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AUTHOR(S): Abelardo Mares

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AsherLev T Santos, PhD, MPIA		5/6/2019
COMMITTEE CHAIR	SIGNATURE	DATE

Deborah J. Morton, PhD, MA		5/6/2019
COMMITTEE MEMBER	SIGNATURE	DATE

COMMITTEE MEMBER	SIGNATURE	DATE

COMMITTEE MEMBER	SIGNATURE	DATE

The Effects of Housing on General Quality of Life Among Persons With Severe Mental

Illness Who Have Experienced Homelessness

Abelardo Mares

California State University San Marcos

Abstract

Background: Persons with severe mental (SMI) illness who have experienced homelessness are frequently placed into community housing, and have often been overlooked for quality of life assessment (QoL) which considers their subjective experience.

Objectives: Conduct a systematic literature review examining recent literature focusing on supportive and independent community housing provided for persons with SMI to assess if differences exist in the general subjective QoL of residents between housing interventions.

Data sources: Searches were conducted online via the California State University San Marcos library and included Google Scholar, JSTOR, Social Services Abstracts, and PubMed.

Review methods: Searches occurred between February-April 2018 with publication parameters set to 2000-2017 returning 5420 articles. Results were reduced with narrower publication from 2013-2017 to 883. Exclusionary parameters reduced the total to 247, from which articles were reviewed by abstract for relevance. Three articles focused on SMI, QoL, independent housing and three on supportive housing.

Results: The general QoL of SMI persons in independent housing was increased or no worse when compared to SMI persons in non-institutionalized housing or living with family. In supportive housing SMI patients two studies showed improved general QoL while one did not.

Limitations: This systematic literature review included six studies, focused on two housing interventions, providing only an inconclusive snapshot of the body of investigation.

Conclusions: Housing is a vital domain contributing to improved general QoL and is a domain important to these residents.

Future work: Permanent housing and the challenges that homeless SMI persons face in daily life require consideration.

Acknowledgements

List of Tables

Table of Contents

Introduction

The principle goal of this capstone is to conduct a systematic literature review of independent and supportive housing interventions to determine if there is a significant impact on general subjective quality of life for persons with a severe mental illness who have experienced homelessness. A confluence of influencing factors which contribute this outcome are severe mental illness, independent and supportive community housing, and homelessness.

In the past, the general approach to assessing QoL was rooted in a decades-old belief that tangible gain was a measure of improvement. For example, if an individual obtained a new car, or a family having a pool installed at home was regarded as an improvement in QoL. This approach lacked a standardized metric, paid no attention to health or mental assessments, and was designed by providers and researchers without regard to respondents. Assessments have advanced beyond those early years to include a wider variety of tools, including patient-centered approaches involving inclusion of domains vital to the patient.

A background knowledge of homelessness in the United States uncovers the point that homelessness is not a limited problem afflicting a narrow portion of the population. In the United States homelessness is a public health and humanitarian concern. A point-in-time report stated 553,742 people experienced homelessness on any single night during 2017. Among the chronically homeless an estimated one-third are persons with a severe mental illness. After deinstitutionalization began *en masse*, formerly institutionalized individuals began to inhabit community housing.

Homeless populations were once thought of as transitional, emergency, or very far into the "fringes" of society. Presently the picture of this public health concern is entirely different. The National Institute of Health funded a 2010 report which highlights these points. Men

continue to dominate the homeless population, however, there are increasing numbers of women, children, and families. African Americans are disproportionally higher than other minorities. Finally, and more to the point of this capstone; a lack of adequate and reliable housing, as a social determinant of health, compromises the general health, mental health, marital health, financial health, life expectancy and personal safety of those who experience chronic homelessness (Lee et al., 2010).

There is a plethora of literature related to housing and mental illness. However, when the assessment of QoL is integrated, the field becomes burdened by a wide variety of assessment tools and poor standardization of terms. Some studies have approached investigating QoL domains, housing, and SMI, and are deserving of mention because they found that housing was critical to general QoL.

Various studies investigating QoL found that housing played a vital role in the domains important to persons with SMI and in their general satisfaction. In a 1997 study in which the QoL of persons with SMI were assessed, the most commonly addressed domains included living situation, relationships, leisure activity, health, and work ("Measuring quality of life in the mentally ill" n.d.). Another study reiterates that the typical domains of importance in SMI patients are housing, financial situation, leisure activities, work, social relationships, and family (Kemmler, Holzner, Neudorfer, Meise, & Hinterhuber, 1997).

A brief introduction to terms appearing often include subjective quality of life, severe mental illness, homelessness, supportive housing, independent housing, and health related quality of life. A recurring issue with the aforementioned terms is the lack of consistency in standardization often cited in the literature. Terms require specific definition and are addressed relative to their sections for better context. The scope of the topic of this capstone falls well beyond the

definition of a single term listed or of their collective meaning. QoL is a dichotomous and

complex concept with a malleable definition to accommodate research needs. It is generally

understood to assess the improvement, happiness, and satisfaction an individual is experiencing

within objective and subjective domains. QoL assessments pertaining to the benefit of

community housing models were weakly designed, historically coming from practitioner's

perspectives who established the importance of various domains with no regard to the

functionality, practical application, or personal perspective of the SMI resident.

Independent and supportive housing are community-based housing interventions which

aim to accommodate acute and chronically homeless individuals, especially those who suffer

from a SMI. SMI is understood as a manifestation of either schizophrenia and or bipolar

disorder.

SMI is a significant factor contributing to homelessness in the United States.

Consequently, there is an elevated rate of SMI among the homeless compared to the general

population (Benston, 2015). The most common SMIs among the chronically homeless are

schizophrenia and bipolar disorder. The Centers for Disease Control and Prevention (CDC)

proclaims chronic homelessness as a public health concern (Donovan & Shinseki, 2013). A

report regarding homeless persons with SMI states, "Homelessness among individuals with

severe mental illness has been called "the most pervasive manifestation of the failure of public

policy" (Benston, 2015). A national effort to help curb this public health problem is the Healthy

People 2020 initiative.

Healthy People 2020 (HP-2020) is a nation-wide health initiative which strives to achieve

increased longevity, prevent disease and disability, and decrease premature death and health

disparities. HP-2020 is rooted in the domains of economic stability, education, health and health care, neighborhood and built environment, and social and community context. While HP-2020 is not a focused point of study in this systematic review, it requires a mention because it highlights a nation-wide focus on health domains relevant to the point of this study, reaffirming that housing as a health domain remains critical for general health and mental health.

The issue of housing and its impact on the general quality of life (QoL) of persons with severe mental illness (SMI) is an important matter of study for several reasons. First, among systematic reviews there is significant underreporting of the health impact of housing interventions and more specifically the association between housing and QoL outcomes (Gibson et al., 2011).

Second, housing and environment are established social determinants of health and require addressing to reduce health disparity and increase prevention of chronic disease, thus improving general health and quality of life ("Social Determinants of Health | Healthy People 2020," n.d.). Third, persons with SMI who experience homelessness are severely underserved and at an increased risk for chronic disease resulting in a 25-year early mortality compared to the general population (Mauer, n.d.). Moreover, the Center for Disease Control has declared that homelessness is a public health concern that requires attention. Finally, with the process of psychiatric deinstitutionalization, the question began to emerge whether community housing outside of institutionalized facilities actually benefitted the residents and their QoL (Horan, Muller, Winocur, & Barling, 2001). Independent and supportive community-based housing interventions are valuable for study because they provide long-term housing almost exclusively

to persons who are chronically homeless, and also suffer a from a SMI. Thus, contributing to a broader knowledge base, from which future research may take direction.

The core components which form the basic question studied are QoL, SMI, housing, and homelessness. While there are several public health, civic, and humanitarian problems factoring into the larger mosaic of study, the fundamental question is; does independent and supportive housing have a positive impact on the subjective QoL of SMI persons who have experienced homelessness?

The research goal is to determine if independent and supportive housing has a significant impact on the subjective quality of life of SMI residents who have experienced homelessness. The objectives to achieve that goal include differentiation between health-related and mental health QoL assessment tools. Establishing a definition of terms which have historically been indistinct and malleable to academic pursuit; namely, quality of life, homelessness, and housing. Determine if four common domains of health, psychology, social, and environment within a patient-centered QoL assessment are impacted by housing intervention. By striving to achieve these study objectives, the aim is to answer the fundamental question of housing impact on subjective quality of life in persons with SMI who have experienced homelessness.

It is hypothesized that independent housing will have a significantly greater positive impact on the subjective QoL outcomes of persons who have experienced homelessness and with an SMI compared to supportive housing. This idea is supported by the ecumenical principle that all individuals are the best custodians of their fate, desires, and knowledge of what is best suited for themselves. Further, that independent housing allows for greater flexibility in autonomous living and thus contributing to an elevated sense of self-satisfaction, achievement, and reliability.

This capstone adheres to a typical systematic literature review format with sections presented and delineated in the following order: Introduction, Housing is Important, Human Requirements, Housing Rights, Homelessness and Chronic Homelessness, Factors Contributing to Homelessness, SMI an at-Risk Population, SMI, Schizophrenia, Bipolar Disorder, Quality of Life, Health Related Quality of Life, Quality of Life Assessment in SMI, Independent Housing, Supportive Housing, Methods, Results, Independent Housing Results, Supportive Housing Results, Discussion, Limitations, and Implications.

The methodology of this capstone involves approaching the topic as a systematic literature review. Two housing interventions are studied, independent and supportive to achieve the overarching goal of determining if independent and supportive housing has a positive impact on subjective QoL of SMI persons who have experienced homelessness. Among the independent housing three studies were selected, and respectively with supportive housing. A publication parameter of ten years was used to assure that the most recent information, QoL assessment tools, and housing intervention was referenced for relevance.

A set of criteria helped to ensure that articles were meeting standards for inclusion, among them were adults studied, having a SMI of bipolar or schizophrenia, having experienced homelessness, a publication parameter of ten years, and involved independent housing, and supportive housing with a subjective QoL assessment. Databases searched included GoogleScholar, JSTOR, Social Services Abstracts, and PubMed. A strict detailing of returned results was kept, with changes to publication parameters and subsequent returned results. A further filtration of returned results included an exclusionary list, including minors, non-SMI diagnosis, health-related QoL outcomes, disability or cognitive assessment as a primary

outcome, emergency shelters, families, assisted living and retirement homes, nursing homes,

drug and rehab homes.

Housing is Important

During the 1990's, a study was conducted to investigate persons with SMI and their

requirements for community support. A principle element was to assess measures of need,

especially to those domains which provide weight to the self-assessment SMI patients make of

their own lives (Oliver & Mohamamd, 1992). Three different housing settings were considered:

public, private and voluntary. Results showed the various domains were measured and ordered

according to the satisfaction scores, with living situation ranking second for 53-percent of the

respondents. Housing is an established necessity for homeless persons and has been shown to

have an elevated measure of importance from the perspective of the resident with SMI,

validating its role in QoL.

Human Requirements

Abraham Maslow pioneered his Hierarchy of Needs in 1943. Maslow's hierarchical

framework of needs stipulates that self-actualization as a human being can only be achieved

when all other rudimentary needs are satisfied. Maslow's hierarchy is composed of three tiers:

basic, psychological, and self-fulfillment needs. A pyramid schematic, at the bottom are the basic

needs, subdivided into physiological and safety needs. Physiological needs include food, water,

warmth, clothing, and rest. Safety needs include security, and protection. Housing exists among

the most basic needs at the bottom of the hierarchy. Persons afflicted with a SMI also require

basic needs, and perhaps demand a different kind of attention to their requirements because of

the complexity of their psychiatric illness. The fundamental requirement of housing is an

established human need which contributes to the objective and subjective QoL of individuals.

However, housing has not always been priority for members of the general population and disabled persons until legislation ensured that rights to housing were equitable.

Housing Rights

Consistent with the importance of housing as a human necessity, for fifty years the United States Federal and State Governments passed various acts which have resulted in fair and equitable housing for the disabled, including those persons with mental disorders. The 1963 Community Mental Health Centers Act enabled ancillary services to be delivered not just exclusively by medical and psychiatric professionals (Kliewer, McNally, & Trippany, n.d.).

The U.S. Congress' Civil Rights Fair Housing Act (FHA) of 1968 provided federal and state protections against housing discrimination based on race, sex, religion and national origin. In the 1980s, Congress enacted the Americans with Disabilities Act (ADA) prohibiting discrimination against individuals with disabilities, including mental health provisions ("Americans with Disabilities Act" n.d.; Foster, 2002).

The 1999 Olmstead decision was handed down from the U.S. Supreme Court. It made clear that the ADA requires states to place individuals in community settings rather than institutions ("Supreme Court Olmstead decision," n.d.) when three conditions are met: 1) treatment professionals have determined that community placement is appropriate 2) the individual does not object to community placement 3) the placement can be reasonably accommodated (Foster, 2002).

The 2009 Homeless Emergency Assistance and Rapid Transition to Housing Act (HEARTH) consolidates three homeless programs into a single grant program called the Continuum of Care Program (CoC), enacted by HUD. The CoC is a planning process which has

been codified into law to help assist homeless persons with solutions to their acute and chronic

housing needs including emergency shelter with funds provided to local and state governments.

Homelessness and Chronic Homelessness

A definition of homeless is not standardized. The U.S. Department of Health and Human

Services (HHS) defines it in the following way: "an individual who lacks housing . . . ( ) . . . ,

including an individual whose primary residence during the night is a supervised public or

private facility (e.g., shelters) that provides temporary living accommodations, and an individual

who is a resident in transitional housing" ("What is the official definition of homelessness?,"

n.d.).

Chronic homelessness is defined by the federal government as, "an unaccompanied

homeless individual with a disabling condition who has been continuously homeless for a year or

more, or an unaccompanied individual with a disabling condition who has had at least four

episodes of homelessness in the past three years" ("HUD Exchange," n.d.). The federal

government definition of chronic homelessness is most consistent with the general population of

this study.

A 2017 survey by HUD estimated homelessness in the U.S. reporting 553,742 people

experienced homelessness on any single night during 2017, 65% were sheltered and 35% were

unsheltered individuals. The homeless rate in the U.S. is estimated at 17:10,000. Some increases

were reported between 2016-2017 in unsheltered homeless populations and in major cities.

A 2015 report from the National Law Center on Homelessness and Poverty discusses

some frequent causes, citing an insufficient income and lack affordable housing as the leading

cause ("HUD Exchange," n.d.). Other causes include domestic violence, sudden financial crisis,

medical emergencies, natural disaster, substance abuse and addiction, incarceration release,

PTSD, acute mental and severe mental illness.

SMI persons are a population already at increased risk of poor health outcomes and early

mortality even if they are housed. With exposure to homelessness, the risk is elevated for health

and psychiatric problems, including new-onset or undiagnosed chronic disease such as

cardiovascular disease (CVD), diabetes. Since 2016, chronic homelessness has increased by 12%

nationally. California has the largest single share (53%) of the nation's total chronic homeless

("Project HOME," n.d.).

A 2015 congressional research service report in the U.S. estimated the total homeless

population at 564,708. 14% (83,170) were chronically homeless (Perl & Bagalman, n.d.).

Among the chronically homeless, an estimated one-third are persons with a SMI, according to

the Treatment Advocacy Center. The most common SMIs affecting the chronically homeless are

schizophrenia, bipolar disorder, and major depression (Treatment Advocacy Center n.d.).

Factors contributing to homelessness

There is no singular cause of homelessness for all persons, however, some homogeneity

in factors may be present e.g., abuse of both alcohol and illicit drugs. Common factors leading

one to homeless can include substance abuse and addiction, incarceration, criminal recidivism,

cognitive deficiencies, chronic or acute disease, sudden financial hardship, and victimization

from domestic abuse.

For many persons with a SMI, the factors are interrelated and can by cyclical. One study

claims that there appears to be a relationship between SMI disorders and criminal behavior

(Harte, 2015), which can create a cyclical pattern of incarceration and homelessness. Lastly,

Since the 1970's the process of deinstitutionalization has rehoused SMI patients from psychiatric

institutions into communities (Kliewer, McNally, & Trippany, n.d.), and thereby allowing these patients to make independent decisions with little supervision and increasing the risk of homelessness and chronic homelessness.

What is common to all factors contributing to homelessness is the interrelatedness among them. Factors can include environmental, personal and social, with the constituent parts of each potentially affecting another domain. As an example, a personal experience of divorce may lead one to abuse illicit drugs, provoking criminal behavior and leading to incarceration and a state of homelessness upon release with potential for recidivism. Image 1 is a simple schematic of common influencing factors contributing to homelessness among persons with SMI. QoL is a direct result of the confluence of the various contributors to homelessness though some domains may be objective such as finances and others subjective domains such as divorce.

Severe Mental Illness an at-Risk Population

Persons with SMI are at an increased risk for chronic illness including CVD, renal disease, diabetes, obesity, and hyperlipidemia (Medved, Jovanović, & Popović Knapić, 2009; Osborn, Nazareth, & King, 2006; Lack, Holt, & Baldwin, 2015; Kreyenbuhl et al., 2006; Barnett et al., 2007; Heald et al., 2017).

Behavioral and lifestyle choices made by SMI persons contribute to an increased risk of chronic disease. SMI persons are more likely to smoke cigarettes, engage in chemical substance abuse, alcohol abuse, lack of exercise, have poor medication compliance, and make poor dietary choices (Chrystal et al., 2015; Ratliff et al., 2013; "Role of Gender…," n.d.).

Social factors contributing to poor general health include lack of adequate housing and reliable transportation, a lack of social networks, stigmatization, incarceration, and a lack access to primary and preventive care services (Lawrence & Kisely, 2010; Chrystal et al., 2015;

"Mentally Ill Persons in the Criminal Justice System," n.d.). SMI persons have a 2-decade earlier

mortality than the general public and die most commonly from CVD than any other disease

(Ratliff et. al. 2013; Correll et. al. 2015).

Image 1. Inter-related factors contributing to homelessness
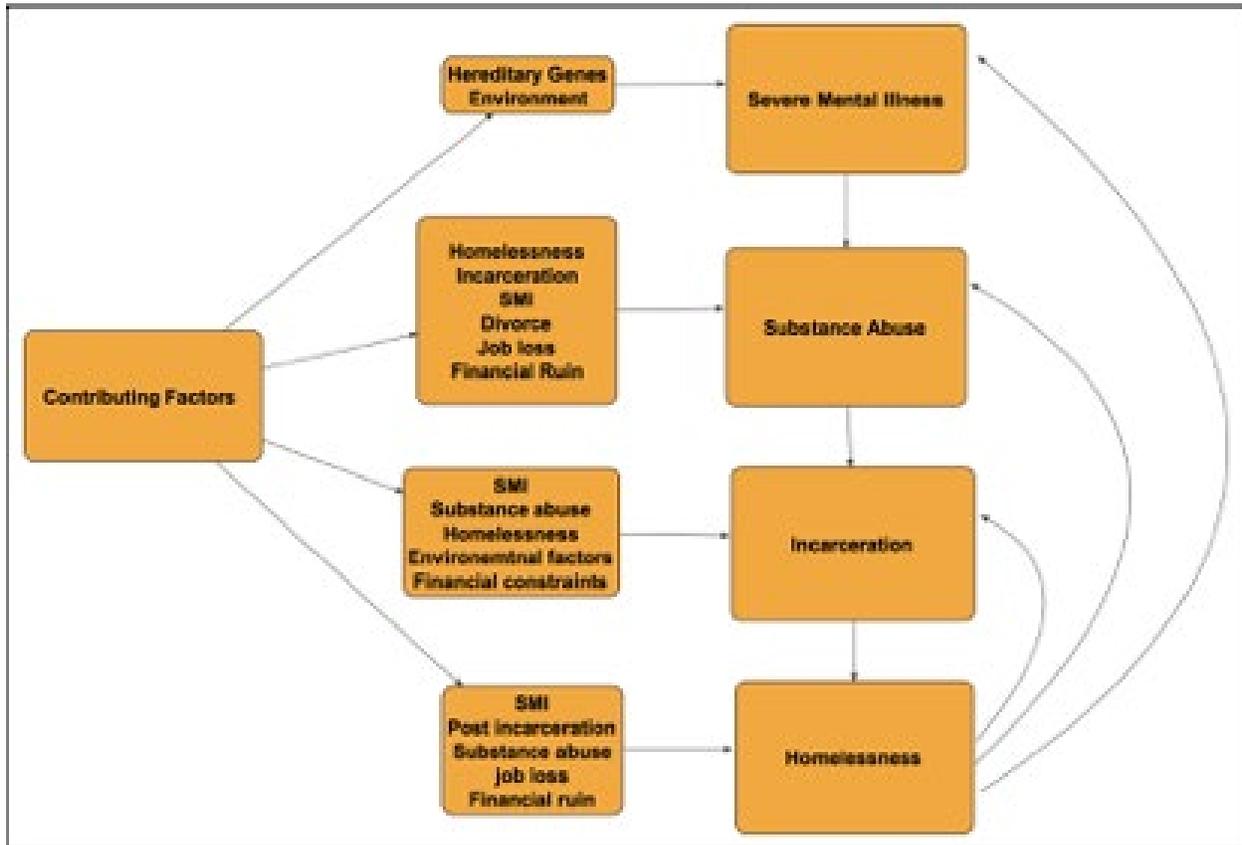
Severe Mental Illness

Mental illness is broadly categorized into two groups, Any Mental Illness (AMI), and

Severe Mental Illness (SMI). AMI is the category that includes all the forms of mental illness as

outlined in the Diagnostic and Statistical Manual, 5th ed (DSM-V). The most common mental

illnesses are anxiety and depressive disorders ("Types of mental illness," n.d.).

A subcategory of AMI, SMI was estimated to have afflicted approximately 10.4 million

adults in the United States in 2016, totaling around 4.2 percent of the total U.S. adult population

("Key Substance Use and Mental Health Indicators in the U.S.: 2016 National Survey on Drug

Use and Health," n.d.).

SMI includes those disorders which produce psychotic symptoms, such as schizophrenia,

bipolar disorder, and major depression. The National Survey on Drug Use and Health (NSDUH)

defines SMI as having distinct components: 1) mental, behavioral, or emotional disorder 2)

diagnosis within the past 12 months and 3) having met a duration of time to qualify for

diagnostic criteria outlined in the DSM-V ("NIMH »SMI Among U.S. Adults," n.d.; American

Psychiatric Association, 1998).

Schizophrenia

Schizophrenia is characterized by interfering in thought processes, as well as with single

or multiple perceptions, including problems with social and emotional dynamics (American

Psychiatric Association, 1998). Other symptoms include hallucinations, thought disorder,

delusions, decreased motivation, and motor and cognitive deficits. Schizophrenia is usually

persistent throughout life, it can become complicated and disabling of the individual, especially

if left untreated (Reddy, Goudie, & Agius, n.d.; de Haan, Linszen, Lenior, de Win, & Gorsira,

2003).

The symptoms of schizophrenia are categorized into four broad types: positive

(psychotic), negative, cognitive and mood. Positive symptoms include hallucinations, delusions,

erroneous beliefs and perceptions, and disordered speech. Negative symptoms include apathy,

loss of usual interest, flat affect, poor facial or verbal expressions, and a loss of pleasure.

Cognitive deficits include decreases in attention and psychomotor control, and difficulty with

internal processing of information, and memory deficits. Mood symptoms reflect those

associated with anxiety, depressions and anger (American Psychiatric Association, 1998;

"Severe Mental Illness | Behavioral Health Evolution," n.d.).

SMIs that produce distortions of perception, delusions, hallucinations, and unusual

behaviors are often called thought disorders. Those disorders which have a loss from reality, are

also known as psychotic disorders. Schizophrenia is the most common thought disorder. It is not

a "split personality" or a "multiple personality" ("Severe Mental Illness | Behavioral Health

Evolution," n.d.). The prevalence of schizophrenia in the U.S. is estimated to be as high as 1.2

percent of the total population ("Schizophrenia Symptoms, Patterns and Statistics and Patterns,"

n.d.).

Bipolar Disorder

Bipolar disorder is characterized by cycles of symptoms such as extreme mood swings,

mania, delusions of grandiosity, insomnia, euphoria, and irritability. Changes in symptoms are

often dramatic in their extremes and include changes in behavior and energy. A "mixed state" in

bipolar disorder is a cycle between severe depression and manic behavior. Manic symptoms

include insomnia, swollen self-esteem and grandiosity, rapid thought processing, increased

verbal interaction, and increased high-risk sexual activity (American Psychiatric Association,

1998; "NIMH » Bipolar Disorder," n.d.).

Biploar-I disorder is characterized by episodes of mania lasting a minimum of seven

days, or a constellation of symptoms severe enough to warrant hospitalization. Depressive

symptoms can co-occur lasting a minimum of two weeks. Bipolar-II disorder is a similar form of

bipolar-I with a lesser intensity of symptoms, and a more prevalent hypomania.

Psychosis is a manifestation of a loss of perception of reality. Symptoms include hallucinations, paranoia, difficulty understanding, incoherent speech, erratic behavior, insomnia, and withdrawal. Psychotic episodes can accompany bipolar and schizophrenic disorders (APA, 1998 n.d.). The National Institute of Mental Health reports the prevalence of bipolar disorder among adults in the U.S. at 2.8 percent of the total population.

Quality of Life

The objective of this study is to determine if QoL is impacted by housing in a SMI population. Longstanding issues with QoL assessments have been plaguing the advancement of study due to poor definition of terms, a myriad of assessment tools, uncertainty of functionality and application of the assessment tools, and the historic lack of patient-centered assessments. However, the latter is a recognized and emerging shift in SMI QoL assessments.

QoL is a generic term which serves to describe the impact of subjective and objective experiential domains on the lives of individuals ("Concept | HRQOL | CDC," n.d.). QoL is entirely subjective by most standards of human experience, consequently, a consensus of definition within academic and professional settings has been challenging. Franz, Fritz, Gallhofer, & Meyer, 2012, describes the term as "equivocal with substantially different meanings," lacking a "single scientific construct," often requiring a redefinition before each use.

Another study states a definition of QoL remains "elusive" and "creating problems in the comparison of findings from cross-national surveys, and therefore stressing the need to apply common criteria when exploring the concept of QOL" (Gaite et al., 2002).

Functionality in QoL assessment has also been highlighted. It has been argued that a better theoretical foundation on this concept is required in all applicable fields. One very striking statement reads: "one is irritated by the myriad of different instruments and it remains

questionable how valid and comparable research results obtained with different instruments are"

(Katschnig, 2006). And another author, "interpretation of subjective quality of life findings are

typically complicated, even confusing" (Prince and Prince 2001).

"Conceptual challenges" inherent in the evaluation SMI patients is brought to the fore by

another study, admonishing that appropriate outcome measures that reflect the problems faced by

this population is lacking (Lehman, n.d.). A systematic literature review on the study of QoL in

bipolar disorder concluded that there was no evidence of a consensus of definition of QoL in

bipolar disorder (Morton, Michalak, & Murray, 2017).

There are many QoL tools, to the point of becoming nearly unable to discern which to

use. One author notes that QoL assessment in mental health is becoming increasing popular,

"with multiple instruments existing, the conditions for choosing one instrument over another for

purposes of a specific study are not clear" (Prigent, Simon, Durand-Zaleski, Leboyer, &

Chevreul, 2014).

This same study also states, "A consensus about common QoL instruments must be

reached to facilitate the choice of instruments, the comparison of results and thus to have an

impact on clinical and policy decision-making." Table 1 highlights QoL instruments used in

psychiatric assessment, and frequently used QoL instruments focusing on health care outcomes

are listed in Table 2.

The determination of domains in the assessment tools and questionnaires used for general

health and SMI persons have been dependent on the direction of literature and care professionals.

Current trends emphasize the inclusion of direct input from patients ("The development of the S-

QoL 18," n.d.).

Table 1. Quality of life tools used in psychiatric assessment

Instrument	Description
Quality of Life Scale (QLS)	Adapted for use in chronic illness groups. Used for persons with a SMI
Symptom Questionnaire (4DSQ)	Assessment tool that covers four psychiatric dimensions: general distress, depression, anxiety, somatization. Self-rating questionnaire.
Lancashire Quality of Life Profile (LQoLP)	Self-rating, multiple dimensions. Focusing on patient definition of QoL.
SmithKline Quality of Life Scale (SBQOL)	Useful in persons with depression.
Quality of Life in Depression Scale (QLDS)	The first depression-specific tool
Quality of Life Inventory (QOLI)	Satisfaction/importance is self-rated. Based on effectiveness of their needs, goals, and wishes are being met.
Quality of Life Enjoyment and Satisfaction Questionnaire (Q-LES-Q)	Useful for depression patients.
Quality of Life Interview (QOLI)	Evaluates subjective and objective components of QoL. Provides broad coverage of relevant and distinct domains of QoL.
Quality of Life Index for Mental Health (QLI-MH)	For measuring QoL in SMI patients. Self-administered questionnaire.
World Health Organization Quality of Life (WHOQOL-BREF)	Abbreviated version of WHOQOL-100. Accepted in routine evaluations. Useful in studies that require a brief assessment of QoL.

Table 2. Quality of life tools used in health-related assessment

Instrument	Description
ShortForm (SF-36D)	For routine monitoring and assessment of care outcomes. The most commonly used instrument for general health in the US.
ShortForm (SF-6D)	The SF-6D is a revised form of SF-36D. There are six dimensions of health.
Euro-5D 3L	Measures of quantitative health outcome are determined by respondents.
EQ-5D	Commonly used instrument for measuring general health status. Quality Adjusted Life Years (QALY) can be determined from this assessment.
Visual Analogue Scale (VAS)	An addition to EQ-5D. Used to achieve a distinction between of symptom severity and disease control.

A 2001 study highlights limitations in QoL assessment, in particular whether instruments are patient centered. The question raised was is the instrument able to measure what it intends to measure, to assess an individual's personal QoL, their uniqueness (Carr & Higginson, 2001). The authors repeat that assessment tools are administered with domains which are not selected by patients, a contention commonly repeated (Prince & Prince, 2001).

Health Related Quality of Life

Around the 1950's, the World Health Organization had implemented a bio-psycho-social model in its definition of health. In subsequent QoL assessment tools, the domains within the models of Health Related Quality of Life (HRQOL) have been determined by the researchers and not by respondents. Many of the approaches of QoL assessment are focused on health-related outcomes, while important, are limited. The EQ-5D, WHO-5, and SF-6D are generic single-

aspect assessments focusing on physical health and are not necessarily helpful for assessing

subjective QoL in SMI persons. The Medical Outcomes Study Short-Form General Health

Survey is used in diabetes research without consideration to SMI (Connell, O'Cathain, &

Brazier, 2014; Katschnig, 2006).

Quality of Life Assessment in Severe Mental Illness

There are scant numbers of tools specifically assessing the QoL in the SMI patient with at

least one domain being housing from the perspective of the patient. Girard et. al. states

unequivocally that the only QoL scale validated for homeless people with severe psychiatric

disorders is the Lehman Quality of Life Interview.

The assessment of QoL among SMI patients has become increasingly important as it

pertains to outcomes and interventions in research and treatment (Barnes, Murphy, Fowler, &

Rempfer, 2012). Another author echos a similar idea on the importance of adequately measuring

QoL in persons with SMI, and further states that these types of assessments are not seldom

carried out for reasons including a lack of efficiency, ease-of-use, and an issue with valid

measurement instruments (Greenley, Greenberg, & Brown, 1997). SMI patients require as much

attention to their objective and subjective needs assessment and perhaps more owing to their risk

profile for chronic disease and shortened life-span.

Independent Housing

Residential Care Facilities (RCF) are licensed by the Department of Social Services (DSS)

and are known by other names including board and care, and group homes, independent living,

and retirement homes. Board and cares are private for-profit homes for adults seeking long-term

residency, but who do not require daily medical or psychiatric services. Residents may attend day-

care services at off-site facilities where they can engage in socialization, learning, and physical

therapy. State licensing agencies oversee the compliance of these facilities with health and safety

regulations, however, no oversight is required for a facility's integration of treatment programs

(Foster, 2002).

Small RCFs are those which have six or fewer residents and are considered as single family

residences, are often operated by the home's proprietor, which limits local government fees and

restrictions. Large RCFs often employ staff to run daily operations and contain at least seven

residents, up to 100 or more. Larger facilities are subject to local ordinances and zoning rules, and

obtaining permits such as health department permits for food services (Foster, 2002). RCFs and

related independent housing does not provide counseling or treatment for alcohol and drug

addiction and recovery.

Supportive Housing

Supplemental housing aid for the chronically homeless are varied. Supportive Housing

(SH) operates with the intent to provide affordable housing to the chronically homeless with the

aid of ancillary support services, case managers, and social workers. SH works as a means to

deliver increased housing access and stability, and thereby lowering the potential for exposure to

disease such as HIV.

HUD funds various homeless programs consolidated by the HEARTH Act. These are the

Supportive Housing Program, Shelter Plus Care Program, and the Continuum of Care Program.

Housing First (HF) and Permanent Supportive Housing (PSH) are SH models in current use and

have histories of assistance for SMI persons. Like IH, SH is not limited to one type of physical

housing, a variety are employed including apartment buildings, transitional housing, community

residences, congregate housing, and single room occupancy.

HF, like other approaches in SH, aims to connect recipients and residents with the highest need to housing that is long-term. It involves project and community-level dimensions. The underlying principle of HF is that all persons are "housing ready" at any time, and until this need is met initially, any progress in other domains by the recipient will be hampered.

PSH is akin to HF in much of its design. Key PSH elements are affordability, residential permanence, extended support services are made available as needed, and participation in them is not mandatory. The U.S. Interagency Council on Homelessness states that PSH is a successful model for persons discharged from "institutional and restrictive settings" (USICH, n.d.).

Methods

This is a systematic literature review with an objective of understanding the impact of IH and SH on general QoL in SMI persons who have experienced homelessness. Searches were conducted between February-April, 2018. All initial searches had a set date parameter of 2000-2017 because post-deinstitutionalization IH and SH have evolved since the 1980's and largely serve persons with SMI, lending maturity and relevance.

Searches included the key terms of homelessness, quality of life, severe mental illness, housing, supportive housing, independent housing, schizophrenia, bipolar, and were conducted on databases including Google Scholar, PubMed, JSTOR, and Social Services Abstracts. Search terms were chosen through observation of similar and equal terms used in prior studies and established MeSH terms linked to the study of homelessness, housing, QoL, and SMI. Search terms were used combination because singular search entries such as "severe mental illness" or "severe mental illness" were too vague and returned tens-of-thousands of results. The approach was to include specific terms that were relevant to the subject, producing high-yield results. Image 2 is a flow chart of the methodology of study search and selection

Image 2. Method of study selection

Initial Search
Terms used: homeless, severe mental illness, housing, quality of life
Publishing parameter 2000-2017

Google Scholar	JSTOR	Social Services Abstracts	PubMed	Initial search total
1236	3223	712	69	5420

Parameter reset 2015-2017	Parameter reset 2013-2017	Parameter reset 2015-2017	No change
"Schizophrenia" and "bipolar" were put in place of "severe mental illness"	"Schizophrenia" and "bipolar" were put in place of "severe mental illness"	"Schizophrenia" and "bipolar" were put in place of "severe mental illness"	69
Total 402	Total 286	Total 126	

Reduced total after narrowed parameters and inclusion of MeSH terms schizophrenia and bipolar. Plus unchanged search.

883

883 scanned for exclusionary criteria.

Minors, non-SMI diagnosis, mental retardation, health-related QoL assessments or outcomes as primary focus, disability assessment as primary outcome, cognitive assessment as primary outcome, emergency shelters, transitional shelters, families in need, retirement homes, assisted living homes, hospice care homes, nursing homes, housing in which residents required daily assistance with nursing, medication administration, or activities of daily living, alcohol and substance treatment housing, duplicate studies, QoL assessments which are not deemed valid by research consensus, non-homeless residential status, and non-peer reviewed articles including newspapers, magazines, and book chapters

Total remaining: 247

Six studies selected from 247

Three studies were selected based on having met inclusion criteria of supportive housing, participants with a diagnosed SMI who have experienced homelessness, and an assessment of subjective or general QoL.

Three studies were selected on the same conditions with independent housing in place of the supportive housing component.

An initial Google Scholar searched inputted the search terms "severe mental illness" AND "housing" AND "quality of life," returning 1300 articles. With an increasing smaller publication parameter set to 2007-2017 and 2015-2017, returns were 1160 and 228 respectively. Search terms in Google Scholar were then changed to "schizophrenia" AND "housing" AND "quality of life," to assist in narrowing the broader term of "severe mental illness."

Results returned 2530 articles, when narrowed to 2014-2017, results were decreased to 487. Terms were searched using "bipolar" AND "housing" AND "quality of life," with 1530 results, again, with a narrowed publication window between 2015-2017, this was reduced to 354 results. "Schizophrenia" AND independent housing" AND "quality of life" returned 89 articles and "schizophrenia" AND "supportive housing" AND "quality of life" returned 78, both with a

publication parameter set between 2000-2017. A total of 1236 articles were summed, subtracting

834 for all exclusionary criteria and duplicates left 402.

Searching the Social Services Abstracts database with the terms "severe mental illness"

AND "housing" AND "quality of life" returned 874 articles, reduced to 166 with a 2015-2017

parameter. Using a combination of terms including "schizophrenia," independent housing,"

"quality of life," bipolar," severe mental illness," and "independent living," on four subsequent

searched returned 546 articles, with a total of 712 were found. After exclusionary applications

and duplicates removed, 126 studies remained.

"Severe mental illness" AND "supportive housing" AND "quality of life" returned 1186

articles for a publication range between 2000-2017 using JSTOR. This return was reduced to 156

by narrowing the range to 2010-2017. Similarly, "Severe mental illness" AND "independent

housing" AND "quality of life" returned 2037 articles, reduced to 130 with a publication range

between 2013-2017. PubMed searches returned the fewest results with a combination of search

terms including "severe mental illness," "housing," 'quality of life," "schizophrenia," and

bipolar," showing a total of 69.

Inclusion criteria included a diagnosed SMI, bipolar or schizophrenia, individuals who

have experienced homelessness per the HUD definition, current homelessness, studies of adult

populations, studies which employed a validated QoL assessment tool, and studies which were

published between 2000-2017. The design of selected studies were not critical to this systematic

review, however, preference was given to longitudinal, cohort, and cross-sectional studies

because of the ability to make a comparison either across time or groups.

All returned studies were reviewed for duplicates and by abstract for relevance. Six

studies were chosen. Three met the inclusion criteria and were specifically focused on

independent housing with SMI persons and QoL assessment. Another three studies also met

criteria and focused on supportive housing with SMI persons and QoL assessment. Exclusionary

criteria were studies before the year 2000, minors, families, emergency transitional housing, and

substance abuse and recovery homes, health-related QoL focused assessments, or outcomes not

focused on general QoL, and QoL assessment tools not in current use.

Results

All studies met inclusion criteria of a general QoL assessment, a diagnosed SMI

population, a history of homelessness or current homelessness, publication between 2000-2017,

and a housing setting conforming to either supportive community housing or independent

community housing.

A synopsis of three studies focused on IH is on table 3. Seven countries represent the IH

studies. All three are cross-sectional studies, two studies used the WHO-QOL Bref assessment,

while the third used the Lancanshire Quality of Life Profile (LQOLP). A consolidation of the SH

studies are found on table 4. Study design included longitudinal, randomized control trial, and

quarterly interviews. QoL instruments included the Quality of Life Inventory 20 item (QOLI-20),

Lehman's Quality of Life Interview and sub-scales of Lehman's QoL Interview. Two countries

in North America were the origin of the three SH studies.

Of primary interest is the general QoL assessment as an outcome of housing intervention.

The subjective domains of health, psychology, social, and environment were common to all of

the QoL tools used. It should be noted that nomenclature denoting these and similar domains

varies, such as health, well-being, general psychological, social relationships, networking,

relationships, housing, living arrangements, and living situation.

Table 3 Independent housing studies

Authors	Title	Year	Study Design	Aim	QoL Instrument	Country of Origin
Van der Plas, Hoek, van Hoeken, Valencia, & van Hemert	Perceptions of QoL and disability in homeless persons with schizophrenia and persons with schizophrenia living in non-institutional housing.	2012	Cross-sectional	Explore the self-perceived QoL of homeless persons with schizophrenia and persons with schizophrenia in non-institutional housing.	WHO-QOL-Bref	The Netherlands
Picardi et al.	The QoL of the mentally ill living in residential facilities: findings from a national survey in Italy.	2006	Cross-Sectional	Subjective QOL of patients in residential facilities	WHO-QOL-Bref	Italy
Hansson et al.	Living situation, subjective QoL and social network among individuals with schizophrenia living in community settings.	2002	Cross-sectional	Relationships between the living situation in the community and subjective QoL and social network among community-based individuals with schizophrenia.	Lancashire Quality of Life Profile (LQOLP)	All 5 Nordic Countries: Denmark, Sweden, Finland, Norway, Iceland

Summaries of results of independent and supportive housing studies are on tables 5 and 6

respectively. Most striking is the unexpected result of a higher QoL reported by homeless

persons compared to persons who were housed in a non-institutionalized setting (Van der Plas et

al.). A second IH study concluded that QoL was not any worse among SMI persons in RCFs

compared to SMI persons living independently or with family (Piacrdi et. al.). An expected result

was reported in persons with SMI in IH, as having an increased QoL associated with various

subjective domains (Hannson et. al.).

Two of the three IH studies were consistent with prior studies showing that general QoL

improves with housing, while one study speculated the unexpected finding of increased QoL in

homeless SMI persons compared to non-institutionalized housed SMI persons to the experience

of homelessness and freedom from responsibility roles imposed expected in community living.

The SH studies include a 1-year follow-up study comparing HF and TAU groups. Both

HF and TAU residents had an increased general QoL (Aubry), however, the HF residents did

have an increased general QoL score when compared to TAU residents. A second SH study

focused on QoL as a primary outcome in adults who transitioned to PSH, reporting that overall

QoL did not improve, although some domains showed increases from baseline to follow-

up (Henwood).

The third SH study examined housing features important to the residents with SMI and

the relationship between those features and QoL. Results reported that housing features

preferences are not surprising and positively associated with QoL (O'Connell et. al.). All three

SH studies revealed improved general QoL.

Independent Housing Results

Van der Plas et. al. examined QoL and disability between two groups, homeless persons

with SMI, and SMI persons in non-institutionalized housing. The expected outcome was that

homeless persons would report a decrease in perceived general QoL, after controlling for

variables. Results of this study reported that homeless persons with schizophrenia were more

Table 4. Supportive housing studies

Authors	Titile	Year	Study Design	Aim	QoL Instrument	Country of Origin
(Aubry et al.)	One-Year Outcomes of a RCT of Housing First With ACT in Five Canadian Cities	2015	Nonblind, parallel-group RCT	Comparing Housing First with treatment as usual.	QOLI-20	Canada
(Henwood, Matejkowski, Stefancic, & Lukens)	QoL after housing first for adults with SMI who have experienced chronic homelessness	2014	One-year longitudinal	Adults who have transitioned from homelessness to PSH, focusing on QoL as a primary outcome	Lehman's Quality of Life Interview	USA
(O'Connell, Rosenheck, Kasprow, & Frisman)	An Examination of Fulfilled Housing Preferences and QoL among Homeless Persons with Mental Illness and/or Substance Use Disorders	2006	Secondary data analysis; quarterly interviews; follow-up interviews every 3 months up to 5 years	Housing features considered important to homeless persons with a mental illness and the relationship between important features in subsequent housing and subjective QoL, clinical and housing follow-up	Subscales from the Lehman QoL Interview	USA

satisfied with their general QoL than persons with schizophrenia who resided in non-

institutionalized housing.

The subjective QoL scores were significantly different only on the health domain (p =

.000) among the homeless SMI group compared to the SMI non-institutionalized housed group.

Other domains in the WHO-QOL-Bref included general health, psychological, social

relationships and environment. When adjusted for variables, no other domain was found to be

significant among those with SMI either homeless out housed. Table 7 is a synapsis of mean

subjective QoL scores in five domains for the Van der Plas study.

Table 5. Summary of Independent Housing QoL Results

Study Authors(s)	Domains				
	Health	Psychology	Social	Environment	General QoL
Van der Plas et al.	Non-housed homeless report better QoL than housed	No significant difference	No significant difference	No significant difference	Homeless persons with SMI were more satisfied with their general QoL than persons with SMI in non-institutionalized housing
Picardi et al.	p<.05 between homeless and control; No difference between homeless and outpatient (housed)	p<.05 between homeless and control; No difference between homeless and outpatient (housed)	p<.05 between homeless and control; No difference between homeless and outpatient (housed)	p<.05 between homeless and control; No difference between homeless and outpatient (housed)	No worse QoL among SMI residents living in RCFs compared to outpatients living independently or with family
Hansson et al.	Independent housing had better satisfaction over all housing aspects	Independent housing had better satisfaction over all housing aspects	Independent housing had better satisfaction over all housing aspects	Independent housing had better satisfaction over all housing aspects	Persons with SMI in IH have increased satisfaction in all areas measured

Because the authors of this study could not isolate a definitive relationship to explain

unexpected results, other than to assert that non-institutionalized housed persons with SMI had

decreased general QoL and disability than persons with SMI who were homeless. The authors

speculated that the subjective experience of homelessness may play a part in these findings

because they may feel less restricted by the "obligations to society" and find an "escape" from

the effort of being sick.

Another potential explanation postulated is the possibility that homeless persons with

SMI may favor their homeless status and autonomy while living on streets, in place of more

complicated roles within a structured societal framework. Moreover, society may place a burden

on this population that cannot be realistically met for some. Finally, the effects of

"medicalization" and stigmatization may also influence the subjective QoL perceptions of a

population with SMI.

In the 2006 Picardi study, SMI patients in RCFs were randomly selected from fifteen

regions in Italy. This study contrasted the QOL scores of RF residents to those of control group

of healthy persons and a group of SMI outpatients. Average QOL scores of RF residents were

close to those of SMI outpatients, and less than the healthy control group. ANCOVA analysis

was performed to compare mean scores on the WHOQOL-Bref domains. This study found that

persons in RFs had lower QoL levels when compared to healthy persons. Tables 8 and 9

highlight the statistical mean scores and for variables associated with WHOQOL.

Mean scores are similar in persons living in RCFs and outpatients with SMI. Males and

increased age are associated with higher scores on the environment domain. The variables of

diagnosis, disability, negative and mood symptoms were significantly associated with QOL. The

Piacrdi study uncovered no worse QoL among the residents who lived in IH RCFs when

compared to outpatients living independently or with family. The idea postulated was that it may

be due to the homelike environment of these particular European IH RCFs, the authors also

suggest that the size of personal and communal space may have had an impact of QoL, in

conjunction with a limited number of residents per facility. Citing prior studies, these authors

contend that with less restrictive treatment setting, the better the QoL outcomes.

Table 6. Summary of Supportive Housing QoL Results

Study Authors(s)	Domains				
	Health	Psychology	Social	Environment	General QoL
Aubry et al.	Improved score	Improved score	Improved score	Highest increase	1-year follow-up showed residents of HF had improved general QoL, as well as in TAU recipients. The overall QoL increase was greater in the HF residents
Henwood et al.	Increased domain score	Increased domain score	Increased domain score	Highest increase at time-2	Overall QoL was found to not have improved although various domains showed increases from baseline to T2.
O'Connell et al.	One year follow up associated with improved QoL	One year follow up associated with improved QoL	One year follow up associated with improved QoL	One year follow up associated with improved QoL	The degree of housing features preference is positively associated with QoL

Hannson et. al. studied relationships between independent community living

arrangements and subjective QoL, and social networking in SMI persons. Participants were from

ten different RCFs and were interviewed about their perception of QoL. Results showed that

persons with SMI in IH have increased QoL. Increased self-perception in the domains of

privacy, influence, and independence were also present. Living alone or with family both showed

an improved impact on social networking. Approximately sixty percent of the participants of this

study lived alone, including rented houses and apartments. Approximately twelve percent lived

with family. IH was found to be related to improved satisfaction with multiple aspects of their

housing accommodations.

Table 7. Mean QoL scores, Van der Plas et. al.

Domains	Homeless M (SD)	In Housing M (SD)	p
General Health	13.2 (3.2)	12.4 (3.4)	0.587
Health	15.0 (2.5)	12.2 (1.8)	0.000
Psychological	13.7 (2.8)	12.9 (2.0)	0.149
Social Relationships	11.7 (3.6)	12.5 (3.9)	0.582
Environment	13.9 (2.9)	13.1 (2.7)	0.192

Scores among all three groups showed very little discernible difference in satisfaction

with aspects of housing. Generally, persons who were living independently had increased

satisfaction across all domains, with independence being the most consistent across all living

situations (table 10).

Table 8. Group QoL mean results, Picardi et. al.

Domains	Homeless M (SD)	In Housing M (SD)	Control Group M (SD)	ANCOVA F Housed v Homeless	ANCOVA F Housed v control
Physical	58.1 (16.7)	60.5 (15.7)	79.5 (12.1)	1.5, $P = 0.21$	76.3, $P < 0.001$
Psychological	53.7 (17.8)	52.0 (15.8)	70.9 (14.1)	3.3, $P = 0.068$	64.7, $P < 0.001$
Social	50.6 (18.2)	49.2 (21.2)	67.0 (17.0)	1.7, $P = 0.19$	25.3, $P < 0.001$
Environment	54.1 (15.7)	51.8 (15.7)	60.5 (12.5)	0.001, $P = 0.97$	7.7, $P = 0.006$

Table 9. MANCOVA for variables associated with WHOQOL scores, Picardi et. al.

Domains	Diagnosis	Negative Symptoms	Mood Symptoms	Physical Disability	Activity Participation
Physical	0.001	0.001	<0.001	<0.001	0.269
Psychological	0.001	0.007	<0.001	0.095	0.443
Social	0.015	0.018	0.031	0.785	0.014
Environment	0.307	0.001	0.007	0.532	0.057

Table 10 Satisfaction with housing aspects, Hansson et. al.

Domains	Independent Living n=290 M (SD)	Living with family n=78 M (SD)	Living Alone n=251 M (SD)
Privacy	5.39 (1.32)	5.31 (1.34)	5.40 (1.33)
Influence	5.15 (1.41)	5.27 (1.30)	5.01 (1.47)
Independence	5.44 (1.24)	5.15 (1.35)	5.49 (1.22)
Housing arrangement	5.13 (1.49)	5.09 (1.48)	5.11 (1.41)

Subjective QoL mean scores showed the lowest in finances 4.17 (SD = 1.57) in the 'living alone' housing group, and the highest score in both personal safety 5.19 (SD = 1.17) and family relations 5.19 (SD = 1.08) among in the 'living with family' group (table 11). Persons living with family had higher mean scores for overall QoL compared to independent and living alone housing groups. 20-percent of the sample was living with family, which is incongruous with prior research indicating that the majority of SMI persons return to live with family, the authors state.

For the groups studied, those who lived in independent living situations were found to have more consistently improved associations with various elements of housing when compared to the other groups of living alone or living with family. The living independent group also had

better perceived independence, influence, and satisfaction with privacy. The life domain living

situation was better perceived in this same group as well. A key factor in is the self-perception of

autonomy and its relation to living situation and perception of QoL, per these authors.

Supportive Housing Results

The Aubry et. al. study is a randomized control trial which compared two SH approaches,

Housing First (HF) and treatment as usual (TAU) of persons with SMI. TAU is what a person in

need would normally receive in terms of housing and ancillary services without stated

preferences from the resident. Participants were assessed at baseline, six and twelve-month

follow-up. At one-year follow-up, results showed that residents of HF had improved general

QoL, as well as in TAU recipients. The overall QoL increase was greater in the HF residents.

Baseline global QoL mean scores were similar for both groups, and farther apart on the 12-

month follow-up. Mean scores and confidence intervals for the domains measured on the QOLI-

20 assessment tool are on table 12.

Subjective QoL-specific domains with notable improvement were in finances, and social

and family relations for both HF and TAU residents. All subjective QoL domains improved for

both groups between baseline and the 12-month follow-up. However, the difference between the

two groups was not dramatically different. Other noted improvements not part of a subjective

QoL assessment were in housing stability and community functioning, improvements were

greater for HF compared to TAU residents. The authors report that the treatment effects did not

significantly alter QoL outcomes with the sole exception of the safety subscale. Interestingly, the

authors also note that the finding of HF residents improvements in "observer-rated" community

functioning within the first year of intervention when compared to TAU had not been reported in

prior studies.

Table 11. Subjective QoL by living situation aspects Hansson et. al.

QoL Domains	Independent Living n=290 M (SD)	Living with family n=78 M (SD)	Living Alone n=251 M (SD)
Work	4.56 (1.55)	4.70 (0.73)	4.70 (1.54)
Leisure activity	4.77 (0.91)	4.70 (1.01)	4.77 (0.86)
Religion	5.04 (1.15)	5.17 (1.03)	5.08 (1.15)
Finances	4.21 (1.56)	4.35 (1.50)	4.17 (1.57)
Living situation	4.74 (0.84)	4.78 (0.85)	4.69 (0.86)
Personal Safety	5.03 (1.18)	5.19 (1.17)	5.00 (1.20)
Family relations	4.90 (1.27)	5.19 (1.08)	4.82 (1.30)
Social relations	4.52 (1.17)	4.51 (1.28)	4.56 (1.11)
Health	4.52 (1.10)	4.54 (1.12)	4.53 (1.09)
Global well-being (GWB)	4.46 (1.18)	4.41 (1.29)	4.55 (1.11)
Overall QoL	4.70 (0.73)	4.74 (0.78)	4.70 (0.70)

Henwood et. al. is a longitudinal study following SMI patients who had gone from a homeless state into Permanent Supportive Housing (PSH). QOL was measured as a subjective outcome. Baseline and 12-month follow-up interviews were conducted. PSH was significantly associated with several domains of QoL. Table 13 highlights pertinent mean scores in domains of QoL at baseline (T1) and 1-year follow-up (T2).

The QoL domains with a $p<0.05$ were satisfaction with living situation, family relations, financial situation and monthly income. Indicating a significant difference between the T1 and T2 periods for PSH residents with SMI. The general life satisfaction score between T1 and T2 showed an improvement, though marginal with a mean of 4.63 (SD 1.54) to 4.91 (SD 1.46), $P>.05$. The authors of this study state that their findings are contrary to prior research, asserting that they did not find that general QoL improved from baseline to T2.

The authors continue to elucidate that this finding may be reckoned more effectively with prior research stating that general QoL is associated with "personality measures" and not associated with housing. However, findings do substantiate prior research with respect to age and general life satisfaction having a relationship. A noteworthy detail is the baseline assessment of subjective domains with living situation assessed as "mostly dissatisfied." The authors state this is "surprising" because study participants were living on the streets prior to study participation. This unexpected finding is akin to the Van der Plas et. al. study of homeless SMI persons reporting increased QoL compared to housed persons. The authors explain that this may be due to increased expectations that were not met.

The O'Connell et. al. study investigated homeless persons with SMI and the housing elements that were important to them. These patients were receiving SH services from the Veterans Administration (VA). A three and twelve-month follow-up were conducted to ascertain if there was a relationship between the importance placed on housing features and QoL. Statistical analysis in this study reports that the degree of housing preference is positively associated with QoL. No association with clinical outcomes was reported as significant.

Table 14 shows a prediction of QoL with follow-up outcome variables at three and twelve-month follow-up interviews. The degree of preferred housing elements was positively associated with general QoL at the twelve-month period. The model was corrected for multiple covariates including race, age, gender, income, substance abuse histories, dual diagnosis, medical diagnosis, psychiatric diagnosis, social network, and general QoL at baseline and others related to housing feature preference.

Significant $p<0.05$ were reported in the 3-month follow-up interview in the domains of overall QoL, living situation, and family. At the 12-month follow-up period, significant $p<0.05$

were reported in living situation and overall QoL, but not in the family domain. This study's

objective was to determine if the degree of housing preference had a positive association with

QoL. Results partially validated this hypothesis. Preferred characteristics obtained was positively

associated with QoL at the 12-month point. The authors of this study assert that objective

housing features deemed "quality" by residents are important, and choice in housing is equally

important in QoL outcomes.

Table 12. One-year mean results of QoL, Aubry et. al.

QOLI sub-scales	Testing time	Housing First n=469 M (SD)	TAU n=481 M (SD)	95% CI
Total	Baseline	73.99 (22.71)	72.39 (7.45)	
	12 months	90.48 (20.75)	83.97 (6.94)	3.84 to 10.69
Living situation	Baseline	2.61 (1.83)	2.65 (1.85)	
	12 months	4.94 (1.87)	3.78 (2.11)	.97 to 1.59
Safety	Baseline	15.89 (6.12)	15.71 (6.49)	
	12 months	20.73 (5.22)	18.90 (5.92)	1.12 to 3.04
Leisure	Baseline	19.15 (6.93)	18.89 (7.45)	
	12 Months	22.64 (6.26)	21.21 (6.94)	.60 to 2.72
Social relations	Baseline	12.83 (4.17)	12.32 (4.40)	
	12 months	13.98 (13.98)	13.40 (4.33)	−.54 to .79
Family relations	Baseline	14.29 (6.57)	13.92 (6.57)	
	12 months	16.69 (7.04)	16.14 (6.74)	−.73 to 1.18
Finances	Baseline	5.55 (3.35)	5.27 (3.30)	
	12 months	6.97 (3.42)	6.31 (3.38)	−.07 to .91
Global	Baseline	3.67 (1.91)	3.62 (1.92)	
	12 Months	4.53 (1.74)	4.23 (1.75)	.02 to .53

Table 13. Satisfaction in QoL domains in Permanent Supportive Housing, Henwood et. al.

	Testing Periods		
	T1	T2	p
	M (SD)	M (SD)	
General life satisfaction	4.63 (1.54)	4.91 (1.46)	0.095
Satisfaction with living situation	2.99 (1.81)	5.43 (1.22)	< 0.001
Satisfaction with daily activities	5.01 (1.18)	5.08 (1.18)	0.627
Satisfaction with family relations	4.12 (1.85)	4.64 (1.82)	0.030
Satisfaction with social relations	4.87 (1.25)	5.05 (1.12)	0.307
Satisfaction with financial situation	3.22 (1.83)	3.72 (1.85)	0.018
Satisfaction with personal safety	4.73 (1.61)	4.78 (1.46)	0.804
Satisfaction with personal health	4.26 (1.60)	4.36 (1.41)	0.495
Frequency of family contact	2.45 (1.50)	2.58 (1.51)	0.289
Frequency of contact with others	2.57 (1.14)	2.93 (1.21)	0.008
Adequacy of monthly income	0.55 (0.34)	0.71 (0.29)	0.001

Discussion

The collective results of supportive housing compared to independent housing on the

subjective general QoL outcomes of SMI persons who have experienced homelessness reveals

that SH may have a larger benefit over that of IH. The six studies included in this SLR constitute

three focused on SH and three on IH. Between the six studies, there were five separate QoL tools

used. The WHOQOL-Bref was used on two studies. While there are similarities among the QoL

tools used, such as the inclusion of common objective and subjective domains; there are also

differences, such as the manner in which self-perception is measured e.g., Likert scale, ranking.

Table 14. Predicting QoL with follow-up outcome variables: 3 and 12 months, O'Connell et. al.

QoL Domains	3-month follow-up				12-month follow-up			
	R^2	ΔR^2	β	t	R^2	ΔR^2	β	t
Safety	0.26	0.004	0.10	1.33	0.25	0.000	—.02	—0.14
Health	0.40	0.002	0.08	1.10	0.39	0.005	0.18	1.62
Social	0.38	0.000	0.04	0.51	0.35	0.002	—.10	—0.91
Family	0.47	0.01	0.18	2.82	0.47	0.000	—.02	—0.16
Leisure	0.29	0.002	0.09	1.21	0.30	0.003	0.14	1.21
Work	0.31	0.01	—.13	—0.86	0.31	0.04	—.45	—1.77
Finances	0.29	0.001	0.04	0.58	0.31	0.01	0.20	1.72
Living Situation	0.35	0.01	0.21	2.98	0.32	0.02	0.30	2.86
General QoL	0.54	0.01	0.17	2.81	0.56	0.02	0.36	3.94

Quantifying what is a subjective and qualitative experience is not without challenges because QoL assessment is based on individual subjective perception vulnerable to a multitude of social, health, environmental, and personal vicissitudes complicated by cognitive deficits and comorbidities particular to SMI. Researchers will often assess cognitive function in SMI persons prior to administration of a QoL assessment to ensure that understanding of vocabulary is intact, and language may be 'lowered' to a more fundamental reading level to assist in that endeavor. As an example, the Van der Plas study included assessment of IQ, and stipulated that a minimum IQ of 70 was required for participation.

Among the IH studies there were more differences than similarities. Aubry et al reported that homeless persons with SMI had improved in the 'health' domain when compared to non-institutionalized persons with SMI. In the domains of psychology, social, and environment, there was no significant difference between groups. Simultaneously homeless SMI persons reported better QoL and decreased disability than their non-institutionalized housed counterparts. While

the authors cannot precisely account for these unexpected findings, some postulated ideas were

that homeless persons with SMI may favor their living status over community living because it

can spare them the stress of meeting daily community standards and expectations.

A question of QoL assessment administration was not raised in this study, other than to

state that the WHOQOL-Bref is a valid assessment for the population studied. The possibility of

different results may have existed if the assessment was either self-administered as opposed to

administered by a study researcher. Although the current approach is to include the participant in

a more 'hands-on' manner when possible as a means to involve participants in the interest of

accurate results and transparency of process.

A second IH study (Picardi et al) reported that the QoL among SMI residents in RCFs

was "no worse" compared to a SMI outpatient and healthy control group. This study also

employed the WHOQOL-Bref assessment. Similarities are that the housing setting included IH,

and all other inclusion criteria were met per this SLR. In this study, as in the Aubry study, the

QoL administration was not described as by researcher or self-administered. The authors discuss

al length the potential impact of RCG in Italy as having positive impact on QoL because of the

nature of their settings, low capacity of residents, inclusion of gardens, and the "home like"

atmosphere common among them. Equally important is the mention of decreased "rigidity of

rules" and autonomy which can account for improved QoL.

A third IH study (Hansson et al) studied characteristics between IH in a community

setting and subjective QoL in patients with a SMI. The authors generally reported that SMI

persons in IH have increased QoL. Among three living arrangements in a community,

independent, alone, and with family, the living alone group faired best in QoL and in social

networking with emotional relations. Participants in independent housing had higher satisfaction in all areas which were measured.

The LQOLP assessment was administered to capture objective and subjective domains. It is worth mentioning that all of the IH studies were conducted in different countries. One study in particular (Hansson) was a joint effort between all five Nordic countries, with the remaining two studies in Italy and the Netherlands. It would be remiss to not mention the potential for cultural differences in settings, behaviors, expectations, dynamics between researcher and participant, and translation and interpretation of QoL assessment tools used globally.

The IH housing studies provided valuable insight into subjective QoL outcomes among SMI persons who have experienced homelessness. However, the outcomes were mixed and inconsistent, with an unexpected improved QoL among the homeless, an outcome showing similarities in WHOQOL means between groups, and an outcome showing an expected increase in QoL in SMI persons in IH. A rapid assessment would incline one to conclude that IH may be unpredictable, and have positive associations with subjective QoL depending on multiple variables involving personal, social, environmental, psychological, and health and disability-related domains.

While IH serves to improve life for residents by accommodating independence while also providing a measure of peripheral custodial services, and thus integrating residents into local communities. Community SH interventions focus on housing as an initial priority, with all other ancillary services "falling into place" as needed. SH interventions provide a multitude of support services that IH services do not, including social case workers, substance abuse and recovery programs, transportation, and PCP and psychiatric care.

In contrast to the IH studies, the three SH studies had consistent results indicating that no matter which IH intervention was applied, subjective QoL improved. However, one SH study did report that overall QoL did not improve, despite improvement in some domains. Aubry et al is a Canadian study that followed SMI residents over a one-year period and compared housing first (HF) residents to treatment as usual (TAU). The QOLI-20 was used for subjective assessment. While both interventions showed improved QoL, the improvement was greatest in the HF residents. This may be due in part because the of very nature of HF is that clients are generally accommodated with their requested needs for ancillary services and housing facilities. And the TAU residents are accommodated with what is available at the time of their needs an d may not satisfy requests in real time.

HF as a model of intervention to provide resources as rapidly as possible is effective in its aim and cost. Conclusions of stability in housing as well as outcomes in subjective assessments can be weak if not dubious if relied upon as a one-size-fits-all. The Aubry study supports this idea, stating, "It remains to be seen whether Housing First participants will show greater improvements than treatment-as-usual participants on clinical and other outcomes . . ." The supportive housing studies suggest that if individuals actually attain their desired aspects of housing, it directly improved QoL in all domains. In supportive housing, persons with SMI tend to experience improved QoL when resources are more localized to a given living situation.

The Henwood SH study reported on SMI patients who had transitioned from homelessness to PSH, and that domains of QoL improved with the length of housing stay, including the subjective domains of satisfaction with living situation and family relationships. The objective domain of finances showed a positive association with improved QoL. While there are particular domains showing some improvement, the authors make clear that dissimilar to

prior study of HF, their results showed no improved general QoL during the course of the one-year study.

The O'Connell study examined community SH in the context of a patient-centered approach to determine which housing features were important to residents, if those features were attained in subsequent housing, and if those attained features had an association with subjective QoL. The result was that the degree of housing features preferred is positively associated with QoL. When individuals attain what they desire, they are happy.

QoL assessment is important for SMI persons as IH tends to allow individuals a greater measure of flexibility with regard to activities, follow-up, and personal choices. Compared to the immediate accessibility of multiple ancillary services in SH. With the added dynamics of type of housing, location, fellow residents, finances, neighborhood safety, and house rules, QoL outcomes related to housing should not be overlooked.

The importance of patient-centered subjective QoL as a primary outcome has gained enormous support and validation as evidenced with the following excerpt: "patient-centered quality of life assessment tools which are not aligned for patient-centered outcomes can have inherent problems such as non-valid results for patients, rendering the one-size-fits-all assessment as erroneous and can measure something entirely different than the individual's quality of life" (Carr & Higginson, 2001). The six studies may have not included patients in every aspect of the research process owing to limitations in resources or patient abilities, however, there was a concerted effort to be as inclusive where appropriate.

Additional assistance can come from the integration of Health Impact Assessments (HIA). The evidence seen in the literature supports the approach that integrative interventions are effective. A HIA can be integrated to assist community housing policy-makers with decisions

about future needs and where to place resources. HIAs recruit resources and data from various

disciplines, state and federal databases, including health and science related data (Wesser, n.d.).

Limitations

Three studies centered on independent and supportive housing were selected. This

provided only a snapshot of the current and larger issues of homelessness, SMI, housing, and

QoL assessments. There are many other forms of housing which were not investigated here that

serve persons with SMI, including Social Rehabilitation Facilities providing services for adults

recovering from acute mental illness, detox and drug rehabilitation homes, and temporary

transitional shelters.

Group homes is a generic name for a supportive housing environment. While minors

were excluded from this systematic review, group homes provide care and housing for children

who may need closer care if a foster home fails to meet their needs (Schwarzenegger, n.d.).

Because of the inconsistencies in the selection, design, assessments, implementation and

interpretation of QoL assessments as stated by many authors; attempting to comprehensively

assert superiority in one assessment tool over another is not the objective, and comparison of one

tool to another is not likely to yield an accurate, reliable, or definitive result.

There are a number of variables contributing to an individual's psychiatric profile. A

patient's physical environment, peers, family, personal history, preferences, lifestyle choices,

diet, income, access to resources, education and related cognitive ability, all have equal and

unpredictable influencing weight. There are many problems made clear by numerous authors,

including the need for standardizing not just the weighing of a construct, but the very lack of

definition of what is QoL, the lack of standardized definition of what is homelessness, the

multitude of QoL assessments making them difficult to choose, implement and interpret, and the

increasing need for patient-centered assessment.

The six studies chosen for review have limitations for various reasons, including small

sample sizes, limitation in statistical power, risk of confounding bias, study design, and QoL

assessments relying on subjective interpretation (Picardi). This capstone may have limitations

including bias as a result of professional involvement in direct patient care for IH residents with

SMI.

Implications

Housing is critical for all individuals ecumenically. For a percentage of the current U.S.

population the urgency for housing is mounting. The public health risks involved in allowing

unchecked homelessness includes the spread of infectious disease including HIV. The question

of whether IH or SH is of more benefit may not be reasonably answered with one single study or

multiple studies. The variables involved are many and likely a community housing intervention

may depend on available resources as well as assessment of needs on a case-by-case basis.

Homeless is unquestionably a social and public health matter with increasing concern for

safe, economical, and humane resolutions. No longer can society "patient dump" persons onto

random urban streets and left to their own devices. With increasing awareness to the interrelated

components such as substance abuse, cognitive impairments, criminal recidivism, mental health

histories, and a lack of access to social services, the need for an improved posture with the

problem is in order. Second, until a standardized definition of terms including QoL, homeless,

and housing is in place, can the problem be adequately addressed so that researcher and agencies

are 'on the same page.'

Future studies may benefit from a more thorough investigation into the construction, administration, assessment, interpretation, measure, validity, reliability, sensitivity, and specificity of QoL assessments for SMI patients. An investigation into why the terms "quality of life," "housing," and "homeless" are loose and lacking standardization would benefit future research as well. QoL assessments in SMI are challenging, but with some dedication and more stringent application of the strengths that already exist, a better standardization can emerge, and narrow the margin for error to less than inconclusive guesswork.

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