MODESTUM

Research Article

Variables associated with deterioration in quality of life among individuals living in permanent supportive housing in Quebec during the COVID-19 pandemic

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ARTICLE INFO	ABSTRACT
	This study aimed to identify sociodemographic and clinical characteristics and service use associated with deterioration in quality of life (QoL) among individuals residing in permanent supportive housing (PSH) during the COVID-19 pandemic. Between 2020-2022, PSH residents (n=231) were recruited from congregate and scattered site PSH in Montreal (Quebec/Canada). Multivariate logistic regression was used to test associations between QoL and PSH characteristics. Most participants (62%) reported deterioration in QoL. Decreased in PSH follow-up care and biopsychosocial services other than those from physicians, especially in basic needs, having still mental disorders (MD) or COVID-19 were found the most associated with QoL deterioration. Residing in PSH for 10+ years versus <2 years, high satisfaction with PSH, and access to public specialized outpatient services were identified as protective factors against deterioration in QoL. The findings demonstrated that comprehensive services for PSH residents may be intensified during a pandemic to protect against deterioration in QoL. **Keywords:** quality of life, permanent supportive housing, COVID-19, pandemic

INTRODUCTION

Quality of life (QoL) is defined by the World Health Organization (WHO) [1] as a multidimensional concept encompassing different dimensions of individual health and well-being, including environment and personal beliefs. A strong indicator of unmet individual needs, QoL is often used in assessing the effectiveness of healthcare services [2]. Previous studies identified a deterioration in QoL among different populations during the COVID-19 pandemic, and associations between lower QoL and adverse effects such as increased stress, financial worries, and deterioration in health conditions [3-5]. The first waves of the COVID-19 pandemic were also marked by decreased availability of healthcare services or more difficult access, especially among highly vulnerable individuals, engendering further negative consequence for QoL [6]. Food insecurity during the COVID-19 pandemic was particularly prevalent among the most vulnerable [7]. While many studies have been published on QoL during the COVID-19 pandemic [3, 4, 8], few have studied QoL during this period for individuals with high needs like those living in permanent supportive housing (PSH) [9], despite the exacerbation of inequities during the pandemic.

PSH is the main strategy promoted in Western countries, including Canada, for eliminating homelessness. PSH programs have been shown to improve residential stability and reduce hospitalizations and emergency department use [10, 11]. During COVID-19, the consolidation of PSH programs was strongly recommended to reduce adverse social and health impacts of the pandemic [12]. PSH combines subsidized housing with appropriate follow-up care for individuals with mental disorders (MD), including substance use disorders (SUD), battling homelessness [13]. Two major PSH models have been identified: a scattered-site or private PSH model originating in the Housing-First model [14], implemented for the most part in North America, and the congregate or single-site PSH model found mainly in Australia [15]. Individuals living in scattered-site PSH have their own apartments in buildings scattered throughout the community and receive case management services, whereas those in congregate PSH live in apartments within a single building that includes communal amenities, like collective kitchens and activity rooms, and onsite staff who offer follow-up care [13]. Few studies have assessed QoL among residents of PSH, and most of these studies have produced mixed results [10]. One study identified higher well-being among individuals residing in PSH for at least five years, compared with those who lived in PSH

for less than a year [16], whereas another study of PSH residents showed no change in QoL between entry (baseline) in PSH and 18-month follow-up, compared with the control group [17]. Some improvement in QoL was however reported among older individuals residing in scattered-site PSH [18]. The few studies that compared QoL among scattered-site residents versus congregate PSH residents found that the latter had better QoL [16]. In another study, individuals with MD, including SUD or chronic physical illnesses, most of them PSH residents, also reported lower QoL compared with the general population [17].

To our knowledge, no previous study has investigated user characteristics or service use patterns associated with QoL among individuals residing in PSH during the COVID-19 pandemic. Little is also known about how QoL of PSH residents were affected by the COVID-19 pandemic. This study had three hypotheses. The first tested if residents in congregate PSH and those living in PSH for longer time periods during the COVID-19 pandemic had better QoL than residents of scattered site PSH or more recently living in PSH. While infections like COVID-19 are perhaps more difficult to control in congregate spaces, loneliness may have decreased. The second hypothesis tested if PSH residents with more severe health conditions like with multimorbidity were more negatively impacted by the COVID-19 pandemic in terms of their QoL, as services offerings were reduced during this period. Finally, we hypothesized that decreased access to services during the pandemic may have contributed to the deterioration of QoL. It would help to have a better understanding of how the decreased availability of services may have affected QoL, especially which types of services may have had more impact. A better knowledge of how the overall situation among PSH residents during the COVID-19 pandemic affected QoL could help decision-makers and clinicians improve services for more vulnerable populations during such difficult times. This study thus aimed to identify sociodemographic and clinical characteristics, and service use patterns associated with deterioration in QoL among individuals residing in PSH during the COVID-19 pandemic.

METHODS

Inclusion Criteria, Setting, and Data Collection

The study recruited 345 adults who had formerly experienced homelessness and resided in PSH for at least 6 months prior to their inclusion. Study participants represented 25 organizations responsible for managing PSH in Montreal, QC (Canada), mostly community-based organizations and some community healthcare centres, with whom the research team worked closely. Data were gathered between January 2020 and April 2022, excluding the lockdown period due to the COVID-19 pandemic from March 2020 to October 2020, when in-person data collection was not allowed in QC. Participants were referred to the research team by the PSH staff, after agreeing to participate in the study. They were then contacted by the research coordinator, and a telephone or in-person interview scheduled in a PSH resource, participant apartment or local cafe. During the pandemic, telephone interviews were usually scheduled. Interviews were conducted by trained

research assistants working under close supervision of the research team and using a website platform (Lime survey). Interviews were generally held on the same day or a few days after initial contact with potential participants. Interviews lasted 90 minutes on average, including time for completion of a questionnaire on user sociodemographic and clinical characteristics and service-use patterns. Participants too disorganized or intoxicated to be interviewed were rescheduled. All participants provided informed consent before beginning the study and received a modest compensation for their participation. The multisite study protocol was approved by the research ethics board of a mental health organization.

Variables and Instruments

Deterioration of QoL among individuals living in PSH during the COVID-19 pandemic was the dependent variable for the study and included the user questionnaire. QoL was assessed with one yes/no question: "Since the month of March 2020, has the COVID-19 pandemic contributed to deterioration in your QoL?" Most independent variables were adapted from the Canadian community health survey (CCHS) [19], except for diagnoses, which were measured with standardized scales. Sociodemographic variables were measured at the time of the participant interviews, while the remaining variables were measured within 12 months prior to the interview dates. The independent variables were organized in terms of user sociodemographic and clinical characteristics, and service use patterns.

The sociodemographic characteristics of users included: sex, age group, education, occupation, PSH model, length of residence in PSH, and satisfaction with current PSH. PSH models integrated both scattered-site and congregate PSH. Duration of residence in PSH was categorized as <2 years, two years to <5 years, five years to <10 years, and 10+ years. Most studies have assessed PSH outcomes within a 2-year follow-up period, or less [16, 20]. Satisfaction with services, a key factor contributing to service retention and to recovery, was included in this study [21]. This variable was measured based on a question with a 5-point score (1=very unsatisfied to 5=very satisfied).

The clinical characteristics of users encompassed having MD, including SUD, and co-occurring disorders: MD, SUD, or chronic physical illness (e.g., diabetes), COVID-19, and perceived deterioration in physical health or mental health during the COVID-19 pandemic. MD diagnoses included common MD (depression, generalized anxiety, post-traumatic stress disorder, and attention deficit disorder), serious MD (psychotic and bipolar disorders) and personality disorders. SUD included both alcohol and drug-use disorders. MD were measured based on the MINI international neuropsychiatric interview 6.0 [22], personality disorders with the standardized assessment of personality abbreviated scale [23], and, for SUD, the alcohol use disorders identification test (AUDIT) [24] for diagnosis of alcohol use disorders, while for drug use disorders, the drug abuse screening test-20 [25]. The CCHS was used for identifying chronic physical illnesses, including numerous illnesses (e.g., cancer, cardiovascular illnesses). COVID-19 was self-reported, with examples of symptoms provided for participants, who had to declare whether they had experienced

them, or not, during the study period. Deterioration in physical health was measured as a one-item yes/no question, whereas mental health deterioration included increased perceptions of anxiety or anguish, distress, suicidal thoughts, drug or alcohol consumption, and insomnia. At least one item out of the five items was needed to notify a mental health deterioration during the COVID-19.

Service use patterns included use of outpatient services other than those provided within the housing, and reduction in services during the COVID-19 pandemic. Outpatient service use integrated if participants had consulted a general practitioner, psychiatrist, any public primary care psychosocial service, public specialized outpatient services excluding the services of psychiatrists, community-based services, emergency department services and hospitalization. Public primary care psychosocial services included services from psychologists, nurses, social workers, or any mental health services provided in community healthcare centres or in general practitioner clinics. Public specialized outpatient services other than those of psychiatrists included services provided in outpatient hospital settings or in addiction treatment centres. Community-based services included various resources such as community detoxification centres, community support groups, women's centres, soup kitchens, food banks, and employment support programs. Reduction in service use during the COVID-19 pandemic affected medical appointments, biopsychosocial services other than physician

services, services for basic needs (e.g., food, clothing), follow-up care in PSH, and emergency department use. All these services were measured based on yes/no questions.

Analyses

Descriptive and bivariate analyses were conducted, using ANOVA for continuous variables, and Chi-square tests for categorical variables. Collinearity statistics were tested using variance inflation factors (VIF) and tolerance tests, with five as the maximum level of VIF. Independent variables without collinearity were identified and entered into the multivariate logistic regression model, with an alpha value of $p<0.10$. Odds ratios, p-values and 95% confidence intervals (alpha set at 0.05) were calculated. The final models were selected based on the smallest Akaike information criterion (AIC) and Bayesian information criterion (BIC). Data analyses were conducted using STATA 17.0 software.

RESULTS

Of the 345 participants enrolled at baseline, 11 were not eligible for the study, and 26 did not accept to participate, for a response rate of 89%. Of the remaining 308 study participants, the 231 interviewed during the COVID-19 pandemic, between November 2020 and April 2022, were retained for this study. Of these 231 participants, 62% reported a deterioration in QoL during COVID-19 pandemic (**Table 1**).

Table 1. Descriptive analyses: Characteristics of individuals living in permanent supportive housing during the COVID-19 pandemic, interviewed between November 2020 & April 2022 (n=231)

Characteristics	Total: n (%)	Yes: n (%)	No: n (%)	p-value
Deterioration in QoL during the COVID-19 pandemic	231 (100)	142 (61.50)	89 (38.50)	
Sociodemographic characteristics (measured at date of interview)				
Sex				0.180
Men	154 (66.70)	91 (64.10)	63 (70.90)	
Women	77 (33.30)	51 (35.90)	26 (29.10)	
Age group (years)				0.660
18-49 years	59 (25.50)	39 (27.50)	20 (22.50)	
50-64 years	140 (60.60)	83 (58.50)	57 (64.00)	
65 years+	32 (13.90)	20 (14.10)	12 (13.50)	
Education				0.050
High school or less	151 (65.40)	86 (60.60)	65 (73.00)	
College+	80 (34.60)	56 (39.40)	24 (27.00)	
Occupation				0.770
Work or study	44 (19.00)	29 (20.40)	15 (16.90)	
Retired	41 (17.70)	23 (16.20)	18 (20.20)	
Unemployed or no regular occupation	146 (63.20)	90 (63.40)	56 (62.90)	
Permanent supportive housing model [a]	137 (59.30)	83 (58.50)	54 (60.70)	0.420
Scattered site (private)	94 (40.70)	59 (41.50)	35 (39.30)	
Congregate	137 (59.30)	83 (58.50)	54 (60.70)	
Duration of residence in PSH	137 (59.30)	83 (58.50)	54 (60.70)	0.060
<2 years	107 (46.30)	71 (50.00)	36 (40.40)	
2 years to <5 years	68 (29.40)	45 (31.70)	23 (25.80)	
5 years to <10 years	41 (17.70)	20 (14.10)	21 (23.60)	
10+ years	15 (6.50)	6 (4.20)	9 (10.10)	
Satisfaction with current PSH (scores: 1-5 & 1=very unsatisfied to 5=very satisfied)	4.16 (0.66)	4.05 (0.68)	4.36 (0.59)	<0.001
Clinical characteristics (measured within 12 months prior to interview date)				
MD [b] including SUD or chronic physical illnesses [c]				0.024
No MD-SUD or chronic physical illnesses	28 (12.10)	11 (7.70)	17 (19.10)	
MD or SUD only	93 (40.30)	65 (45.80)	28 (31.50)	
Chronic physical illnesses only	30 (13.00)	20 (14.10)	10 (11.20)	
MD-SUD & chronic physical illnesses	80 (34.60)	46 (32.40)	34 (38.20)	
COVID-19 [d]	46 (19.90)	35 (24.60)	11 (12.40)	0.020

Table 1 (Continued). Descriptive analyses: Characteristics of individuals living in permanent supportive housing during the COVID-19 pandemic, interviewed between November 2020 & April 2022 (n=231)

Characteristics	Total: n (%)	Yes: n (%)	No: n (%)	p-value
Health deterioration				
Physical health	66 (28.60)	57 (40.10)	9 (10.10)	<0.001
Mental health	143 (61.90)	106 (74.60)	37 (41.60)	<0.001
Service use (measured within 12 months prior to interview date)				
Outpatient service use (other than services provided within PSH)				
General practitioner (GP) (family doctor or GP in walk-in clinics)	156 (67.50)	96 (67.60)	60 (67.40)	0.540
Psychiatrist	47 (20.30)	26 (18.30)	21 (23.60)	0.210
Public primary care psychosocial services [e]	87 (37.70)	49 (34.50)	38 (42.70)	0.130
Public specialized outpatient services (excluding psychiatrists) [f]	50 (21.60)	25 (17.60)	25 (28.10)	0.040
Community-based services [g]	187 (81.00)	113 (79.60)	74 (83.10)	0.310
Emergency department services	77 (33.30)	46 (32.40)	31 (34.80)	0.400
Hospitalization	43 (18.60)	26 (18.30)	17 (19.10)	0.560
Reduction in service use during the COVID-19 pandemic				
Medical appointments [h]	89 (38.50)	64 (45.10)	25 (28.10)	0.007
Biopsychosocial services other than physician services [i]	68 (29.40)	55 (38.70)	13 (14.60)	<0.001
Services for basic needs (e.g., food & clothing)	69 (29.90)	57 (40.10)	12 (13.50)	<0.001
Follow-up care in PSH	79 (34.20)	64 (45.10)	15 (16.90)	<0.001
Emergency department use	31 (13.40)	25 (17.60)	6 (6.70)	0.013

Note. [a]PSH was categorized in two models: scattered site (private) PSH or congregate PSH. Scattered site model corresponds to housing first model, where individuals rent their own apartments in various areas & buildings throughout community. Case management is provided regularly to these individuals (intensive case management or assertive community treatment). In congregate model, individuals live in a single building that includes individual apartments & communal amenities (e.g., collective kitchens & activity rooms); onsite staff offering follow-up care; [b]MD included common MD (depression, generalized anxiety, post-traumatic stress disorder, & attention deficit disorder), serious MD (psychotic & bipolar disorders), personality disorders, & SUD (alcohol & drug-use disorders); [c]Chronic physical illnesses included neurological illnesses (e.g., multiple sclerosis), cancer & chronic pulmonary illnesses (e.g., asthma & emphysema), endocrine illnesses (e.g., diabetes & obesity), renal failure & liver illnesses (e.g., hepatitis C & cirrhosis), & AIDS & cardiovascular illnesses (e.g., congestive heart failure, cardiac arrhythmias, & valvular illnesses); [d]COVID-19 symptoms include temperature ≥38°C, dry cough, & difficulty breathing. In this research, whether individuals had COVID-19 was based on individual self-perception; [e]Public primary care psychosocial services included services of psychologists, nurses, social workers, or any mental health services provided in community healthcare centers or by GP in medical clinics; [f]Public specialized outpatient care other than services of psychiatrists were provided in outpatient hospital settings or in addiction treatment centers; [g]Community-based services included various resources such as community detoxification centers, community support groups, women's centers, soup kitchens, food banks, & employment support programs; [h]Medical appointments referred to those with family doctors, or GP working in walk-in medical clinics, psychiatrists, or other physician specialists; & [i]These included services provided by private psychologists, & psychosocial resources in community healthcare centers or in addiction treatment centers

Most PSH residents (67%) were men, 61% between 50 and 64 years; 65% had high school education or less, and 63% were unemployed or had no regular occupation. A majority of PSH residents lived in congregate settings (59%); 46% had resided in PSH for less than two years and 7% for 10+ years; with a mean PSH satisfaction score of 4.16 out of five (standard deviation [SD]=0.66). Most had MD-SUD only (40%) or MD-SUD and chronic physical illnesses (35%), and 20% had contracted the COVID-19 virus during the study period. As well, most participants (62%) noticed a deterioration in their mental health, and 29% a deterioration in physical health during the pandemic. The majority consulted community-based organizations (81%) or general practitioners (68%), while roughly one third of participants used a public primary care psychosocial service (38%) or emergency department services (33%); around one fifth consulted psychiatrists (20%), public specialized outpatient services other than psychiatrists (22%) or were hospitalized (19%). During the COVID-19 pandemic, 39% of PSH residents noted a decline in attendance at medical appointments, 34% in their PSH follow-up care, 30% in their biopsychosocial services provided by other than physicians or in their basic needs offered, and 13% in their emergency department service use.

Compared with individuals living in PSH for less than two years, those living in PSH for 10+ years had 80% lower risks of reporting deterioration in their QoL (**Table 2**). Participants

more satisfied with current PSH and those receiving public specialized outpatient services other than psychiatrists were also 54% and 74% less likely to experience deterioration in QoL, respectively. By contrast, participants with MD-SUD, or who had contracted COVID-19 had three- and two-times greater risks of reporting deterioration in QoL. Those who reported a reduction in service use during the pandemic were also more likely to report a deterioration in QoL: five times more for individuals receiving fewer basic needs, and two times more for individuals who were provided with either fewer biopsychosocial services than physician services, or less follow-up care from PSH.

DISCUSSION

To the best of our knowledge, this is the first study to examine variables associated with deterioration in QoL during the COVID-19 pandemic among PSH residents. It was unsurprising to find that QoL deteriorated for most participants in this study. Previous research has highlighted the negative effects of the COVID-19 pandemic, particularly among older, less educated, and vulnerable populations, compared with the general population [4, 26]. Findings of this study also revealed that PSH residents used various services to respond to their needs during the COVID-19 pandemic,

Table 2. Characteristics associated with deterioration in QoL among individuals living in PSH during the COVID-19 pandemic, interviewed between November 2020 & April 2022 (n=231)

Characteristics	OR	95% confidence interval		p-value
Sociodemographic characteristics (measured at date of interview)				
Sex (ref.: women)				
Men	0.790	0.380	1.660	0.540
Education (ref.: college+)				
High school or less	1.740	0.830	3.670	0.140
Duration of residence in permanent supportive housing (PSH) (ref.: <2 years)				
2 years to <5 years	0.800	0.350	1.790	0.580
5 years to <10 years	0.750	0.300	1.830	0.520
10+ years	0.200	0.040	0.950	0.040
Satisfaction with current PSH (scores: 1-5 & 1=very unsatisfied to 5=very satisfied)	0.460	0.250	0.840	0.010
Clinical characteristics (measured within the previous 12 months before the interview date)				
MD including SUD [a] or chronic physical illnesses [b] (ref.: no MD-SUD & chronic physical illnesses)				
MD or SUD only	3.670	1.240	10.890	0.020
Chronic physical illnesses only (no MD-SUD)	1.900	0.500	7.180	0.340
MD-SUD and chronic physical illnesses	1.170	0.370	3.670	0.780
COVID-19 [c]	2.630	1.070	6.470	0.030
Service use (measured within 12 months prior to interview date)				
Public specialized outpatient services (excluding psychiatrists) [d]	0.260	0.100	0.630	<0.010
Reduction in service use during the COVID-19 pandemic				
Medical appointments [e]	1.720	0.790	3.740	0.170
Biopsychosocial services other than physician services [f]	2.910	1.190	7.070	0.020
Services for basic needs (e.g., food, clothing)	6.350	2.230	18.020	<0.010
PSH follow-up care	3.010	1.340	6.740	<0.010

[a]PSH was categorized in two models: scattered site (private) PSH or congregate PSH. Scattered site model corresponds to housing first model, where individuals rent their own apartments in various areas & buildings throughout community. Case management is provided regularly to these individuals (intensive case management or assertive community treatment). In congregate model, individuals live in a single building that includes individual apartments & communal amenities (e.g., collective kitchens & activity rooms); onsite staff offering follow-up care; [b]MD included common MD (depression, generalized anxiety, post-traumatic stress disorder, & attention deficit disorder), serious MD (psychotic & bipolar disorders), personality disorders, & SUD (alcohol & drug-use disorders); [c]Chronic physical illnesses included neurological illnesses (e.g., multiple sclerosis), cancer & chronic pulmonary illnesses (e.g., asthma & emphysema), endocrine illnesses (e.g., diabetes & obesity), renal failure & liver illnesses (e.g., hepatitis C & cirrhosis), & AIDS & cardiovascular illnesses (e.g., congestive heart failure, cardiac arrhythmias, & valvular illnesses); [d]COVID-19 symptoms include temperature ≥38°C, dry cough, & difficulty breathing. In this research, whether individuals had COVID-19 was based on individual self-perception; [e]Public primary care psychosocial services included services of psychologists, nurses, social workers, or any mental health services provided in community healthcare centers or by GP in medical clinics; [f]Public specialized outpatient care other than services of psychiatrists were provided in outpatient hospital settings or in addiction treatment centers

notably primary care services, and that service use declined during this period for roughly one third of participants.

Our first hypothesis was partially confirmed. No distinction in deterioration of QoL was found between residents in congregate versus scattered-site PSH during the COVID-19 pandemic, but to reside in PSH for 10+ years was found to protect again QoL deterioration, compared with less than two years of residence. Congregate PSH has been shown to reduce social isolation and to provide a more comprehensive response to resident needs compared with other models [27], while also allowing for day-to-day interactions between staff and residents [28], which increased the ability to identify emerging problems [29]. Social participation has also been linked to higher QoL [30, 31]. Yet, the advantages in congregate PSH of sharing living spaces with peers, and having staff onsite, may have been offset by greater isolation from the outside world during the COVID-19 pandemic, as reported in long-term care residences for the elderly. General regulations about prohibition related to home visits and travelling during the pandemic may also have affected equally the two PSH groups [30]. Concerning duration of residence in PSH, a recent systematic review demonstrated that PSH have sustained greater housing stability and more long-term benefits than treatment as usual but not for QoL in follow-up data up to 6 years [10]. As PSH populations have faced multiple challenges

and considering the hierarchy of needs required to achieve well-being [32], it not surprising that the study found this threshold of 10+ years that conducted to protect again QoL deterioration during the COVID-19 pandemic.

As hypothesized, PSH residents with more health needs had higher risks of experiencing deterioration in their QoL during the COVID-19 pandemic. Previous studies reported that diagnoses of MD, including SUD, were associated with lower QoL [17, 33], and that these individuals were at increased risk for adverse psychosocial outcomes during the COVID-19 pandemic [34], with greater risks of experiencing deterioration in QoL as a consequence. Symptoms and suicidal thoughts related to MD were also found to be elevated in PSH residents due to decreased social engagement and meaningful activity [30], or to maladaptive lifestyle-related behaviors during the COVID-19 pandemic [35]. Contracting COVID-19 was also identified previously as associated with deterioration in QoL [4], as measures taken during the pandemic reinforced social isolation, increased the amount of time spent at home and prolonged the inability of relatives to offer support, which, in turn, exacerbated psychological distress and depression [36]. While most of the study PSH residents identified deterioration in mental health during the COVID-19 pandemic, residents with MD, SUD, or COVID-19 only had higher risks of deterioration in QoL. Considering that some had lived in PSH

for quite an extended period, 12% of study participants no longer had a MD or SUD by the time of the investigation.

This study also confirmed the third study hypothesis that decreased access to services during the COVID-19 pandemic would contribute to deterioration in QoL. A WHO survey conducted between June and August 2020 found that over two thirds of services for mental health and SUD worldwide were disrupted during this period [37]. Another survey of 3,222 young adults conducted between October and December 2020 found that 75% French and 58% Canadian participants reported unmet mental health needs during the pandemic [38]. Results from our study showed a 5-fold reduction in basic needs offered, and a 2-fold reduction in PSH follow-up care and biopsychosocial service provided by other than physicians, respectively, associated with QoL deterioration during the COVID-19 pandemic. Reduction in basic needs offered was the variable in the study that contributed the most to the model. Aside from housing, food security is one of the main basic needs, defined as the household access to adequate nutrition. During the COVID-19 pandemic, food security was found to have declined [7, 39]. While PSH residents benefit from subsidized rent, food insecurity is often reported in this population [40] and is associated with a wide range of adverse outcomes [41], including negative emotional wellbeing [41]. It was also not surprising to find that PSH follow-up care and biopsychosocial services other than physician services were reduced for PSH residents during the pandemic. Follow-up care for PSH was mainly provided outside of resident apartments, and often by telephone only, which may not have responded very well to the comprehensive needs of this population (e.g., house organization, cleaning). As phone or online psychosocial interventions were the norm during the pandemic [42], PSH residents faced particular difficulties in accessing these services, as some were without a phone, and many had no access to computers [43].

The fact that access to public specialized outpatient services other than psychiatrists had a protective impact on QoL may be explained in terms of the complex needs of this population, which often justify intervention by specialized interdisciplinary teams. Research has shown that residency in PSH increases use of outpatient services and appropriate specialized care [44], which may have resulted in lower rates of deterioration in QoL. As well, specialized services may have been less subject to the disruptive effects of the pandemic than primary care, as specialized services are essential to the management of more urgent and complex cases. Satisfaction with services, including strong therapeutic alliances and quality processes and care settings, is a key dimension in quality of care and improvement in health conditions. Satisfaction with PSH has been identified as important for achieving stable housing [21]. Recent research has also emphasized the importance of appropriate housing quality for improving the social and psychological functioning of PSH residents [45], another means of improving QoL.

Limitations

First, the study was cross-sectional. A longitudinal study would have provided a better understanding of the causal relationships between QoL and the independent variables. Second, although the structured interviews included validated scales, data were based on participant self-report. Third, no distinctions were made between the different COVID-19 phases; each phase varied in terms of regulations and services offered, with probable divergent impacts on QoL. Fourth, most study participants were 50+ years old. More inclusion of younger participants may have enabled us to better assess associations between age and QoL. Finally, the study used a convenience sample based on selected PSH, and the results reflect the structure and context of the Canadian health system (e.g., universal coverage) and metropolitan areas, which may prevent generalization of these findings to other healthcare systems or territories.

CONCLUSIONS

This study, which took place during the COVID-19 pandemic, covering an 18-month period after the first wave (November 2020 to April 2022), was original in determining that most PSH residents experienced deterioration in QoL. Decreased follow-up care in PSH and in biopsychosocial services other than physician services, in particular the reductions in services for basic needs, followed by having a diagnosed MD or SUD and having contracted COVID-19, contributed most to deterioration in QoL for participants in this study. By contrast, residing in PSH for 10+ years, high satisfaction with PSH, and access to specialized interdisciplinary teams were found to have a protective effect against a reduction in QoL among PSH residents. The study findings outlined the importance of comprehensive services and the provision of sustained long-term housing in response to the high needs of PSH residents. Adequacy of service use and sustained housing play a key role in improving QoL and would benefit from closer monitoring in a pandemic context.

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