have exited homelessness and are in congregate or other supported housing is clear and this need is more urgent when we consider the needs of these tenants whose needs may reflect those most commonly associated with older adults.

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Limitations

This study had several limitations. Recruitment for participation was done via a recruitment poster whereby eligible tenants self-referred for the study. This process for recruitment may have excluded the participation of those living in RCF's who were unable to self-refer to participate because of the complexity of their needs. This study also intentionally recruited participants from RCFs with high emergency service use, and this may have resulted in an increased portrait of medical complexity.

Data obtained from electronic medical records may have been incomplete. Participants may have accessed health care services out of region and notes would be captured in separate EMRs which were unavailable for this research.

While all efforts were made to provide privacy for research participants during the interviewing process, conducting this research onsite in RCFs may have limited the information participants' felt comfortable sharing.

Finally, due to the small sample size, this study does not provide a complete analysis of population health needs of tenants living across the RCF sector.

Conclusion

The overall purpose of this research study was to provide a population description of the tenants in Hamilton's RCFs and some preliminary understanding of the health and social care needs of this population.

Our findings demonstrate that tenants in Hamilton's RCF system are individuals with a high rate of complexity, most of whom have a high burden of serious and persistent mental illness and multiple chronic physical health conditions. In addition to many having experiences of homelessness, these individuals live in conditions which include a lack of privacy and ongoing poverty which limits their integration into the broader community.

More than 75% of these tenants are over the age of 50, given the related high morbidity and mortality for individuals with serious persistent mental illness and experiences of homelessness (Hayes, et. al., 2017; Saha, et. al., 2007; Schneiderman, et. al., 2021), suggests that supporting care for physical health, as well as care for psychiatric illness, is of critical importance to effectively meet the needs of Hamilton's RCF tenants.

The health profile of tenants in Hamilton's RCFs this study reveals should act as a call to action for members of the RCF Steering Committee to develop and implement effective plans to meet the current and developing needs of this group. This call comes at a time when a number of pressures heighten the vulnerability of those at the margins of our society.

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The need to develop affordable and supported housing options for those who are in most need in our community is pressing. Approximately 28% of people accessing the homeless serving system presented with a high (23%, 950 people) or very high (4%, 179 people) complexity of co-occurring needs. This represents 1129 people, many of whom require additional clinical health supports to help them access and sustain housing.

With the current population of tenants of Hamilton's RCFs already experiencing high complexity of needs, and RCFs funded by the City as an exit from homelessness, there is a pressing need to ensure adequate supports are available in this housing to allow individuals who are living in these facilities to live with dignity now and into the future.

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Appendix 1: Map of Greater Hamilton Health Network
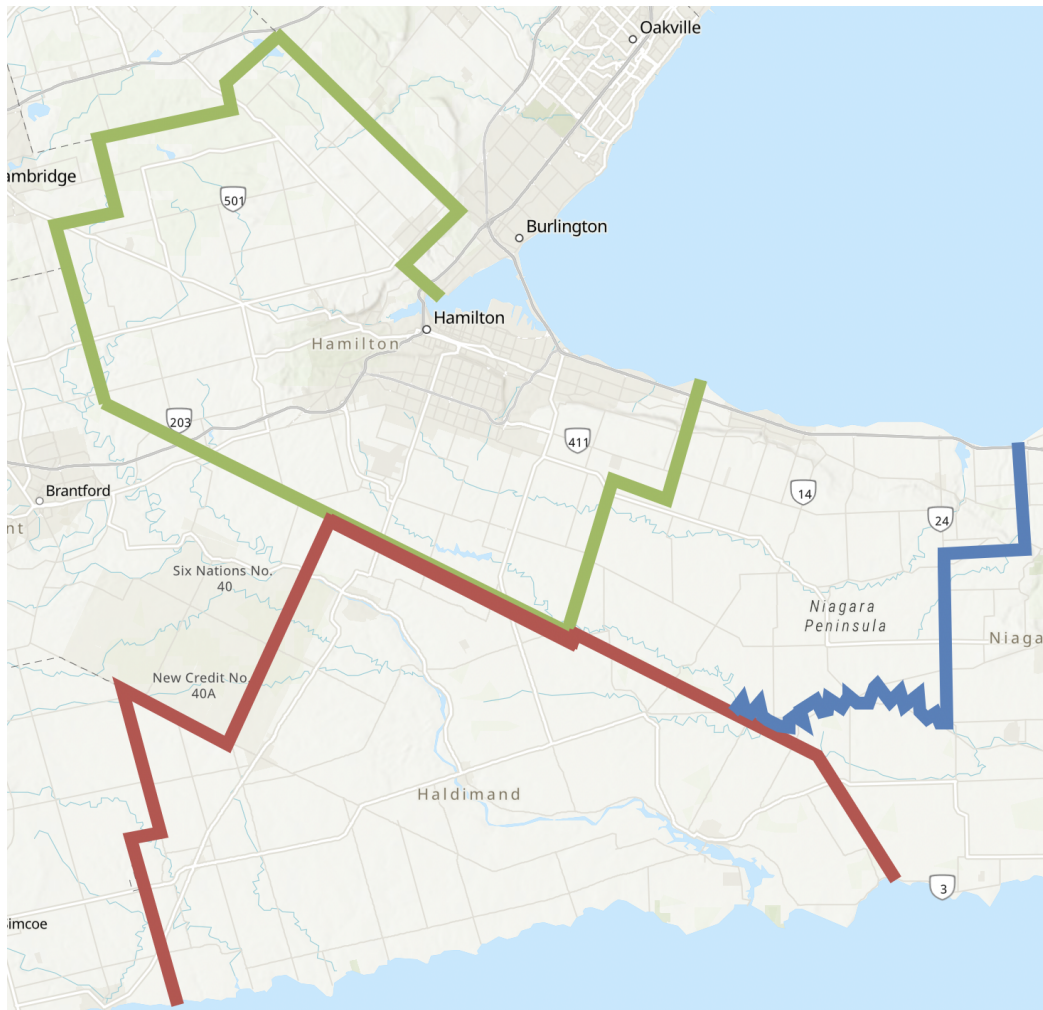
GHHN Catchment area

Hamilton- includes Hamilton, Ancaster, Dundas, Flamborough, Glanbrook and Stoney Creek
Haldimand- all Haldimand County
Niagara Northwest- Lincoln, Grimsby, and West Lincoln

Please see the map for details.

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Appendix 2:

Housing Demographic Survey- Basic Demographic (From CAMH's OPOC)

1. What is your gender? (Please check one box).
   ☐ Male
   ☐ Female
   ☐ Trans-Male to Female
   ☐ Trans-Female to Male
   ☐ Other. Please describe. _____

2. What is your age? (please check one box).

   ☐ 18 – 25 years
   ☐ 26 – 34 years
   ☐ 35 – 44 years
   ☐ 45 – 54 years
   ☐ 55 – 64 years
   ☐ 65+ years

3. What is your mother tongue?

   ☐ English → please go to question 5 below
   ☐ French → please go to question 5 below
   ☐ Other. Please specify: _____

4. If your mother tongue is neither French nor English, in which of Canada's official languages are you more comfortable?

   ☐ English
   ☐ French

5. In what language do you prefer to receive health care services?

   ☐ English
   ☐ French
   Other. Please specify: _____

6. What term do you prefer to use to describe your sexual orientation? (please check one box). For word definitions, please see the last page of the questionnaire.

   ☐ Asexual or non-sexual

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☐ Bisexual
☐ Gay
☐ Heterosexual
☐ Lesbian
☐ Not sure or Questioning
☐ Queer
☐ Two-spirited
☐ Other. Please describe: _____

7. Which population group best describes you? (please check one box and then proceed to the more detailed question below that corresponds to your answer)

☐ White → please go to question a below
☐ First Nations, Métis, Inuit → please go to question b below
☐ Asian → please go to question c below
☐ Black → please go to question d below
☐ Middle Eastern → please go to question e below
☐ Latin American → please go to question f below
☐ Multiple or mixed. Please describe. _____

a. If your population group is White, which of the following best describes your background?

☐ North European (e.g., Danish, Norwegian, Swedish)
☐ Central/Western European (e.g., English, Welsh, Scottish, Irish, German, Dutch, Czech, Slovak)
☐ South European (e.g., Italian, Spanish, Portuguese, Greek, French, Turkish)
☐ East European (e.g., Bulgarian, Ukrainian, Polish, Romanian, Russian, Slovenian, Serbian, Croat)
☐ North American (e.g., Canadian, French Canadian, American)
☐ Other. Please describe. _____

b. If your population group is First Nations, Métis, Inuit, which of the following best describes your background?

☐ First Nations
☐ Métis
☐ Inuit
☐ Other. Please describe. _____

c. If your population group is Asian, which of the following best describes your background?

☐ East Asian (e.g., Chinese, Japanese, Korean)
☐ South Asian (e.g., Indian, Pakistani, Afghani, Sri Lankan)
☐ South-East Asian (e.g., Filipino, Malaysian)
☐ Other. Please describe. _____

d. If your population group is Black, which of the following best describes your background?

☐ Black African (e.g., Ghanaian, Somali, Kenyan, Ethiopian)
☐ Black Caribbean (e.g., Trinidadian, Jamaican)
☐ Black Canadian/American
☐ Other. Please describe. _____

e. If your population group is Middle Eastern, which of the following best describes your background?

☐ Arab (e.g., Saudi Arabia, Jordan)
☐ Northern African (e.g., Egyptian, Libyan)
☐ West Asian (e.g., Syrian, Lebanese, Iraqi, Iranian, Israeli)
☐ Other. Please describe. _____

f. If your population group is Latin American, which of the following best describes your background?

☐ South American (e.g., Argentinean, Chilean, Peruvian, Colombian)
☐ Central American (e.g., Mexican, Costa Rican)
☐ Caribbean
☐ Other. Please describe. _____

g. When did you move into your current resident (approximate day, month year?)

h. Who helped you find a room at your current residence?

i. Where were the last several places you lived?

j. Do you have access to the internet and email? Do you have access to a cellphone that can access the internet?

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Appendix 3:

Health Questionnaire (EQ-5D-5L)

Under each heading, please tick the ONE box that best describes your health TODAY.

MOBILITY
1 I have no problems in walking about
2 I have slight problems in walking about
3 I have moderate problems in walking about
4 I have severe problems in walking about
5 I am unable to walk about

SELF-CARE
1 I have no problems washing or dressing myself
2 I have slight problems washing or dressing myself
3 I have moderate problems washing or dressing myself
4 I have severe problems washing or dressing myself
5 I am unable to wash or dress myself

USUAL ACTIVITIES *(e.g. work, study, housework, family or leisure activities)*
1 I have no problems doing my usual activities
2 I have slight problems doing my usual activities
3 I have moderate problems doing my usual activities
4 I have severe problems doing my usual activities
5 I am unable to do my usual activities

PAIN / DISCOMFORT
1 I have no pain or discomfort
2 I have slight pain or discomfort
3 I have moderate pain or discomfort
4 I have severe pain or discomfort
5 I have extreme pain or discomfort

ANXIETY / DEPRESSION
1 I am not anxious or depressed
2 I am slightly anxious or depressed
3 I am moderately anxious or depressed
4 I am severely anxious or depressed
       5 I am extremely anxious or depressed

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Appendix 4:

World Health Organization Quality of Life BREF (WHO QOLBREF)

WHO QOL Instructions- This assessment asks how you feel about your quality of life, health, or other areas of your life. **Please answer all the questions.** If you are unsure about which response to give to a question, **please choose the one** that appears most appropriate. This can often be your first response. Please keep in mind your standards, hopes, pleasures and concerns. We ask that you think about your life **in the last two weeks.**

Please read each question, assess your feelings, and circle the number on the scale for each question that gives the best answer for you.

		Very poor	Poor	Neither poor nor good	Good	Very good
1(G1)	How would you rate your quality of life?	1	2	3	4	5

		Very dissatisfied	Dissatisfied	Neither satisfied nor dissatisfied	Satisfied	Very satisfied
2 (G4)	How satisfied are you with your health?	1	2	3	4	5

The following questions ask about how **much** you have experienced certain things in the last two weeks.

		Not at all	A little	A moderate amount	Very much	An extreme amount
3 (F1.4)	To what extent do you feel that physical pain prevents you from doing what you need to do?	1	2	3	4	5
4(F11.3)	How much do you need any medical treatment to function in your daily life?	1	2	3	4	5
5(F4.1)	How much do you enjoy life?	1	2	3	4	5
6(F24.2)	To what extent do you feel your life to be meaningful?	1	2	3	4	5

		Not at all	A little	A moderate amount	Very much	Extremely
7(F5.3)	How well are you able to concentrate?	1	2	3	4	5
8 (F16.1)	How safe do you feel in your daily life?	1	2	3	4	5
9 (F22.1)	How healthy is your physical environment?	1	2	3	4	5

The following questions ask about how **completely** you experience or were able to do certain things in the last two weeks.

		Not at all	A little	Moderately	Mostly	Completely
10 (F2.1)	Do you have enough energy for everyday life?	1	2	3	4	5
11 (F7.1)	Are you able to accept your bodily appearance?	1	2	3	4	5
12 (F18.1)	Have you enough money to meet your needs?	1	2	3	4	5
13 (F20.1)	How available to you is the information that you need in your day-to-day life?	1	2	3	4	5
14 (F21.1)	To what extent do you have the opportunity for leisure activities?	1	2	3	4	5

		Very poor	Poor	Neither	Good	Very good

				poor nor good		
15 (F9.1)	How well are you able to get around?	1	2	3	4	5

The following questions ask you to say how **good or satisfied** you have felt about various aspects of your life over the last two weeks.

		Very dissatisfied	Dissatisfied	Neither satisfied nor dissatisfied	Satisfied	Very satisfied
16 (F3.3)	How satisfied are you with your sleep?	1	2	3	4	5
17 (F10.3)	How satisfied are you with your ability to perform your daily living activities?	1	2	3	4	5
18(F12.4)	How satisfied are you with your capacity for work?	1	2	3	4	5
19 (F6.3)	How satisfied are you with yourself?	1	2	3	4	5
20(F13.3)	How satisfied are you with your personal relationships?	1	2	3	4	5
21(F15.3)	How satisfied are you with your sex life?	1	2	3	4	5
22(F14.4)	How satisfied are you with the support you get from your friends?	1	2	3	4	5
23(F17.3)	How satisfied are you with the conditions of your living place?	1	2	3	4	5
24(F19.3)	How satisfied are you with your access to health services?	1	2	3	4	5
25(F23.3)	How satisfied are you with your transport?	1	2	3	4	5

The following question refers to **how often** you have felt or experienced certain things in the last two weeks.

		Never	Seldom	Quite often	Very often	Always
26 (F8.1)	How often do you have negative feelings such as blue mood, despair, anxiety, depression?	1	2	3	4	5

Did someone help you to fill out this form?..

How long did it take to fill this form out?..

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Appendix 5:

Multidimensional Scale of Perceived Social Support (MSPSS)

		Very Strongly Disagree	Strongly Disagree	Mildly Disagree	Neutral	Mildly Agree	Strongly Agree	Very Strongly Agree
1	There is a special person who is around when I am in need.	1	2	3	4	5	6	7
2	There is a special person with whom I can share joys and sorrows.	1	2	3	4	5	6	7
3	My family really tries to help me.	1	2	3	4	5	6	7
4	I get the emotional help & support I need from my family.	1	2	3	4	5	6	7
5	I have a special person who is a real source of comfort to me.	1	2	3	4	5	6	7
6	My friends really try to help me.	1	2	3	4	5	6	7
7	I can count on my friends when things go wrong.	1	2	3	4	5	6	7
8	I can talk about my problems with my family.	1	2	3	4	5	6	7
9	I have friends with whom I can share my joys and sorrows.	1	2	3	4	5	6	7
10	There is a special person in my life who cares about my feelings.	1	2	3	4	5	6	7
11	My family is willing to help me make decisions.	1	2	3	4	5	6	7
12	I can talk about my problems with my friends.	1	2	3	4	5	6	7

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Appendix 6:

Qualitative Survey:

1. What concerns you most about your health? Do you believe you are able to get the appropriate support for these health concerns at your RCF?
2. Can you tell me about the kinds of support you need?
3. Is your housing (RCF) able to meet your overall needs?
4. What is your key message/recommendations about how to improve RCFs in Hamilton.