HOUSING = HEALTH:

The Physical and Mental Health Effects of Housing Homeless People in Regional NSW, Australia

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Title

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Disclaimer

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List of Abbreviations

ABS	Australian Bureau of Statistics
AIHW	Australian Institute of Health and Welfare
COVID-19	Coronavirus Disease 2019
DFV	Domestic and Family Violence
GAD-7	Generalised Anxiety Disorder-7 Scale
HF	Housing First
HYPAR	Helping Youth Progress Achieve and Retain
HN	Homes North Community Housing
IPV	Intimate Partner Violence
PHI	Previously Homeless Individuals
PHQ-9	Patient Health Questionnaire-9
NSW	New South Wales
SF-36	Short Form-36 health survey
SHMT	Social Housing Management Transfer
SS	Start Safely Housing Program
THP	Together Homes Project
UN	United Nations
WHO	World Health Organization

Executive Summary

> *"Everyone has the right to a standard of living adequate for the health and well-being of himself and his family, including…housing."*
> (United Nations, 1948, Article 25.1)

This research report presents key findings from a mixed-methods study investigating the physical and mental health effects of housing previously homeless individuals (PHI) in regional New South Wales (NSW), Australia. Drawing on both quantitative and qualitative data collected across multiple regional sites, the study provides compelling evidence that stable housing leads to substantial improvements in physical health and significant reductions in anxiety and depression. These positive outcomes are particularly evident among survivors of domestic and family violence (DFV) who received targeted housing support.

The findings underscore a critical policy imperative: housing must be understood not merely as shelter or a market commodity, but as essential public infrastructure for care. Emerging research highlights housing's central role in supporting health, wellbeing, and social inclusion, positioning it alongside other key infrastructure such as water, energy, and healthcare. In this light, social housing emerges as a cornerstone of national development, yielding benefits that extend beyond individuals to the broader public through improved health outcomes, economic stability, and stronger, more resilient communities.

Reconceptualising housing as infrastructure reframes it from a reactive social service to a proactive determinant of collective flourishing. This demands sustained commitment to public investment and responsible stewardship. The evidence presented in this study strengthens the case for systemic policy reform and affirms that housing is not just a foundation for life, it is a life-sustaining system vital to health, dignity, and social equity.

Key Points

- Homelessness is a global issue, with an estimated 150 million people worldwide homeless and 1.8 billion lacking adequate housing.
- Homelessness is associated with poor physical and mental health, yet the impact of stable housing on these outcomes remains underexplored, particularly regarding anxiety and depression.
- This study examined how housing status, type, and duration affect the physical health, anxiety, and depression of PHI in regional NSW.
- A mixed-methods design involved 48 Homes North participants, combining health surveys and in-depth telephone interviews to explore lived experiences before and after housing, including contributing factors to homelessness, barriers faced, perceptions of health and its management, and available supports.
- Quantitative findings showed statistically significant improvements post-housing: reduced bodily pain, fewer role limitations, better general physical health, and significant reductions in anxiety and depression.
- Start Safely program participants (DFV survivors) experienced the most pronounced improvements in bodily pain, anxiety, and depression.
- Duration of housing did not significantly influence health outcomes, suggesting that type and support in housing are more critical than length of tenancy.
- Qualitative analyses identified key contributors to homelessness, including DFV, intimate partner violence (IPV), family conflict, and unaffordable housing, with couch-surfing and rough sleeping being most common types of homelessness.
- Major barriers to stable housing included high transitional accommodation costs, bureaucratic hurdles, and lack of family support, while friends and organisational networks provided essential temporary and emotional support.
- Stable housing consistently improved physical and mental health and fostered safety, security, and social inclusion.
- Findings reinforce the critical role of housing as a key determinant of health and support its conceptualisation as an essential public infrastructure of care.

1. Introduction

"Everyone has the right to a standard of living adequate for the health and well-being of himself and his family, including…housing." (Unted Nations [UN], 1948). This principle, enshrined in Article 25.1 of the Universal Declaration of Human Rights, affirms housing as fundamental to human dignity and health. Yet, globally, around 150 million people (approximately 2% of the world's population) are homeless (UNHRC, 2020), and over 1.8 billion people live without adequate housing (UNHRC, 2019).

In Australia, homelessness remains a persistent health and social issue despite decades of national strategies. The 2008 White Paper aimed to halve homelessness by 2020 and provide supportive housing for all rough sleepers (Australian Government, 2008). Despite these policy commitments, homelessness increased by 14% between 2011 and 2016, outpacing population growth by 9% (ABS, 2016). By the 2021 Census, 122,494 people were experiencing homelessness, a 5% rise from 2016, driven largely by increases in boarding house residents (26.5%) and those in supported accommodation (14.4%) (ABS, 2021), signaling growth in hidden forms of homelessness.

This upward trend is particularly evident in regional New South Wales (NSW), where the 2024 Street Count reported a 25% rise in rough sleepers, from 1,623 to 2,037 (NSW Government, 2024). Regions such as New England and the Northwest are disproportionately affected by rental pressures, rising living costs, and severe housing shortages, with homelessness rates increasing faster than in metropolitan areas (NSW Government, 2024), highlighting the urgent need for accessible, safe, and affordable housing as a public health priority.

Housing instability affects individuals from all socioeconomic backgrounds, increasing risks of chronic physical and mental health issues, including anxiety and depression (Fazel et al., 2008, 2014; Gutwinski et al., 2021). Although stable housing is recognised as a pathway to reducing homelessness and mitigating associated health disparities (Byrne et al., 2023; Gaetz et al., 2019; Henwood et al., 2013; O'Sullivan, 2022; Pleace et al., 2018), few studies directly measure changes in physical and mental health during the transition from homelessness to

stable housing. Understanding these changes is essential for designing effective housing programs. This report presents evidence-based research on the impact of housing on the physical and mental health of PHI in regional NSW. The abbreviation PHI is used for clarity and brevity, without depersonalising participants or their lived experiences.

1.1 Background on Homelessness

Homelessness lacks a universal definition, varying across cultural and policy contexts (Amore et al., 2011; ABS, 2021). It encompasses a continuum, from street homelessness to insecure, precarious, or substandard living conditions (Springer, 2000; Sullivan, 2023).

1.1.1 Defining Homelessness Globally

Global frameworks increasingly recognise the diversity of homelessness experiences. The European Typology of Homelessness and Housing Exclusion (ETHOS) identifies four categories:

i. Rooflessness: Living on the streets without shelter.
ii. Houselessness: Residing in temporary institutions or shelters.
iii. Insecure Housing: Unstable tenancies, risk of eviction, or situations such as domestic abuse.
iv. Inadequate Housing: Living in mobile homes, substandard housing, or extreme overcrowding (FEANTSA, 2005).

ETHOS 'Light' (2007) further standardised data collection, defining six operational groups: people living rough, in emergency shelters, in temporary or transitional accommodation, in institutions, in non-conventional dwellings, or temporarily staying with family/friends (Edgar et al., 2007; FEANTSA, 2007).

The UN Economic Commission for Europe (UNECE, 2009) later distinguished *primary* homelessness (living on streets without shelter) from *secondary* homelessness (transient accommodation) , recognising the fluidity of housing instability, while the Institute of Global Homelessness (IGH) described it as "living in severely inadequate housing due to a lack of access to minimally adequate housing" (Busch-Geertsema et al., 2016, p. 8), highlighting the social, physical, and security dimensions of housing adequacy.

1.1.2 Defining and Conceptualising Homelessness in Australia

Australia's understanding of homelessness has evolved over decades, shaped by social, economic, and policy developments.

- **1960s-1970s:** Homelessness was largely recognised in terms of visible street homelessness, influenced by urbanisation, family changes, deinstitutionalisation, returning veterans, and substance abuse (Chamberlain et al., 2014; Frost & O'Hanlon, 2009; Wallace et al., 2023).
- **1980s:** Broader definitions emerged, incorporating couch-surfing and inadequate housing, prompting shifts in policy to address hidden homelessness (Bullen, 2015; Chamberlain et al., 2014).
- **1990s:** Government interventions introduced shelters and supportive housing, highlighting challenges in measuring transient and hidden homelessness (Burt, 1992; Chamberlain et al., 2014).
- **2000s:** Prevention initiatives and the Housing First (HF) approach focused on immediate access to permanent housing and supportive services (Tsemberis, 1999). National strategies included Which Way Home? and The Road Home, as well as the National Partnership Agreement to Homelessness (Council of Australian Governments, 2008).
- **2010s:** National strategies emphasised youth homelessness and long-term solutions, with programs like Journey to Social Inclusion (J2SI) (2009), and Michael's Intensive Supported Housing Accord (MISHA) (2010), demonstrating HF's effectiveness in improving stability and health outcomes (Goering et al., 2011; Stergiopoulos et al., 2014; Tsemberis, 2010).
- **2020s:** COVID-19 highlighted structural vulnerabilities, prompting emergency support and reinforcing the need for holistic, long-term housing solutions (Parsell et al., 2020; Van Nguyen et al., 2022).

1.1.2.1 Cultural Definition of Homelessness. Chamberlain and Mackenzie's (1992) *cultural definition*, endorsed by the Commonwealth Advisory Committee on Homelessness (CACH, 2001), frames homelessness as disconnection from socially accepted housing norms, reflecting community standards for adequate housing, and highlights the importance of a stable living environment, such as "a modest rental flat, with a bedroom, living room, kitchen, bathroom, and an element of security of tenure" (ABS, 2012, p.19).

Within this framework, three subcategories are recognised:

i. Primary Homelessness: no conventional housing (e.g., sleeping on the streets or in improvised shelters).
ii. Secondary Homelessness: temporary or crisis accommodation (e.g., shelters, emergency housing, youth refuges, or staying with family or friends).
iii. Tertiary Homelessness: substandard or insecure dwellings (e.g., boarding houses, caravan parks) (Chamberlain & Mackenzie, 1992).

1.1.2.2 Statistical Definition of Homelessness. The 2012 ABS Census introduced a *statistical definition* of homelessness, influenced by Anglo-American and European perspectives (Mallet, 2004). This approach recognises that homelessness can exist even when a roof is present, depending on the quality of tenure, security, and control over living space (ABS, 2012). According to the ABS: "A person is homeless if their current living situation is in a dwelling that is inadequate or has no tenure, or if their initial tenure is short and not extendable, or does not allow them to have control of and access to space for social relations." (ABS, 2012, p.7), and six operational groups are identified:

i. Persons living in improvised dwellings, tents, or sleeping out.
ii. Persons living in short-term supported accommodation for the homeless.
iii. Persons staying temporarily with other households.
iv. Persons living in boarding houses.
v. Persons living temporarily in other lodgings.
vi. Persons living in severely crowded dwellings (ABS, 2012).

1.1.3 Homelessness and Health

The World Health Organization (WHO) defines health as “a state of complete physical, mental, and social well-being, not merely the absence of disease or infirmity” (WHO, 2020). This holistic definition highlights that addressing homelessness requires more than providing shelter; it demands integrated responses that promote physical, mental, and social wellbeing.

Extensive research shows a strong link between homelessness and poor health outcomes (ABS, 2008; Fazel et al., 2008, 2014; Johnson & Chamberlain, 2011; Munoz et al., 2005). While people experiencing homelessness face similar health conditions to the general population, these are often intensified by poverty, housing instability, and limited access to healthcare (Fazel et al., 2014).

1.1.3.1 Homelessness and Physical Health. Homeless individuals commonly experience severe and complex physical health problems arising from poor living conditions. These can include:

- Malnutrition, due to limited access to nutritious food (Huang et al., 2022; Seale et al., 2016).
- Chronic pain and musculoskeletal disorders from sleeping on hard surfaces and enduring harsh environments (Hwang, 2001; Kale et al., 2021; Vogel et al., 2022).
- Skin infections and diseases, such as dermatitis, linked to poor hygiene and exposure (Nilsson et al., 2023; Stratigos et al., 1999; Waddell et al., 2024).
- Poor dental health, reflecting restricted access to dental care (Figueiredo et al., 2013; Ford et al., 2014).
- Respiratory disorders, including pneumonia, asthma, and chronic obstructive pulmonary disease, exacerbated by overcrowding and rough sleeping (Jones et al., 2013; Lewer et al., 2019).
- Infectious diseases, with higher susceptibility to tuberculosis, hepatitis C, HIV, and AIDS (Beijer et al., 2012; Fazel et al., 2014; Raoult et al., 2001).

1.1.3.2 Homelessness and Mental Health. Mental health issues are highly prevalent among homeless populations. Fazel et al. (2008) reviewed 29 studies across seven Western countries and found high rates of alcohol dependence (8.5-58.1%) and drug dependence (4.7-

54.2%), substantially higher than in the general population (5%) (ABS, 2008; Bowen et al., 2019). Rates of psychosis ranged from 2.8-42.3%, and major depression affected up to 41% of individuals. In Australia, 39% reported anxiety disorders, and 28% reported mood disorders, compared to 14% and 6% in the general population (ABS, 2008).

A 2021 meta-analysis by Gutwinski et al. examined 39 studies with 8,049 participants, finding that 76.2% of homeless individuals suffered from at least one current mental disorder. Prevalent conditions included alcohol use disorders (36.7%), drug use disorders (21.7%), schizophrenia spectrum disorders (12.4%), and major depression (12.6%). These findings underscore the significant burden of mental health challenges within this population.

1.1.3.3 Homelessness and Mortality and Multi-Morbidity.

Homelessness is associated with increased morbidity, multi-morbidity, and mortality (Aldridge et al., 2019; Bowen et al., 2019; Nielsen et al., 2011; Nordentoft & Wandall-Holm, 2003; Seastres et al., 2020; Stenius-Ayoade et al., 2017). Studies indicate a fourfold higher risk of premature death for hostel residents in Copenhagen (Nordentoft & Wandall-Holm, 2003), and a fivefold increase in mortality among homeless individuals in Finland (Stenius-Ayoade et al., 2017).

In Australia, homeless individuals face nearly double the risk of mortality over 15 years, with an approximate 12-year reduction in life expectancy compared to non-homeless emergency department patients, representing nearly a fourfold increase in overall mortality (Seastres et al., 2020).

1.2 Housing as a Key Determinant of Health

Stable housing is widely recognised as a critical solution for addressing homelessness (Byrne et al., 2023; O'Sullivan, 2022; Pleace et al., 2018), and mitigating health disparities among homeless populations (Fitzpatrick et al., 2013; Gaetz & Dej, 2017; Gibson et al., 2011; Henwood et al., 2013; Thomson et al., 2013). Different housing interventions such as Housing First (HF), social housing, temporary accommodations, and private rentals vary in their ability to promote wellbeing and reduce health disparities.

1.2.1 Housing Interventions and Health Outcomes

1.2.1.1 Housing First (HF). The Housing First model provides immediate access to permanent housing accompanied by supportive services (Tsemberis, 1999). While evidence on its impact on health outcomes is mixed (Baxter et al., 2019; Tsai, 2020; Woodhall-Melnik & Dunn, 2016), numerous studies report that HF enhances housing stability, improves overall wellbeing, and reduces hospitalisations and emergency department visits (Aubry et al., 2020; Henwood et al., 2013; Kirst et al., 2014; O'Campo et al., 2016; Stergiopoulos et al., 2014; Tsai, 2020; Tsemberis, 2010).

1.2.1.2 Social Housing. Initially developed to address public health concerns, social housing remains essential for vulnerable Australians (Freund et al., 2023). Despite its benefits, underinvestment has created a supply-demand mismatch, exacerbating health challenges among tenants. Research indicates higher rates of mental health issues (43%), arthritis (36%), back problems (32%), hypertension (25%), asthma (22%), and COPD (11%) among social housing tenants compared to those in other housing types (Freund et al., 2023). Multiple health conditions are also more common: 24% of social housing tenants report five or more health issues, compared to 3-6% in other housing types.

Additionally, Sharpley et al. (2019) examined the relationship between social housing and mental health among Australian tenants, highlighting that while social housing can positively influence wellbeing, the benefits are not evenly distributed. Their study found that nearly one-third of tenants reported reduced anxiety following their move into social housing, suggesting that secure and affordable housing can relieve stress associated with housing instability. However, improvements were strongly influenced by housing quality, neighbourhood safety, social connections, and access to support services. Tenants with pre-existing mental or physical health conditions, or those living in poor-quality dwellings, were less likely to experience health gains. The authors concluded that housing interventions must be complemented by integrated support and community-based services to maximise mental health outcomes.

1.2.1.3 Temporary Accommodations. Emergency shelters and transitional housing provide immediate relief and safety for individuals experiencing homelessness (Batterham et

al., 2023). However, their transient nature often limits long-term stability, contributing to ongoing stress and restricted access to consistent healthcare and supportive services (Busch-Geertsema & Sahlin, 2007).

1.2.1.4 Private Rentals. Securing a private rental often represents a significant step toward long-term stability. Stable private housing facilitates routine establishment, improved access to healthcare, and supportive environments conducive to recovery (Daniel et al., 2023). Nevertheless, affordability, housing quality, and access to supportive services influence the extent of health improvements.

1.2.2 Conceptualising Housing

1.2.2.1 The Housing Continuum. The *Housing Continuum* (Brackertz et al., 2020) situates housing on a spectrum, from homelessness to home ownership, illustrating how tenure stability correlates with improved health and social outcomes (Figure 1).

Figure 1

The Housing Continuum

Note. Taken and adapted from Brackertz, N., Borrowman, L., Roggenbuck, C., Pollock, S., & Davis, E. (2020). *Trajectories: The interplay between mental health and housing pathways*, p.17. Final research report, Australian Housing and Urban Research Institute Limited and Mind Australia, Melbourne. https://www.ahuri.edu.au/research/trajectories

This framework recognises that individuals move through stages of housing insecurity depending on personal circumstances, resources, and support access. Stable tenures, such as social housing and homeownership, are consistently linked to better physical and mental health outcomes, especially among vulnerable groups including those with mental ill-health or transitioning from homelessness (Brackertz et al., 2020; Flanagan et al., 2019).

Conversely, private rentals often offer limited tenure security, contributing to affordability stress and frequent mobility (Australian Institute of Health and Welfare [AIHW], 2024). Social housing, while critical to providing stability and support, remains constrained by limited supply, stringent eligibility criteria, and complex pathways for individuals with mental health challenges.

Emerging scholarship increasingly frames social housing as essential public infrastructure, integral not only for shelter but also for fostering health, social connection, and overall wellbeing (Bergan & Power, 2025; Flanagan et al., 2019).

1.2.2.1 Reconceptualising Housing as Infrastructure of Care. Recent housing and policy research increasingly frames housing not merely as a commodity or private dwelling, but as vital public infrastructure. This evolving perspective underscores housing's central role in supporting health, wellbeing, and economic security, particularly for individuals experiencing systemic marginalisation (Flanagan et al., 2019; Lawson et al., 2022; Power & Mee, 2020; Power et al., 2022). Housing is therefore understood as a form of care infrastructure, materially embedded, socially generative, and politically governed (Bergan & Power, 2025).

Social housing extends beyond accommodation to deliver public health benefits, economic stability, and social inclusion (Flanagan et al., 2019; Power et al., 2022). This shifts the focus from housing as a private asset to housing as an essential system that sustains everyday life, demanding proactive policy, planning, and public investment.

Flanagan et al. (2019) outline four key propositions illustrating this shift:

i. Robust business cases are needed to demonstrate social housing's socio-economic and long-term value.

ii. Private markets inadequately serve low-income groups, necessitating state intervention.
iii. Political inertia and fiscal conservatism impede housing reform.
iv. Social housing should be recognised as a platform for national development, not just emergency accommodation.

Bergan and Power (2025) extend this framework through an infrastructural lens, conceptualising housing across three dimensions:

i. Materiality: Housing as a physical structure integrated with other infrastructure, including water, energy, and care systems.
ii. Social practice: Housing shapes and is shaped by everyday routines, relationships, and cultural norms, co-producing social life.
iii. Governance: Housing is inherently political, with funding, distribution, and maintenance reflecting societal values and power dynamics.

This paradigm shift positions housing as a life-sustaining system requiring public stewardship and interdisciplinary attention, particularly during crises such as the COVID-19 pandemic.

This reconceptualisation underpins the central argument of this report: stable housing is a key determinant of physical and mental health. Evidence from this study shows that transitioning from homelessness to stable housing improves physical health, anxiety, and depression. Within the frameworks of Flanagan et al. (2019) and Bergan & Power (2025), these findings reinforce the need for systemic change. Housing policy should be reframed as proactive infrastructure critical to individual and collective flourishing.

Recognising housing as infrastructure expands housing justice beyond affordability and tenure, strengthens the rationale for sustained public investment, challenges market-driven paradigms, and affirms the state's responsibility in providing access to the foundational infrastructures of care, dignity, and health.

1.2.3 Conceptualising Health

Building on the reconceptualisation of housing as infrastructure of care, it is crucial to understand how stable housing functions as a determinant of health. Integrative frameworks,

such as the Biopsychosocial Model (Engel, 1977) and the Social Determinants of Health (SDH) framework (Solar & Irwin, 2010), provide a comprehensive lens to examine how housing intersects with individual, social, and systemic factors. These frameworks highlight that housing stability influences not only physical health but also mental wellbeing and social outcomes, particularly for people transitioning from homelessness.

By situating housing within these health frameworks, policymakers and practitioners can better appreciate the complex pathways through which housing affects health. Secure housing is not merely a protective factor against illness, it actively shapes opportunities for social inclusion, psychological resilience, and long-term health outcomes, reinforcing the need to treat housing as a fundamental component of public health infrastructure.

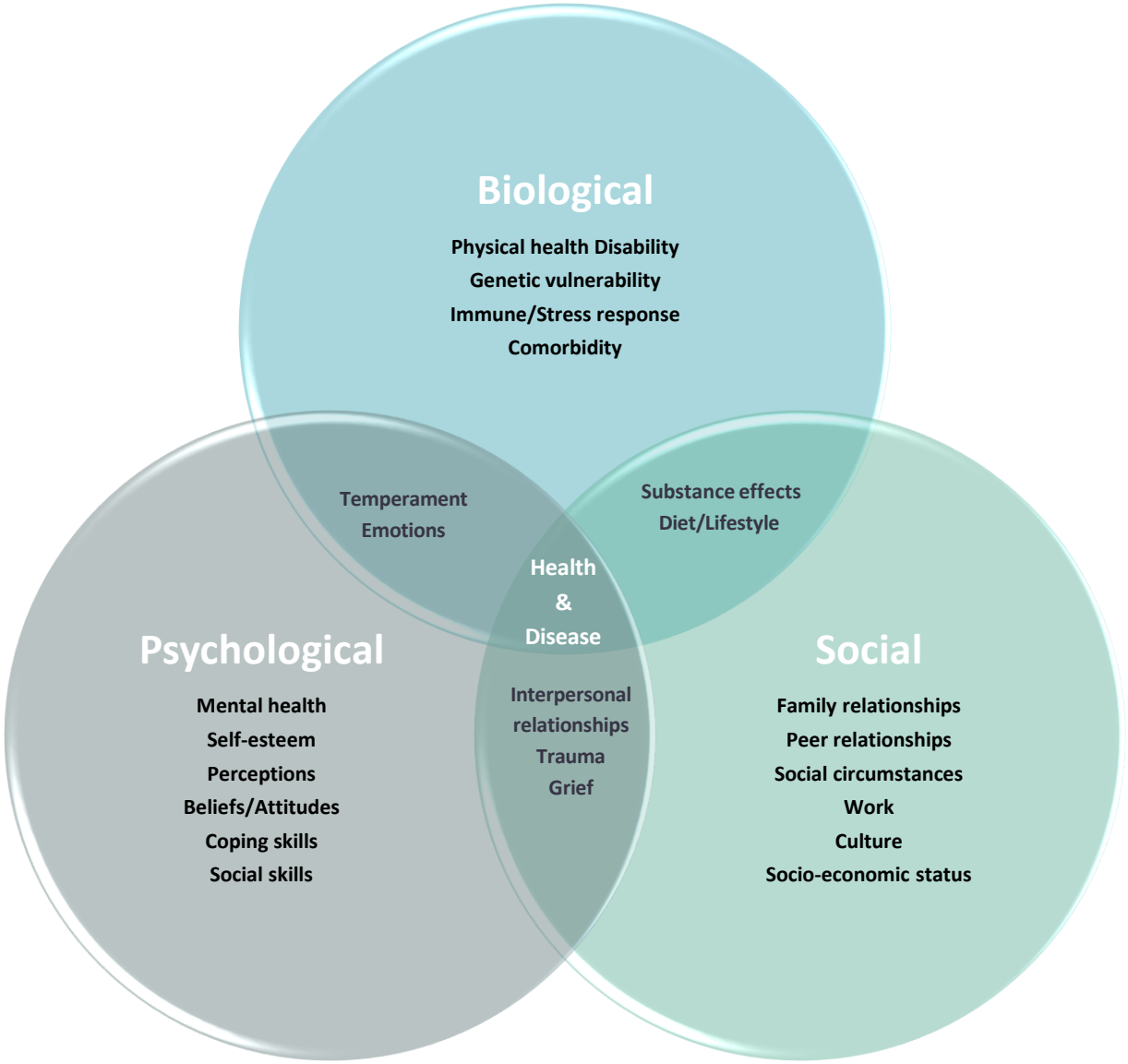
1.2.3.1 The Biopsychosocial Model of Health. Engel's (1977) Biopsychosocial Model provides a comprehensive framework for understanding how housing stability impacts health by integrating biological, psychological, and social factors (Figure 2).

The biopsychosocial model is particularly relevant for examining how stable housing can influence multiple dimensions of health outcomes.

- **Biological factors:** Homelessness exposes individuals to sustained stressors, such as instability and resource scarcity, which can suppress the immune system, elevate cardiovascular risk, and exacerbate chronic conditions (McEwen, 1993). Transitioning to stable housing can reduce these physiological stress responses and improve overall physical health.
- **Psychological factors:** Housing stability fosters a sense of security and predictability, alleviating anxiety, depression, and other forms of psychological distress commonly experienced by people who are homeless (Fazel et al., 2014; Whittaker et al., 2017). Secure housing also supports cognitive functioning, enhancing mental wellbeing (Seidman et al., 2003).
- **Social factors:** Stable housing facilitates stronger social connections and access to essential services, reducing isolation and promoting social support (Kirst et al., 2020). These social networks are critical for health, providing access to healthcare, employment, and community resources.

Figure 2

The Biopsychosocial Model of Health and Disease

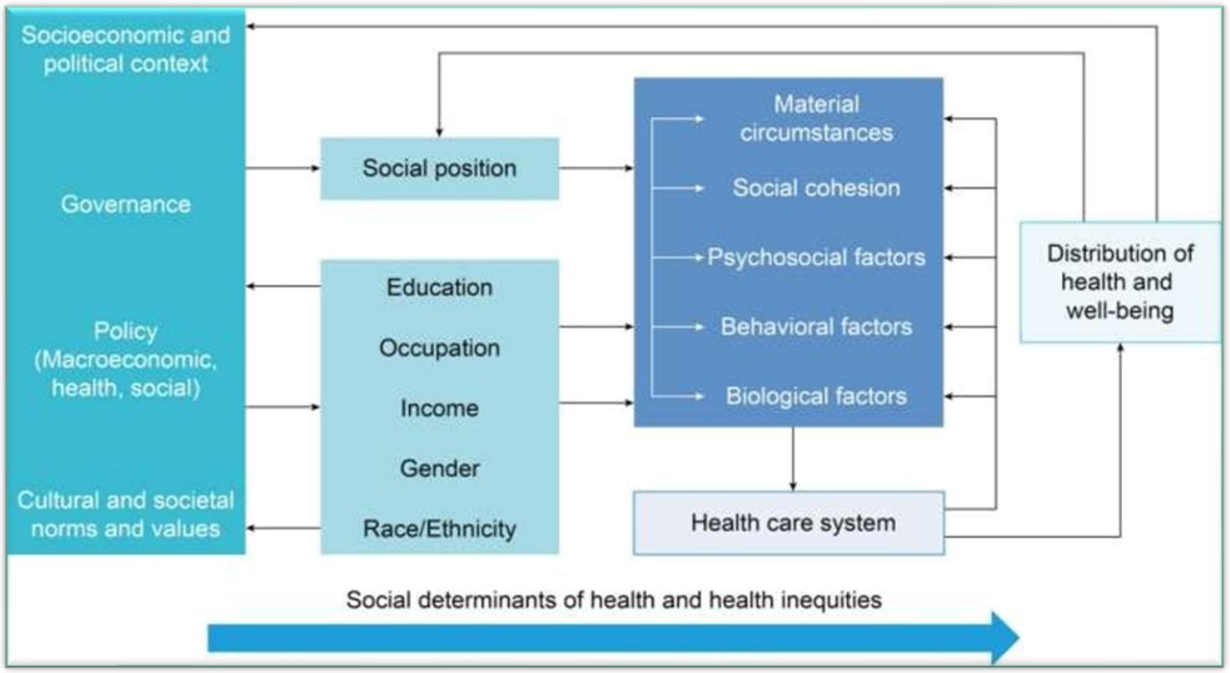


Note. Taken and amended from Engel G. L. (1977). The need for a new medical model: A challenge for biomedicine. *Science (New York, N.Y.), 196*(4286), 129–136. https://doi.org/10.1126/science.847460

1.2.3.2 The Social Determinants of Health Framework. The Social Determinants of Health (SDH) framework (Solar & Irwin, 2010) further elucidates the relationship between housing and health by emphasising the influence of broader socioeconomic factors on wellbeing (Figure 3).

Figure 3

Social Determinants of Health Framework



Note. Taken from the WHO Commission on Social Determinants of Health (CSDH) (2008). Closing the gap in a generation: Health equity through action on the social determinants of health. *Final Report of the Commission on Social Determinants of Health.* Geneva, World Health Organization, p.43, amended from Solar, O. & Irwin, A. (2007). A conceptual framework for action on the social determinants of health. *Discussion paper for the Commission on Social Determinants of Health*. Geneva, World Health Organization.

Health disparities often stem from the conditions in which people are born, grow, live, work, and age. Key determinants include:

- **Economic stability:** Access to income, employment, and financial resources significantly impacts health, with poverty strongly linked to adverse outcomes (Braveman et al., 2010).
- **Education:** Higher educational attainment promotes health literacy, healthier behaviours, and improved access to healthcare (Cutler & Lleras-Muney, 2006).
- **Social and Community context:** Social networks, community engagement, and exposure to violence or discrimination shape health outcomes. Positive social connections serve as protective factors for physical and mental health (Berkman et al., 2000).
- **Health and Healthcare:** Access to quality healthcare and insurance is essential. Barriers such as cost, availability, and cultural differences contribute to disparities (Smedley et al., 2003).
- **Neighbourhood and Built Environment:** Housing quality, transportation, and access to nutritious food directly affect health. Poor living conditions increase risk for various illnesses (Diez Roux & Mair, 2010).
- **Health behaviours:** Diet, physical activity, smoking, and alcohol consumption are influenced by social and economic contexts, impacting overall health (Mokdad et al., 2004).

To fully examine the intersection of homelessness, housing, and health, this study adopts an integrated theoretical approach. Grounded in the biopsychosocial model and WHO's holistic definition of health, which encompass physical, mental, and social wellbeing, these frameworks facilitate a multidimensional understanding of the factors shaping health outcomes. Rather than relying on a single model, the study considers both individual-level influences (e.g., stress, mental health, social support) and structural determinants (e.g., housing quality, socioeconomic conditions, access to services). Health emerges from the dynamic interplay of these factors, many of which are beyond an individual's immediate control. This integrated lens allows for a nuanced exploration of how homelessness and

housing insecurity contribute to health disparities. By situating the analysis within these frameworks, the study identifies the root causes of poor health and informs policies and interventions that are both person-centered and systemically informed, advancing health equity for populations experiencing homelessness.

1.3 Research Objectives

The primary objective of this study was to examine the impact of housing on the physical and mental health of PHI, with particular focus on physical health, anxiety, and depression. The research aimed to provide a comprehensive understanding of how housing status, type and duration influence health outcomes. It also sought to identify factors contributing to homelessness, explore the challenges and barriers faced during homelessness and the transition to stable housing, investigate how individuals perceive and manage their health, and assess the support available throughout these experiences.

1.4 Research Questions & Aims

Given the exploratory nature of this study, no directional hypotheses were set. Instead, the research was guided by the following questions:

- **Research Question 1:** Is there a significant difference in PHI self-reported physical health, anxiety, and depression before (during homelessness) and after (following stable housing) transition?

  Aim: To assess measurable changes in health outcomes by comparing past and current self-reported health scores.
- **Research Question 2:** Is there a significant relationship between changes in PHI physical health, anxiety, and depression and the type of housing provided?

  Aim: To examine how different Homes North programs, such as Capital, HYPAR, Start Safely, SHMT, THP, Transition/Private Rental, and 2NESBP Owned, impact health outcomes.
- **Research Question 3:** Is there a significant difference in PHI health outcomes based on the duration of stable housing?

- **Aim:** To determine whether length of tenancy (1–12 months vs. 13+ months) influences physical health, anxiety, and depression.
- **Research Question 4:** What factors contribute to homelessness, and what challenges and barriers are encountered during homelessness and the transition to stable housing?

  Aim: To explore underlying causes of homelessness, types of homelessness experienced, and obstacles faced during housing transitions.
- **Research Question 5:** How do individuals perceive the impact of homelessness and stable housing on their physical and mental health, and how do they manage their health during these periods?
- **Aim:** To investigate personal experiences and strategies for health management before and after securing stable housing.
- **Research Question 6:** What support is available to individuals during homelessness, the transition to housing, and after securing stable housing?
- **Aim:** To examine the types and accessibility of support services at different stages of the housing journey.

2. Methodology

To inform this study's methodology and provide a comprehensive overview of existing evidence on the relationship between housing and health outcomes for people experiencing homelessness, a systematic literature review was conducted (Onapa et al., 2022; see Appendix A). The systematic literature review identified and analysed 24 peer-reviewed studies and three previous reviews published between 1999 and 2020 that examined health outcomes associated with housing interventions. Most of these studies focused on permanent supportive housing models, which combined affordable accommodation with access to health and social support services. Findings from the review indicated that housing interventions generally lead to improvements in physical health, psychological wellbeing, and quality of life, particularly among individuals with mental illness, anxiety, depression, or chronic health conditions such as HIV. However, inconsistencies in study designs, short follow-up periods,

and limited representation of regional or rural populations restricted the generalisability of results. These gaps highlighted the need for further mixed-methods research that could capture both the measurable health outcomes and the lived experiences of people transitioning from homelessness to stable housing. Accordingly, the current study was developed to address these gaps by exploring the physical and mental health impacts of housing among PHI in regional NSW.

2.1 Research Design

A mixed-methods, pre-post-test repeated-measures design was originally chosen, incorporating clinical interviews, self-report surveys, and biomarker (saliva) assessments to track changes in physical health, anxiety, and depression over a six-month period. Data collection was initially scheduled across five time points: two and four weeks before housing, and two, eight-, and sixteen-weeks post-housing. However, the onset of the COVID-19 pandemic significantly disrupted traditional data collection procedures. Social distancing requirements, lockdown restrictions, and heightened participant vulnerability rendered in-person assessments and biomarker collection impractical and ethically untenable. In response, the study design was adapted to a retrospective pretest-posttest design while maintaining its mixed-methods framework to preserve methodological rigour and ethical integrity. This approach enabled participants to reflect on and evaluate their current health after transitioning to stable housing, as well as to retrospectively assess their health prior to being housed, within a single data collection period.

The retrospective pretest–posttest design represents a significant methodological advancement for evaluating program impacts and longitudinal change (Chang & Little, 2018). Originally introduced by Howard et al. (1979) through the *actual change* procedure and later extended in health-related research (Chang & Little, 2018), this design offers a robust alternative to the traditional pre-post-test model (Little et al., 2020). It is particularly advantageous in studies where participants' understanding of key constructs, such as health or wellbeing, may evolve throughout the intervention. By capturing both pre- and post-assessments concurrently, this design mitigates response-shift bias, allowing for more accurate and consistent self-reported change (Klatt & Taylor-Powell, 2021; O'Leary & Israel,

2019). Given the pandemic's disruption to baseline data collection, it also provided a practical and ethically sensitive means of capturing perceived health changes among a highly vulnerable population.

The adapted methodology retained the study's mixed-methods design. Quantitative analyses employed the actual change procedure (Chang & Little, 2018; Howard et al., 1979) to examine differences in physical health, anxiety, and depression before and after housing. Complementing this, qualitative data were analysed using reflexive thematic analysis (Braun & Clarke, 2006, 2021; Clarke & Braun, 2017), providing a nuanced understanding of participants' lived experiences of homelessness, the transition to housing, and life post-housing. Together, these approaches offered a rigorous, ethically responsive, and contextually grounded framework for investigating the health impacts of housing during an unprecedented period of global disruption.

2.2 Study Sample

A non-probability sampling approach, combining purposive and convenience sampling (Babbie, 2021; Creswell & Creswell, 2023), was used to recruit previously homeless adults (18+) and tenants of Homes North Community Housing, a not-for-profit social housing provider in regional NSW. Recruitment occurred across Armidale, Gunnedah, Inverell, Moree, and Tamworth to capture diverse housing experiences. Participants were housed through different housing programs including:

- **Start Safely (SS):** Short to medium-term private rental assistance for those escaping domestic or family violence (n=21)
- **Social Housing Management Transfer (SHMT):** Public housing tenancies managed by Homes North (n=14)
- **Together Home Program (THP):** Housing First approach for rough sleepers (n=7)
- **Other Programs:** Capital (n=3), Helping Youth Progress Achieve and Retain (HYPAR) (n=3), Transition/Private Rental (n=1), 2NESBP Owned (n=1)

2.3 Data Collection

Data was collected through self-report surveys and structured, in-depth telephone interviews, enabling a mixed-methods understanding of participants' experiences and health outcomes.

- **Demographic Questionnaire**: Captured socio-demographic information to contextualise health data.
- **Medical Outcomes Study 36-item Short-Form Health Survey (SF-36)** (Ware & Sherbourne, 1992): Measured health-related quality of life across eight domains. Scores were aggregated into two summary measures:
  - Physical Component Summary (PCS): Assesses physical health aspects including physical functioning, role limitations due to physical health, bodily pain, and general health perceptions. Higher scores indicate better physical health.
  - Mental Component Summary (MCS): Assesses mental health aspects including vitality, social functioning, role limitations due to emotional problems, and psychological wellbeing. Higher scores indicate better mental health.
- **Generalised Anxiety Disorder-7 (GAD-7) Scale** (Spitzer et al. in 2006): Evaluated the severity of generalised anxiety symptoms over the past two weeks. Higher scores reflect greater anxiety severity.
- **Patient Health Questionnaire-9 (PHQ-9)** (Spitzer et al. in 1999): Assessed depressive symptoms and overall severity over the past two weeks. Higher scores indicate greater depressive symptomatology.
- **Narrative Questionnaire**: Used during in-depth telephone interviews to explore participants' lived experiences of homelessness, barriers to securing stable housing, health perceptions and self-management strategies, and the availability of support systems.

2.4 Data Analysis

- **Quantitative Analysis:** Data were analysed using SPSS version 29 (IBM Corp., 2023). Descriptive statistics summarised participant characteristics and survey scores.

Changes in physical and mental health were assessed using repeated-measures MANOVA (Tabachnik & Fidell, 2019), examining differences in SF-36 PCS and MCS scores, GAD-7, and PHQ-9 scores reported by participants before and after securing housing via the retrospective pretest–posttest design. Analyses also explored associations with housing type and duration.

- **Qualitative Analysis:** Narrative interviews were analysed using reflexive thematic analysis (Braun & Clarke, 2006, 2021; Clarke & Braun, 2017) in NVivo version 12 (Lumivero, 2017). This process involved iterative coding and theme development to identify patterns related to participants' health, experiences of homelessness, challenges during housing transitions, and access to support systems.

Using a mixed-methods approach allowed the study to both measure the impact of housing and explore the underlying experiences and challenges that shaped these health outcomes, providing a more nuanced understanding of physical health, anxiety, and depression among PHI.

2.5 Scope and Limitations

2.5.1 Scope of Research

This study examined the impact of housing on the physical and mental health of people experiencing homelessness and transitioning into stable housing in the New England and Northwest regions of NSW, Australia. Participants were adults from diverse backgrounds and housing situations. Key health outcomes, physical health, anxiety, and depression, were assessed at two time points: retrospectively during homelessness and following transition to stable housing, allowing evaluation of changes over time.

The study also explored how different housing programs and housing duration influenced health outcomes. Geographically, it focused on regional centres including Armidale, Gunnedah, Inverell, Moree, and Tamworth, providing insight into local housing availability, program access, and regional policy frameworks.

A mixed-methods design integrated quantitative and qualitative data, capturing participant characteristics, causes of homelessness, current housing type and duration, and

health perceptions before and after housing. This comprehensive approach informed strategies to address the interrelated challenges of homelessness, housing, and health (Flavel et al., 2022).

2.5.2 Impact of COVID-19 on Research

The COVID-19 pandemic presented significant challenges to the research process. Movement restrictions and social distancing limited opportunities for in-person interviews and on-site data collection. As a result, the study relied more heavily on surveys and telephone interviews, which may have influenced participant engagement and the depth of qualitative data. The pandemic also affected the availability and functioning of housing programs and support services, potentially altering participants' experiences and outcomes. These contextual factors were carefully considered during data analysis and interpretation to ensure accurate reflection of housing stability and health outcomes.

2.5.3 Limitations of Research

While the study provides valuable insights, several limitations are acknowledged:

- Sample size and generalisability: Participant availability and willingness may limit representativeness; the findings cannot be assumed to generalise to all PHI.
- Self-reported data: Reliance on participant recall may introduce recall bias or social desirability bias, affecting the accuracy of health assessments.
- Population mobility: The transient and often hidden nature of the homeless population complicates follow-up, resulting in potential incomplete data.
- Variability in services: Differences in housing quality and support availability across regional NSW may influence outcomes, complicating analysis of housing-health relationships.
- Context-specific factors: Local policies, economic conditions, and social services may limit applicability to other regions or populations.
- Timeframe limitations: The study may not capture long-term health impacts of housing stability, as some outcomes take time to manifest.

2.5.4 Addressing Limitations

Several strategies were implemented to mitigate these limitations:

- Targeted recruitment in collaboration with Homes North ensured a diverse participant pool.
- Validated instruments and triangulation of self-reported and qualitative data enhanced reliability.
- Structured interview and follow-up protocols minimised attrition.
- Sensitivity analyses accounted for variability in housing programs and support services, providing context-specific insights that strengthened interpretation.

Through these measures, the study aimed to enhance data quality, reliability, and applicability, while acknowledging the inherent challenges of researching vulnerable populations in regional contexts.

3. Key Findings & Discussion

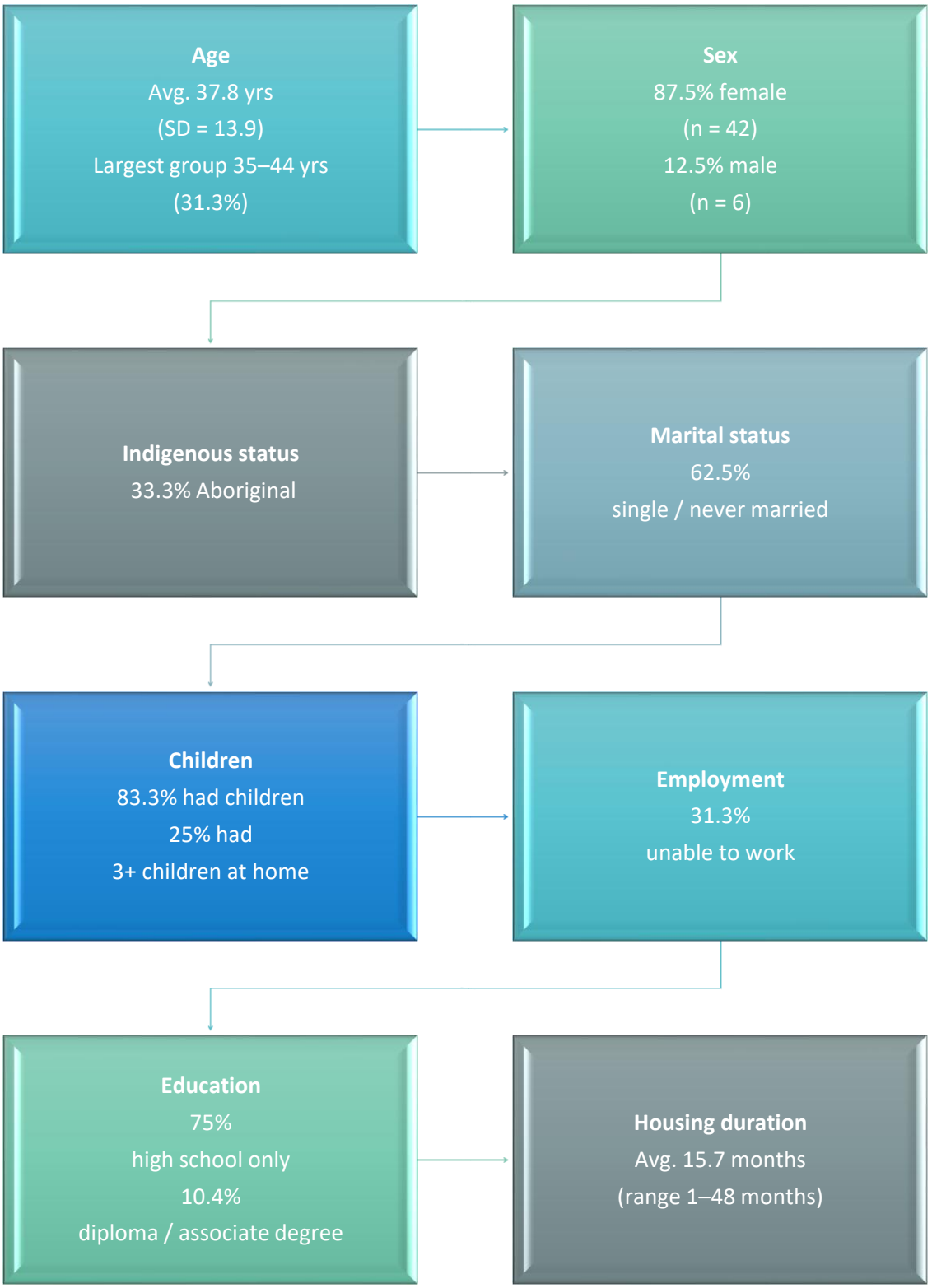
This study explored the impact of housing on the physical and mental health of PHI, alongside their lived experiences of homelessness and housing transitions. Findings are presented across four key areas: demographic characteristics, physical health outcomes, mental health outcomes, and lived experiences, and are contextualised within existing research.

3.1 Demographic Characteristics

The study participants reflected a diverse demographic profile. The majority were women with children, and one-third (33.3%) identified as Aboriginal (Figure 4). Many of the participants had experienced prolonged or repeated episodes of homelessness. This diversity is significant as it captures the breadth of experiences and challenges faced by individuals transitioning from homelessness to housing, providing a richer understanding of the findings within a broader social context.

Figure 4

Demographic Characteristics (n = 48)



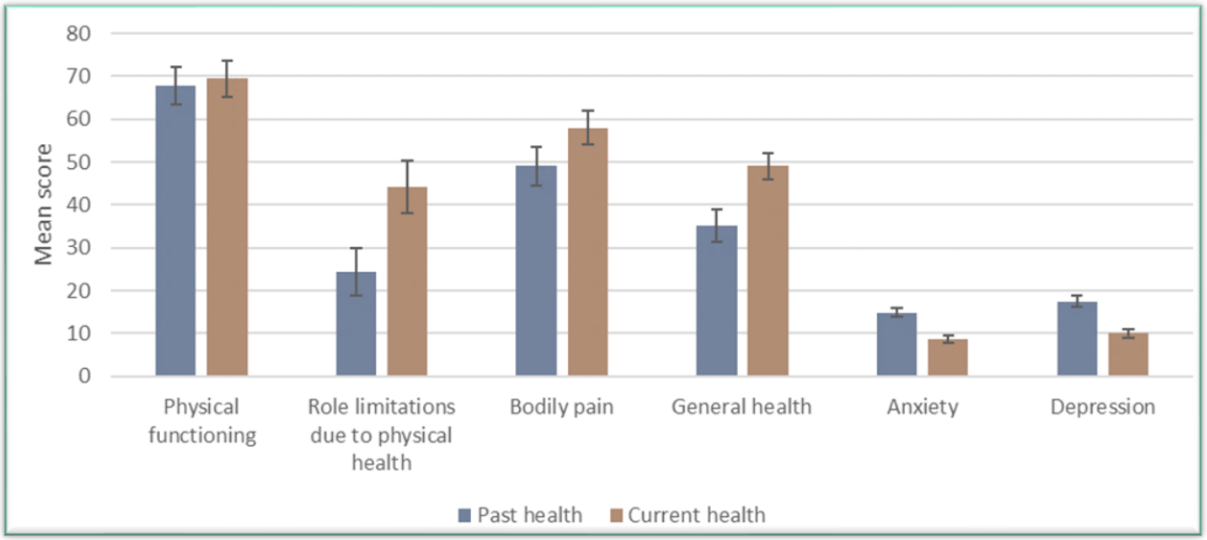
3.2 Physical Health Outcomes

3.2.1 Physical Health and Housing Status

Research Question 1 examined changes in physical health among PHI before (past health) and after (current health) their transition into stable housing. The analysis revealed no significant differences in physical functioning or bodily pain; however, participants reported a significant reduction in role limitations due to physical health and a notable improvement in general physical health following their move into stable housing (Figure 5). These findings support existing evidence that stable housing can mitigate the impact of physical health issues on daily activities and overall wellbeing (Martinez & Burt, 2006; Rog et al., 2014), contributing to improved health outcomes (Maqbool et al., 2015). Such improvements are likely linked to reduced exposure to harmful conditions associated with homelessness, including poor nutrition (Seale et al., 2016), limited healthcare access (Larimer et al., 2009), and chronic stress (Padgett, 2020). Although literature often focuses on prevalent health issues among people experiencing homelessness, such as musculoskeletal problems (Kale et al., 2021), chronic pain (Vogel et al., 2021), and infectious diseases (Waddell et al., 2024), research examining the specific impact of housing on physical health outcomes remains limited. This study contributes new evidence, showing that stable housing significantly improves general health and reduces role limitations caused by physical health conditions.

Figure 5

Mean Scores of Study Measures During Homelessness (Past Health) & After the Transition to Housing (Current Health)



Note. Error bars represent ranges of standard errors.

3.2.2 Physical Health and Housing Type

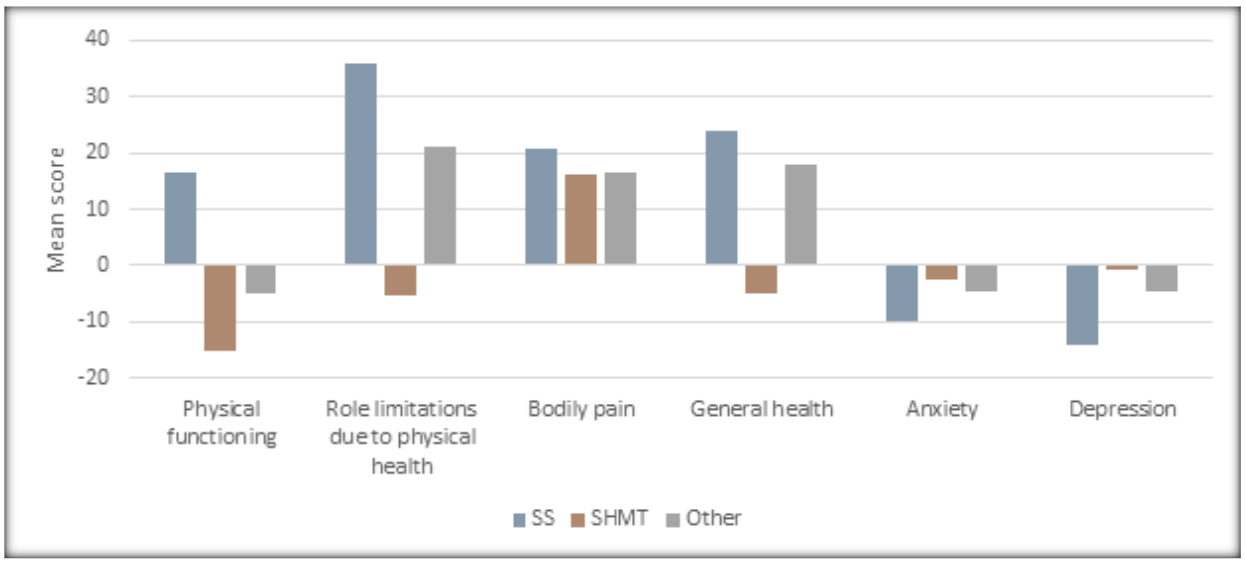
Research Question 2 explored whether different housing types influence physical health outcomes. Overall, no significant differences were observed in role limitations due to physical health, bodily pain, or general health across housing types. However, a marginal effect in physical functioning was identified, indicating slight variations depending on housing type. While not statistically significant, this trend warrants further investigation.

Supplementary analyses showed that physical functioning, role limitations, and general health did not differ significantly across housing types, but there was a significant reduction in bodily pain for participants in the SS program, which is tailored for individuals experiencing homelessness because of DFV (Figure 6). This reduction was greater than that observed in both the SHMT and Other housing programs. This finding is important given the high rates of chronic pain among homeless populations (Vogel et al., 2021) and among DFV survivors, for whom physical injuries and psychological distress are common (Uvelli et al., 2023; 2024). The SS program's impact aligns with existing research linking stable, supportive housing with improved health outcomes for DFV survivors. While broader studies often focus

on general health improvements (Baxter et al., 2019), they rarely examine which specific health domains benefit most. This study highlights how tailored, trauma-informed housing programs can yield significant physical health benefits, particularly in reducing bodily pain, underscoring the value of program design that responds to the specific needs of vulnerable groups (Maqbool et al., 2015; Rog et al., 2014).

Figure 6

Estimated Marginal Means of the Change Scores Based on Housing Type



3.2.3 Physical Health and Housing Duration

Research Question 3 investigated whether the duration of time spent in housing (1–12 months vs. 13+ months) influences physical health outcomes. The findings showed no significant differences based on housing duration, indicating that other factors may have a greater influence (Rolfe et al., 2020). This result is consistent with literature suggesting that housing quality and access to support services are more critical than length of stay (Padgett et al., 2020). While earlier studies proposed that longer housing durations lead to better health outcomes (Tsemberis et al., 2004), stable housing primarily enhances health by offering security, reducing stress, and facilitating healthcare access (Carnemolla & Skinner, 2021;

Henwood et al., 2013). An exclusive focus on duration may overlook the complex interplay of factors affecting physical health. Initial health gains, such as improved safety and relief from homelessness, may plateau over time unless supplemented by ongoing support and healthcare access (Henwood et al., 2013; Padgett et al., 2020). This suggests that the quality and context of housing, rather than duration alone, are key drivers of sustained physical health improvements.

3.3 Mental Health Outcomes

3.3.1 Anxiety and Depression, and Housing Status

Research Question 1 examined changes in anxiety and depression among PHI before (past health) and after (current health) transitioning into stable housing. The findings revealed a significant reduction in both anxiety and depression following the move into stable housing. This highlights the severe mental health impact of homelessness and underscores the positive role of stable housing in improving psychological wellbeing (Figure 5). These results align with Sharpley et al. (2019), who found that social housing significantly reduced anxiety for nearly one-third of participants in a regional NSW study using a retrospective pre-test design. Similarly, Henwood et al. (2013) reported that housing stability is strongly associated with reduced stress and anxiety, demonstrating the importance of stable housing combined with supportive services in alleviating mental distress.

The significant decline in depression observed in this study also supports previous research by Schick et al. (2019) and Henwood et al. (2013), both of which reported notable improvements in depression among participants receiving permanent supportive housing. In line with these findings, tailored support within housing programs played a critical role in reducing depressive symptoms over time. Collectively, these results reinforce the value of stable housing as a key intervention for improving mental health outcomes, particularly anxiety and depression, among people transitioning from homelessness.

3.3.2 Anxiety and Depression, and Housing Type

Research Question 2 explored whether different housing types influence anxiety and depression outcomes for PHI. Supplementary analyses indicated that housing type

significantly affects mental health outcomes after transitioning to stable housing (Figure 6). Participants in the SS program experienced marginal reductions in anxiety compared to those in the SHMT program. While anxiety levels also trended lower in SS participants than in those in Other housing programs, this difference was not statistically significant. No significant differences were found between the Other and SHMT programs.

Regarding depression, participants in the SS program reported significantly lower depression levels compared to both the SHMT and Other housing programs, highlighting the SS program's effectiveness in addressing mental health needs (as well as physical health). These results are consistent with research on supportive housing models. For example, Rog et al. (2014) found that supportive housing with integrated services, including mental health care and case management, significantly reduces depressive symptoms. Culhane et al. (2011) reported that programs tailored to specific needs, such as those for DFV survivors, lead to substantial mental health improvements. Patterson et al. (2013) likewise found that trauma-informed housing with specialised support services is more effective in improving depression outcomes and quality of life than standard housing interventions. More recently, Jaramillo and Rohe (2023) examined direct and indirect effects of housing assistance on mental health and found that while housing assistance directly reduced anxiety, its impact on depression was indirect and less pronounced. They argued that integrating mental health services into housing programs enhances effectiveness, supporting this study's finding that the SS program's integrated, trauma-informed approach leads to superior mental health outcomes.

3.3.3 Anxiety and Depression, and Housing Duration

Research Question 3 investigated whether the length of time spent in housing (1–12 months vs. 13+ months) affects anxiety and depression outcomes among PHI. The analysis found no significant differences in anxiety or depression levels between the two groups, suggesting that within the observed timeframe, housing duration alone does not significantly influence these mental health outcomes. This aligns with existing literature showing that while stable housing improves general mental health, duration by itself is not a strong predictor of reductions in anxiety or depression. Factors such as personal resilience and coping strategies (Durbin et al., 2014) and social support networks (Henwood et al., 2015) may play more

significant roles. The initial transition to stable housing often brings the greatest mental health benefits, with further improvements depending more on the quality and comprehensiveness of support services than on duration. Henwood et al. (2015) suggest that effective support and community integration can have a deeper impact on mental health than time alone. Some individuals experience rapid improvement due to strong resilience or existing support systems, while others require targeted interventions regardless of duration. Like the findings for physical health, the benefits of stable housing for mental health do not necessarily increase with time. Instead, sustained mental health improvements are more likely when stable housing is paired with appropriate, ongoing support.

3.4 Lived Experiences

3.4.1 Lived Experiences of Homelessness

> ***"It's like living in a black hole that you can't find your way out of."*** - Participant

Reflexive thematic analysis of Research Question 4 highlighted that homelessness among participants was primarily driven by personal trauma, economic hardship, and systemic barriers, including DFV, IPV, and family conflict. This aligns with literature showing that escaping unsafe environments often results in homelessness due to limited housing options and inadequate support systems (AIHW, 2023). Economic pressures, particularly the lack of affordable housing, low vacancy rates, and widening income, rent gaps, further compounded housing insecurity (NHSAC, 2024; Productivity Commission, 2024). Participants' experiences ranged from couch-surfing and rough sleeping to temporary accommodation in motels or hostels, underscoring the scarcity of formal housing and the limited effectiveness of temporary solutions (Chamberlain et al., 2014; Flatau et al., 2021). Differences between these findings and ABS (2021) data, which show higher use of boarding houses and supported accommodation, may reflect the hidden nature of couch-surfing and the regional NSW context of this study (Pawson et al., 2022). Overstretched emergency shelters, particularly for women,

further highlight the urgent need for improved transitional and long-term housing supports (Johnson et al., 2015; Spinney & Blandy, 2011).

3.4.2 Lived Experiences of Transitioning to Stable Housing

> *"The hardest part is getting knocked back."* - Participant

Further analysis of Research Question 4 identified several barriers individuals face when transitioning from homelessness to stable housing, consistent with existing literature. High costs associated with transitional accommodation like motels pose significant financial challenges, often exceeding the capacity of those experiencing housing instability (Buck-McFadyen & Okoye, 2025; Kuskoff et al., 2025). Restrictive rental properties, particularly those prohibiting pets, further limited housing options and added stress to the transition process. Literature supports the critical role of pets in providing emotional support and improving mental health, especially for vulnerable groups (Hoffman et al., 2021), highlighting the need for more inclusive housing policies. Personal barriers such as feelings of shame and low self-worth prevented some individuals from seeking assistance, reflecting broader research on stigma and self-perception issues (Piat et al., 2015; Rea, 2021). Many participants regretted not seeking help sooner, illustrating pervasive reluctance due to internalised shame. These findings highlight the need for accessible systems to address both financial and emotional challenges faced by individuals transitioning to stable housing.

3.4.3 Perceived Impact of Homelessness and Housing on Health

> *"It was really terrible. I was on suicide watch because I tried to take my life several times, but now I've got my own place, I want to live."*- Participant

When analysing Research Question 5, participants described a marked decline in both physical and mental health during periods of homelessness. Many experienced heightened anxiety, depression, stress, and, in some cases, suicidal ideation. These findings align with

research linking homelessness to elevated mental health issues driven by chronic stress and insecurity (ABS, 2008; Fazel et al., 2008; 2014; Padgett et al., 2020). Physical health also deteriorated, with poor nutrition and inadequate living conditions increasing the risk of chronic and infectious diseases and worsening existing health problems due to harsh environments and limited healthcare access (Vogel et al., 2021; Waddell et al., 2024). In contrast, stable housing led to substantial improvements in health and wellbeing. Participants reported better access to medical care, improved nutrition, and greater capacity to manage their health, echoing evidence that stable housing supports better health outcomes and self-reported health (Hwang et al., 2012). The psychological benefits were equally significant, with increased feelings of security, reduced anxiety, and enhanced life satisfaction. These observations align with literature highlighting the mental health advantages of stable housing, including greater safety and reduced depression (Gubits et al., 2015). Overall, the findings underscore the vital role of secure housing in mitigating the harms of homelessness and improving overall quality of life.

3.4.4 Health Management During Homelessness and After Securing Housing

> *"If it's not life-threatening or anything…I'm not going to rush off to the doctor."*- Participant

Further analysis of Research Question 5 revealed significant challenges participants faced in managing their health during homelessness, contrasting sharply with their experiences once housed. The instability and unpredictability associated with homelessness severely hindered effective health management. Participants reported difficulties in maintaining consistent medical care due to the lack of a stable address and the transient nature of temporary accommodations or living on the streets. These findings align with research indicating that homelessness exacerbates health conditions and complicates chronic disease management due to barriers to accessing care and maintaining treatment regimens (Hwang et al., 2012). In contrast, securing stable housing significantly improved participants' ability to manage their health, with better adherence to medication regimens, regular GP

appointments, and enhanced self-care practices. This improvement aligns with literature that emphasises the critical role of stable housing in supporting effective health management (Gubits et al., 2015).

3.4.5 Supports from Homelessness to Stable Housing

> *"Tammy from Homes North and the Homes North team have been great."* - Participant

In addressing Research Question 6, the analysis identified key support systems assisting individuals transitioning from homelessness to stable housing, including family, friends, organisations, health professionals, and community networks. Family support was often limited during homelessness due to strained relationships and stigma (Phelan et al., 1997), leading many to rely on peers, highlighting the value of community and peer connections. Friends often provided temporary accommodation and emotional support, though extended dependence sometimes caused relationship strain and isolation (McLoughlin, 2012).

Organisational support proved crucial, with non-profits and community programs, such as HN and Tamworth Family Support Service, offering essential services, effective case management, and emotional support that improved housing and health outcomes (Henwood et al., 2013; Padgett et al., 2020). Collaborative, integrated service models were vital for addressing the complex needs of this group (Macnaughton et al., 2018). Health professional support increased once participants were housed, enabling better access to care and management of chronic conditions, consistent with research linking stable housing to improved health outcomes (Buchanan et al., 2009). After securing housing, participants' support networks shifted: neighbours became key sources of practical and emotional assistance, fostering community and belonging. Stability enabled participants to move beyond survival and pursue education, employment, and personal growth. Overall, these findings underscore the importance of a multifaceted support network in enabling and sustaining successful transitions from homelessness to stable housing.

4. Policy and Practice Implications

The findings of this study have important implications for policy and practice in addressing homelessness and improving health outcomes for both homeless and previously homeless populations. The research highlights the urgent need for policies that enhance housing affordability and accessibility, as high accommodation costs and a lack of affordable options were major barriers for participants. Policymakers should prioritise increased investment in affordable housing, including expanding rental options, boosting funding for public housing, and supporting initiatives that create sustainable, low-cost rental opportunities. Equally, there is a need to develop and fund programs that provide affordable and supportive transitional housing. Offering financial assistance or subsidies for temporary accommodation, such as motels or hostels, could help alleviate financial pressures during crises. Streamlining application processes and establishing integrated service centres that combine housing applications, financial aid, and support services would also simplify transitions to stable housing. More flexible housing policies, such as permitting pets in rentals, could further reduce barriers for individuals seeking long-term stability.

Current funding models pose challenges to the effective delivery of housing services. State-managed housing often struggles to meet complex needs, whereas community housing providers, supported by additional Commonwealth Rent Assistance and lower tenant-to-staff ratios, are better placed to deliver holistic support. Nonetheless, insufficient funding remains a key constraint for both sectors. Emerging initiatives, such as the Social and Affordable Housing Fund in New South Wales, offer promising opportunities by providing community housing organisations with resources to deliver tailored support and improve transitions into private rentals. The study also reinforces the importance of integrating housing and health policy, recognising that stable housing underpins effective health management. Coordinated care models that ensure continued access to medical and mental health services, both during and after housing transitions, are essential to sustaining wellbeing.

Reducing stigma and strengthening community-based supports are also vital. Public awareness campaigns can foster empathy and understanding, while increased support for

outreach, shelter, and case management services can help individuals maintain stability. Strengthening family relationships through counselling and targeted resources could address another key gap identified by participants. Support programs tailored for specific populations, such as survivors of DFV, people with mental health issues, or those with disabilities, are crucial for ensuring sustainable recovery. Initiatives that promote community engagement, education, and employment opportunities can further consolidate housing stability and enable individuals to achieve long-term personal and professional growth. While these recommendations are grounded in lived experience and supported by thematic analysis, translating research into policy is complex. As Head (2013) notes, policy development is rarely driven by evidence alone, but rather by a combination of political priorities, institutional constraints, and public sentiment. Accordingly, the policy directions proposed here should be viewed as contributions to a broader and ongoing dialogue. The insights from this research advocate for flexible and inclusive housing policies informed by both empirical evidence and lived realities, fostering responsive systems that reflect the complexity of homelessness, healing, and social reintegration.

5. Conclusion

This study provides significant evidence that housing functions as a critical determinant of health, serving as a powerful intervention that produces measurable improvements in both physical and mental health. For women escaping DFV, the transition into stable housing was particularly transformative, providing safety, security, and relief from trauma-related distress. Importantly, the findings indicate that it is the transition into housing itself, rather than the length of tenancy, that marks a pivotal turning point in health recovery. These results align with international evidence supporting Housing First approaches and underscore the need for closer integration between housing and health policy domains. Recognising housing as essential health infrastructure, rather than merely a component of social welfare, is vital to addressing systemic inequities and promoting sustained wellbeing.

Overall, stable housing represents far more than physical shelter; it is foundational to health, safety, and social inclusion. The evidence from this study demonstrates that access to

secure and stable housing produces immediate and significant improvements in physical health, anxiety and depression for individuals transitioning out of homelessness in regional New South Wales. For organisations such as Homes North, these findings reaffirm the value of continued investment in housing solutions that are integrated with holistic, wraparound supports. Ultimately, housing must be recognised and implemented as a public health intervention, one capable of reducing systemic costs, breaking cycles of trauma, and fostering individual and community flourishing.

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Appendix A

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REVIEW ARTICLE

Health and Social Care in the community

WILEY

The physical and mental health effects of housing homeless people: A systematic review

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Abstract

Housing is a significant determinant of health and is widely accepted as a key solution to address some of the health disparities that exist among the homeless. It is estimated that 150 million people worldwide are homeless, and approximately 1.8 billion lack adequate housing. However, understanding of how housing has a positive impact on the health of the homeless remains unclear and underdeveloped. This systematic review investigates intervention studies that report on the physical and mental health effects of housing homeless persons. A search of PubMed, PsycINFO, EBSCOHost-Academic Search Complete and the Cochrane Library was conducted for peer-reviewed articles published in English from 1999 to 2020 that had a combination of at least one housing intervention and health outcome, with a homeless sample. Three previous reviews and 24 studies were included for analysis. Most of the studies (n = 20) encompassed permanent supportive housing interventions that emphasised placing homeless people with mental illness directly into affordable housing with access to support services. The primary health outcomes reported were general physical and mental health, well-being, and quality of life. Despite inconsistent findings and significant issues identified in the reviewed literature, housing (in the short term) improves some aspects of health in homeless populations with human immunodeficiency virus, anxiety and depression.

KEYWORDS
anxiety, depression, health, homelessness, housing

1 | INTRODUCTION

Globally, an estimated 150 million people are homeless (United Nations Human Rights Council [UNHRC], 2020) and 1.8 billion lack adequate housing (United Nations Human Rights Council [UNHRC], 2019). Housing is a significant determinant of health (Fitzpatrick et al., 2013; Gibson et al., 2011; Thomson et al., 2013). The relationship between homelessness and poor health is well documented (Fazel et al., 2008, 2014; Johnson & Chamberlain, 2011; Munoz et al., 2005). Homeless people are prone to similar health problems that occur in the general population. However, poor physical and mental health is often associated with poverty and is more pronounced in homeless people (Fazel et al., 2014).

Physical illnesses that may result from, or are commonly associated with homelessness include malnutrition (Wright, 1990), chronic pain (Hwang, 2001), skin diseases (Stratigos et al., 1999), musculoskeletal disorders (Hwang, 2001) and poor dental health (Figueiredo et al., 2013). Due to difficult living conditions (rough sleeping and overcrowded accommodation), homeless people are also vulnerable to many respiratory disorders such as community-acquired pneumonia (Jones et al., 2013), asthma and chronic obstructive pulmonary disease (Lewer et al., 2019), and infectious diseases such as tuberculosis, hepatitis C virus, HIV (human immunodeficiency virus) and AIDS (acquired immune deficiency syndrome) (Fazel et al., 2014; Raoult et al., 2001).

In 2012, Beijer, Wolf and Fazel conducted a systematic review and meta-analysis to establish the prevalence of tuberculosis,

hepatitis C virus and HIV in homeless people based on 43 studies (n = 59,736) that reported tuberculosis estimates ranging from 0.2% to 7.7%. This prevalence was lower than HIV (0.3%–21.1%) and hepatitis C (3.9%–36.2%) estimates (Beijer et al., 2012) but were reported to be 'at least 20 times higher, and for United States studies, they were more than 40 times higher' than in the general population (Fazel et al., 2014, p. 6).

When considering the prevalence of mental health disorders among the homeless, Fazel et al., (2008) systematically analysed 29 studies (*N* = 5,684) from seven western countries (North America, Western Europe, Australia and New Zealand). They found that alcohol (8.5%–58.1%) and drug (4.7%–54.2%) dependence were the most common mental health disorders. These results are consistent with reported alcohol (21.3%) and substance (13.5%) dependence estimates in homeless populations in the United Kingdom (Bowen et al., 2019) and Australia, which are more than three times higher (18%) than the general population (5%) (Australian Bureau of Statistics [ABS], 2008). In addition, Fazel et al., (2008) found that prevalence estimates for psychosis among the homeless were between 2.8% and 42.3%, which is significantly higher than the estimates obtained in community samples that are typically 1%–2% (Kessler et al., 2005). Similar estimates (up to 41%) were found for major depression (Fazel et al., 2008) and are comparable to that of homeless populations in Australia, where 39% reported having an anxiety disorder and 28% a mood disorder, compared to 14% of the general population who reported having an anxiety disorder and 6% a mood disorder (ABS, 2008).

Homelessness is also linked to an increase in morbidity (Nielsen et al., 2011) and multi-morbidity (Bowen et al., 2019), and longitudinal studies (Aldridge et al., 2019; Nordentoft & Wandall-Holm, 2003; Seastres et al., 2020; Stenius-Ayoadeet al., 2017) show that homelessness is associated with higher mortality. For example, the homeless in Copenhagen hostels are four times more likely than the general population to die early (Nordentoft and Wandall-Holm, 2003), while homelessness in Finland is linked to a five-fold increase in mortality (Stenius-Ayoadeet al., 2017). In Australia, homelessness is related with an almost two-fold greater risk of mortality over a 15-year period and an approximately 12-year reduction in age at death when compared to non-homeless emergency department attendees (Seastres et al., 2020). When compared to the general population, this is estimated to be a nearly four-fold increase in mortality.

Access to safe, secure, and affordable housing is widely accepted as a key solution to address the problem of homelessness and some of the health disparities that exist in homeless populations (Gaetz & Dej, 2017; Henwood et al., 2013). Housing, combined with support services to help homeless people remain housed (known as Housing First [HF]), has been identified as the foundation for meeting the needs of homeless people with mental illness (Tsemberis, 1999, 2011). However, understanding of *how* housing has a positive impact on the physical and mental health of homeless people remains unclear and underdeveloped.

The use of reviews to synthesise evidence is increasing in the areas of homelessness, housing and health (Evans et al., 2003; Foster, Gronda, Mallet, & Bentley, 2011; Gibson et al., 2011; Hwang et al., 2005; Kertesz et al., 2009; Kyle & Dunn, 2008; Rog et al., 2014; Woodhall-Melnik & Dunn, 2016; Ziersch & Due, 2018). However, not all systematic reviews meet the criteria for reproducibility (Rog et al., 2014; Woodhall-Melnik & Dunn, 2016). Systematic reviews focused on defining housing intervention research and their effect on both the physical and mental health of homeless people have received little attention (Aubry et al., 2020; Baxter et al., 2019; Fitzpatrick-Lewis et al., 2011). Furthermore, no reviews have been published to our knowledge that investigate the impact of *various* housing interventions on the physical and mental health of homeless people. While Baxter et al.'s (2019) review presents new data on the health effects of HF, it does not provide other housing measures, leaving a void in the existing literature. There is a need to examine what is already known about the effects of current housing interventions (HF), as well as to identify other possible housing interventions and their impact on the physical and mental health of homeless people, as well as identify areas where new research might be needed, in order to determine future study priorities.

Therefore, the objectives of this systematic review were to (i) identify and synthesise data available in the literature on *various* housing interventions and to examine their impact on the physical and mental health of homeless people, and (ii) during the review process, identify any significant gaps that can direct future research.

What is known about this topic

- Poor physical and mental health is more pronounced in homeless people.
- Housing is widely accepted as a key solution to address the problem of homelessness and some of the physical and mental health disparities that exist in homeless populations.
- Not all systematic reviews meet the criteria for reproducibility, and no systematic reviews have been published that investigate the impact of *various* housing interventions on both the physical and mental health of homeless people.

What this paper adds

- A careful and systematic identification and review of current areas of literature in the fields of homelessness, housing and health.
- Current knowledge of permanent supportive housing, transitional housing, social housing, and community housing, and their impact on the physical and mental health of homeless individuals.
- Some evidence for permanent supportive housing and social housing providing positive benefits for homeless peoples' anxiety and depressive states.

2 | METHODS

This systematic review was conducted according to a pre-planned protocol based on the 2015 Statement of Preferred Reporting Items for Systematic Review and Meta-Analysis Protocols (PRISMA-P) (Moher et al., 2009) and the updated guide to the 2020 PRISMA Statement (Page et al., 2020) (see File S1 for PRISMA-P 2015 checklist). In addition, the PICOS (Population, Intervention, Comparison, Outcomes and Study design) framework (Schardt et al., 2007) guided the formulation of the review criteria and is found in Table 1 in File S2.

2.1 | Search strategy

The search strategy for this systematic review was developed by one reviewer (HO) to identify eligible studies on the effectiveness of *various* housing interventions on the physical and mental health of homeless people. Four multidisciplinary, electronic databases—PubMed, PsycINFO, EBSCOHost-Academic Search Complete, and the Cochrane Library—were searched up to May 2020 using a combination of search terms from Medical Subject Headings (MeSH) that included home*, homeless, homelessness, hous*, housing, health, physical health, mental health, anxiety and depression. The search strategy for some of the databases is found in File S3.

Other potentially eligible articles not identified in the electronic databases were sought by reference to organisations and websites in the areas of homelessness, housing and health. Organisations included the American Psychological Association, the Australian Housing and Urban Research Institute, Homes North Community Housing, the Institute of Global Homelessness, and the World Health Organisation. Websites included https://aihw.gov.au, https://endhomelessness.org, http://www.homelessnessaustralia.org.au and http://www.missionaustralia.com.au

2.2 | Search inclusion and exclusion criteria

This systematic review included all peer-reviewed journal articles published in English from January 1999 to May 2020 that included a combination of at least one housing intervention and health outcome, with a homeless sample. Pilot research or studies that focused on a particular population (veterans and youth) or clinical measure (psychosis) that were considered too specific to the key areas of homelessness and physical and mental health were excluded.

2.3 | Screening and selection of studies

Before the screening process, a Word spreadsheet was created to record the details of each search. All references were imported into Endnote X9.1 and categorised to make the process of searching, screening and selecting transparent and reproducible. After duplicates were removed, one reviewer (HO) independently screened titles and abstracts and then reviewed the full texts of all potentially eligible articles, excluding the studies that did not meet the specific inclusion criteria for this review (online supporting information). A second reviewer (CFS) independently screened more than 10% (35) of the excluded articles to ensure that no relevant studies were erroneously excluded. Figure 1 in Appendix S1 shows the PRISMA flow diagram detailing the process of searching, screening and selecting the three previous reviews and 24 included studies, with exclusion reasons at the full-text selection level (see File S4 for a list of the excluded articles).

2.4 | Data analysis

Two data extraction tables were created to outline the key characteristics and main findings of the three previous reviews (Table 2 in File S5) and each study (Table 3/Appendix S2) included in this review. All data were extracted by one reviewer (HO) and checked by a second reviewer (CFS). The extracted data included author and year of publication, city and country in which the study was conducted, journal in which the study was published, the focus of the study, study design and sample size, housing intervention (model) used, health measures used and health outcomes reported, and main study findings (Table 3/Appendix S2).

To estimate potential bias at the individual study level (Higgins et al., 2017), two reviewers (HO and CFS) independently used the revised Cochrane Risk-of-Bias for Randomised Trials (ROB 2) (Sterne et al., 2019) and the Risk of Bias in Non-randomised Studies of Interventions (ROBINS-I) (Sterne et al., 2016) tools. Justifications for judgements of risk of bias (low, high and some concerns) for each study were recorded, and any discrepancies were resolved by both reviewers. The ROBVIS (visualisation tool for risk of bias assessments in a systematic review) (McGuinness & Higgins, 2020) tool was then used to create 'traffic light' plots of the domain-level judgements for each individual result (Figure 2 in File S7, Figure 3 in File S8 and Figure 4 in File S9).

3 | RESULTS

Database searches identified 5,230 records, and after removing duplicates, 2,338 records remained eligible for the screening of titles and abstracts. Google Scholar records (n = 18,301) were also screened to add in any further relevant records. During the screening of titles and abstracts, 1,976 database records were excluded because they were not relevant to the focus of this systematic review. After reviewing the remaining full texts (n = 362), six reviews and 329 articles were excluded because they did not meet the inclusion criteria (File S2). A total of three systematic reviews and 24 peer-reviewed research articles were eligible to be included in this systematic review (Figure 1/Appendix S1).

3.1 | Summary of findings from the three previous reviews included in this review

Two systematic reviews (Aidala et al., 2016; Bassuk et al., 2014) and one systematic review and meta-analysis (Baxter et al., 2019) that focused on the health effects of housing on homeless persons were included. Bassuk et al., (2014) investigated the effects of HF with assertive community treatment (ACT) and intensive case management (ICM) among homeless people and families. Aidala et al., (2016) explored the relationship between housing status (adequacy, stability, security and affordability), medical care and health outcomes for homeless people living with HIV (PLWH). Baxter et al., (2019) systematically reviewed the evidence from randomised controlled trials on the effects of HF on health and well-being. A summary of the key characteristics of each review is found in Table 2 in File S5.

The overall findings from these previous reviews were that HF successfully improves housing stability for homeless people (Baxter et al., 2019) and may improve some aspects of short-term health (HIV) (Aidala et al., 2016). However, no significant differences in substance use were observed between the HF and treatment as usual (TAU) groups (Baxter et al., 2019), and the long-term effects of HF are unknown. Aidala et al.'s (2016) review provided insight into the physical health outcomes associated with homeless PLWH that may be relevant to a broader homeless population. Unstable (or inadequate) housing was associated with inconsistent utilisation of HIV care, reduced treatment effectiveness and HIV transmission risk behaviours. However, as housing status improved, access to care and maintaining treatment also improved.

The weak evidence of HF's positive impact on the health of homeless people and families was emphasised in all three reviews. The absence of information about certain HF approaches (Baxter et al., 2019) and methodological limitations of individual studies in the reviews (Aidala et al., 2016; Bassuk et al., 2014) makes it difficult to draw conclusions about the effectiveness of housing on homeless people's physical and mental health. Furthermore, the absence of non-HF housing interventions and the reporting of physical health outcomes other than HIV are two significant gaps that were identified in the three reviews.

3.2 | Summary of findings from the 24 studies included in this review

Detailed summaries of each study ($n = 24$) included in this review are found in Table 3 in Appendix S2. Also, an outline of the key characteristics of the 24 studies included in this review is found in Table 4 in File S6.

3.3 | Risk of bias assessments

Of the 24 studies included in this review, only two (Buchanan et al., 2009; Tsemberis et al., 2004) were primary randomised control trials. If 'high' risk of bias was reported in at least one domain of bias, then the study was given an overall 'high' rating (see File S7). Ten studies (Aquin et al., 2017; Aubry et al., ,2015, 2016; Collins et al., 2016; Kerman et al., 2020; Kirst et al., 2015; O'Campo et al., 2016; Somers et al., 2015; Stergiopoulos et al., 2014; Urbanoski et al., 2018) were secondary randomised control trials. If the study was judged to have 'some concerns' for multiple domains in a way that substantially lowered confidence in the result, then the study was given an overall 'high' risk of bias (see File S8). For the remainder of the studies (Brown et al., 2015; Collard et al., 2014; Driscoll et al., 2018; Hall et al., 2019; Karim et al., 2006; Kirst et al., 2014; Schick et al., 2019; Sharpley et al., 2019; Siegel et al., 2006; Spector et al., 2020; Tsai et al., 2019; Whittaker et al., 2015), if the study was judged to be at 'low' or 'moderate' risk of bias for all domains, then the study was given an overall 'moderate' risk of bias, as the study provided sound evidence for a non-randomised study but could not be considered comparable to a well-performed randomised trial (see File S9).

3.4 | Housing interventions identified in the 24 studies included in this review

Housing interventions (models and support services) identified in the 24 studies reviewed here varied across different locations and were categorised into four types of housing: (i) permanent supportive housing, (ii) transitional housing, (iii) social housing and (iv) community housing. An overview of each type of housing can be found in Table 5 in Appendix S3).

3.5 | Health outcomes reported in the 24 studies included in this review

In the included 24 studies, various measuring instruments were used to examine health outcomes. Detailed information on how often each tool was used in the identified study pool is found in Table 6 in File S10. The primary health outcomes examined in the 24 studies are listed below and grouped by domain: physical health outcomes and mental health outcomes. Other outcomes that were related to health (substance use) were also recorded.

3.6 | Physical health outcomes

3.6.1 | Health-related quality of life (HR-QoL)

Health-related quality of life (HR-QoL) was reported in two studies (Spector et al., 2020; Tsai et al., 2019) and is a multi-dimensional concept that encompasses self-reported physical, mental, emotional and social functioning domains (Wilson & Cleary, 1995). When measuring HR-QoL (SF-12; SF-36), analysis of the Physical Component Summary (PCS) in both studies revealed that when permanent

supportive housing (PSH) was provided, chronically homeless individuals did not show any significant improvement ($p < .001$).

3.6.2 | General physical health

General physical health was reported in two studies based on self-reported physical symptoms (stress/post-traumatic stress disorder (PTSD), blood pressure, depression, seizures and acute and chronic pain) (Driscoll et al., 2018) or PCS analyses (SF-12) (Whittaker et al., 2015). The results of the two studies found no significant effects of HF (or stable housing) on the general physical health of chronically homeless individuals.

3.6.3 | HIV/AIDS

HIV/AIDS was examined in two studies (Buchanan et al., 2009; Hall et al., 2019) that reported on the physical health benefits of PSH for homeless people with HIV and AIDS. After 1 year, 55% of people who received PSH compared to 34% of people who received usual care were alive and had intact immunity ($p = .04$) (Buchanan et al., 2009). PLWH who were not placed into PSH had a higher risk of death or an AIDS diagnosis at the end of the study than those who received PSH [AHR 1.84 (1.40, 2.44), $p < .001$] (Hall et al., 2019). The results of both studies showed that PSH was effective for homeless PLWH.

3.7 | Mental health outcomes

3.7.1 | Anxiety

Anxiety was reported in three studies (Karim et al., 2006; Sharpley et al., 2019; Siegel et al., 2006) as a primary mental health outcome and explored in another study (Driscoll et al., 2018) as a secondary measure. In the retrospective study by Sharpley et al., (2019), the results were mixed for previously homeless persons' self-reported anxiety scores (Generalised Anxiety Disorder-7 [GAD-7]) after they were housed. Specifically, 52.9% of the participants had the same anxiety score before being housed and at the time of survey, 15.5% reported an increase in anxiety before being housed ($M = 2.72$, $SD = 0.82$) and after being housed ($M = 8.63$, $SD = 2.02$) and 31% reported a decrease in anxiety before being housed ($M = 7.52$, $SD = 1.38$) and after being housed ($M = 6.67$, $SD = 1.47$).

In the study by Karim et al., (2006), 85 homeless families underwent a mental health assessment following admission into two hostels, and again four months later ($n = 35$) when they were rehoused in the community. The results showed that the mothers' initial anxiety scores Hospital Anxiety and Depression Scale ($p = .62$) did not change significantly after they were rehoused in the community ($p = .67$). Likewise, when Siegel et al., (2006) compared PSH to community housing (CH), they found that anxiety symptoms at the beginning of the study had a sustained impact throughout the study period for the participants of both interventions. These results resemble the exploratory analysis by Driscoll et al., (2018) that showed no significant improvement in participants' anxiety ($p < .001$) when placed in HF.

3.7.2 | Depression

Depression was measured in four studies (Brown et al., 2015; Karim et al., 2006; Schick et al., 2019; Siegel et al., 2006) with mixed results. After 12 months of follow-up, 41% of homeless geriatric people who received PSH had fewer depressive symptoms than those who remained homeless ($p = .02$) (Brown et al., 2015). Likewise, changes in Patient Health Questionnaire-9 (PHQ-9) scores indicated that only the participants who received PSH with a single coordinated care plan reported significant reductions in depression from baseline ($M = 10.09$, $SD = 6.98$), at 18-month ($M = 8.05$, $SD = 6.10$) and 30-month ($M = 7.25$, $SD = 4.78$) follow-up (Schick et al., 2019). In contrast, no significant change in depression was found in families who were rehoused in the community ($p = .53$) and families who remained in a hostel ($p = .86$) (Karim et al., 2006). Depressive symptoms in homeless people at the start of the study increased the risk of poor outcomes regardless of the type of housing (PSH and CH) (Siegel et al., 2006).

3.7.3 | Psychiatric symptoms (PSx)

Psychiatric symptoms (PSx) based on the Colorado Symptom Index (CSI) were reported in two studies (Aubry et al., 2015; Tsemberis et al., 2004). After performing a repeated-measures analysis to compare the HF and Continuum of Care (COC) models, Tsemberis et al., (2004) found no significant difference in PSx between the two groups at time points (baseline, 6, 12, 18 and 24 months) ($F 4,137 = 0.348$, $p = .85$). Similarly, when comparing HF and TAU groups' 1-year results, Aubry et al., (2015) found that the HF and TAU groups decreased in the severity of their PSx (HF: baseline $M = 39.87$, $SD = 12.89$; 6 months $M = 34.93$, $SD = 12.34$; 12 months $M = 33.26$, $SD = 11.90$) (TAU: baseline $M = 40.81$, $SD = 12.62$; 6 months $M = 36.31$, $SD = 12.34$; 12 months $M = 34.51$, $SD = 12.48$), but differences between groups were not significant.

3.7.4 | Suicidal ideation and suicide attempts

Suicidal ideation and suicide attempts were reported in two studies (Aquin et al., 2017; Collins et al., 2016). Collins et al., (2016) provided the first documentation of suicide in a sample of chronically homeless people with alcohol problems. Changes in suicidal behaviour were measured after the participants moved into housing (HF). From the initial assessment to the 2-year follow-up, the participants' suicidal ideation decreased by 43% (Wald X^2 [1, $N = 85$] = 4.84,

$p = .03$), and none of the participants in the study committed suicide during the 2-year study period. On the contrary, when Aquin et al., (2017) compared the HF and TAU groups for suicidal ideation and attempts, they found no significant differences between these groups ($p = .51$). Therefore, this study was unable to find evidence to support HF as an effective intervention to reduce suicidal ideation and attempts in chronically homeless people.

3.7.5 | General mental health, well-being and quality of life (QoL)

General mental health, well-being and quality of life (QoL) were reported in a cluster of studies (Aubry et al., 2015; Aubry et al., 2016; Driscoll et al., 2018; Kerman et al., 2020; Kirst et al., 2014; O'Campo et al., 2016; Stergiopoulos et al., 2014; Urbanoski et al., 2018) based on well-being and QoL measures that included the European Quality of Life-5D (QoLEQ-5D), Lehman Quality of Life Scale (LQoL) and Quality of Life Interview-20 (QoLI-20). As part of the QoL evaluation in Driscoll et al.'s (2018) study, the participants were asked non-clinical questions about their general mental health. The HF group described their mental well-being in terms of 'grief, therapeutic drugs, having a place to sleep securely and their goals for the future' (Driscoll et al., 2018, p. 37). A significant number of the participants reported an increase in their well-being (less time feeling depressed and anxious, more time enjoying activities and feeling light hearted) ($p < .05$). In contrast, O'Campo et al. (2016) measured general mental health using QoLEQ-5D scores and found that both the HF (+ACT) and TAU groups did not improve in QoL ($p > .05$) at 24-months follow-up.

Whittaker et al. (2015) reported self-rated mental health based on Mental Component Summary (MCS) (SF-12) scores. The results showed no significant improvement in self-rated mental health for homeless persons who injected drugs (PWID) (AOR-95% CI = 0.98, $p < .001$), compared to PWID in stable housing. When stratifying the sample by PSH configuration (fixed site and scattered site), significant differences in MCS (SF-36) scores were found (Spector et al., 2020). Specifically, the participants in fixed-site housing (47.5%) reported significantly higher levels of mental well-being than the participants in scattered-site housing (44.2%) ($p < .001$). Similarly, Stergiopoulos et al. (2014) found that approximately one third (30%) of the participants receiving HF improved significantly in their mental health at 6 months (mean change from baseline: −2.56 versus. −6.26, $p = .043$), compared with the participants in the TAU group. These results were similar to those from Kerman et al.'s (2020) study that examined the effects of HF on homeless adults with mental illness who frequently use emergency departments (FEDU). Although a decrease in the severity and frequency of mental health symptoms over 24 months was found for all three groups (HF and TAU, FEDU and non-FEDU) ($d = 0.43$; $p < .001$), FEDUs reported more severe and frequent symptoms than non-FEDUs ($d = 0.32$; $p < .001$). In contrast, Aubry et al. (2016) reported mental health symptoms for two groups (HF and TAU) and found a small difference between the groups at 12-months follow-up that supported the TAU group (adjusted standardised mean difference [ASMD]= 0.17, CI = 0.05–0.30, $p = .01$).

3.8 | Other health outcomes

3.8.1 | Substance use (SU)

Substance use (SU) was reported in 14 studies (Aubry et al., 2015; Aubry et al., 2016; Driscoll et al., 2018; Hail et al., 2019; Kerman et al., 2020; Kirst et al., 2015; O'Campo et al., 2016; Spector et al., 2020; Somers et al., 2015; Stergiopoulos et al., 2014; Tsai et al., 2019; Tsemberis et al., 2004; Urbanoski et al., 2018; Whittaker et al., 2015). Data from Driscoll et al.'s (2018) study showed that, in the participants with HF, the frequency of daily drinking decreased after 12 and 18 months from 51% to 31%, and the frequency of drinking less than once a week increased from 7% to 16%. Similarly, Kirst et al. (2015) examined the effect of HF on SU in chronically homeless people. They found a significant treatment by time interaction in all of the HF groups (ACT, ICM or Ethno Racial-ICM) that showed less SU after 12 months ($p < .05$) compared with the TAU group. However, no significant differences were found between the groups after 24 months. Interestingly, there were significant differences in the patterns of SU between the HF and TAU groups, as opium use was significantly higher in the TAU group ($p < .05$). Other studies (Aubry et al., 2015, 2016) showed that both HF and TAU groups reported a decrease in substance use problems, but over time (1 and 2 years), the differences between the groups were not significant ($p = -0.01$). Finally, when Somers et al. (2015) looked at the effect of HF on daily substance use (DSU) in chronically homeless people, they found that the HF groups (ACT, ICM, and CONG [a single building with on-site supports]) did not differ significantly in DSU from the TAU group at 12 and 24 months. Likewise, when comparing the effectiveness of HF and COC for the chronically homeless, Tsemberis et al. (2004) found no significant differences between the groups' alcohol ($p = .35$) or drug ($p = .42$) use.

4 | DISCUSSION

4.1 | Summary of findings

Four types of housing interventions: permanent supportive housing (PSH), transitional housing (TH), social housing and community housing (CH) were investigated regarding their effects on the health of homeless people. With a few exceptions for HIV/AIDS, anxiety and depression, research to date has not comprehensively assessed the effectiveness of housing on physical and mental health outcomes for persons experiencing homelessness. Apart from one review (Aidala et al., 2016) and two studies (Buchanan et al., 2009; Hall et al., 2019) that focused on HIV homeless populations, it is difficult to identify data that report on the significant impact housing has on other aspects of physical health. Only four studies (Driscoll et al., 2018;

Spector et al., 2020; Tsai et al., 2019; Whittaker et al., 2015) were reviewed here that focused on physical health via self-reports. Regardless of the type of housing, no improvements were found in general physical health or HR-QoL for homeless individuals after 6, 12 and 18 months of being housed.

PSH, notably HF, has emerged in the United States and Canada as the leading approach to housing homeless people with mental illness who are traditionally viewed as being 'hard-to-house' (Gaetz et al., 2013, p. 1). While HF was found to decrease the number of days spent homeless for individuals with serious mental illness in some of the reviewed studies (Aubry et al., 2016; Stergiopoulos et al., 2014), this did not translate into significant improvements in mental health. For example, as part of the At Home/Chez Soi (AHCS) study (Goering et al., 2011), most researchers (Aubry et al., 2015; Aubry et al., 2016; Driscoll et al., 2018; Kerman et al., 2020; Kirst et al., 2014; O'Campo et al., 2016; Stergiopoulos et al., 2014; Urbanoski et al., 2018) compared homeless individuals assigned to HF, ACT or ICM and TAU. After 6-, 12-, 18- and 24-month periods, individuals in the HF programmes remained housed for more days than the TAU groups, but no significant differences were found between the HF groups and the TAU group at 12- and 24-month follow-up for the severity of mental health symptoms, self-rated mental health status, well-being, QoL or substance use (Aubry et al., 2015, 2016; Driscoll et al., 2018; Kirst et al., 2014; O'Campo et al., 2016). Similarly, when chronically homeless individuals were assigned to two separate housing conditions (HF and COC), individuals in the HF group spent more days housed (Tsemberis et al., 2004), but no significant differences were found for substance use or psychiatric symptoms between the groups. These results reflect Aubry et al.'s (2015) study findings where no significant improvement in substance use or psychiatric symptoms was found for chronically homeless individuals placed in HF.

Overall, PSH was successful for 41% of homeless geriatric people who reported fewer depressive symptoms after being housed (Brown et al., 2015), and for people who received a single, coordinated plan of care, where significant reductions in depression at 18- and 30-month follow-up were evidenced (Schick et al., 2019). Likewise, 31% of previously homeless persons reported a decrease in anxiety after being housed (Sharpley et al., 2019).

4.2 | Key issues identified in the reviewed literature

A key issue identified in the reviewed literature was the use of different methods to implement the same housing model. For example, HF and support services offered across different sites and nations (primarily the United States and Canada) are not always clearly defined or fully reported. This discrepancy makes it difficult to draw solid conclusions about the effectiveness of the model in the reviewed literature and is an important issue that has been acknowledged elsewhere (Baxter et al., 2019; Kertesz et al., 2009; Rog et al., 2014; Woodhall-Melnik & Dunn, 2016). One possible explanation for this is that some studies made it difficult to assess the impact of housing because the control group was given different services that may not be available to people in other places. For example, in the AHCS studies in Canada, TAU groups also had access to existing services in their communities of housing and wider facilities that may not be available in the United States.

Another important issue identified in the reviewed literature is the difficulty of controlling for confounding variables, which can lead to two common conceptual issues in housing and health research: moderation and mediation (Evans et al., 2003). Simply put, moderation and mediation analyses aim to better understand the relationship between independent and dependent variables when working on a third variable (MacKinnon, 2011). For example, in some studies (Aubry et al., 2016; Driscoll et al., 2018; Tsemberis et al., 2004) there were certain participant variables such as age, sex, socioeconomic status, race or ethnicity that were not considered to play a moderating role in the relationship between housing and physical and mental health. However, one study that analysed some moderating variables (Siegel et al., 2006) found that self-reported anxiety and depression at the beginning of the study were consistently correlated at many time points with housing dissatisfaction, regardless of the housing (CH) situation. With mediation, a previous review (Baxter et al., 2019) and study (Karim et al., 2006) examined several underlying psychosocial processes that might otherwise explain how and why housing can affect physical and mental health. When Karim et al., (2006) analysed the mediating variables of domestic violence, neighbour harassment and relationship breakdown, they were able to explain how and why housing affected the anxiety and depression of homeless families living in two different housing environments (hostels and CH).

4.3 | Methodological limitations and strengths identified in the reviewed literature

Several methodological limitations were identified in the reviewed literature. These include the heterogeneity of the participant groups (Baxter et al., 2019) and the relatively short-term follow-up periods (Aubry et al., 2015; Karim et al., 2006; Tsemberis et al., 2004). The data, which were limited to a 4- and 6-month follow-up period, provided only short-term results and limited testing observations for any medium- and long-term health effects of housing. Likewise, studies without a comparison group (Hall et al., 2019) were unable to draw specific causal conclusions about the effects of PSH on HIV-related health outcomes per se. In addition, any study involving a homeless (or other vulnerable) sample is inevitably at risk of high attrition rates, as evidenced by Urbanoski et al.'s (2018) study. Studies with small sample sizes (Aubry et al., 2016; Karim et al., 2006) and specific populations (suicidal) (Aquin et al., 2017; Collins et al., 2016) are low on generalisability to other homeless populations with different characteristics.

Another limitation in methodology is the use of self-report measures, which was evidenced in all of the studies. Self-report measures are often prone to inadequacies due to cognitive impairment

(Langenbucher & Merrill, 2001), memory biases (Garry et al., 2002), social desirability (Caputo, 2017) and prompt wording (Bickart et al., 2006). In the case of Buchanan et al. and's (2009) study, self-reports of the use of alcohol and drugs and treatment services were found to be susceptible to bias reporting. The results showed that there was a high discrepancy between self-reporting and participant observations regarding substance use and the utilisation of substance abuse treatment services. Similarly, memory errors, non-disclosure, concerns about social desirability and intentional misrepresentation were shown in Kirst et al.'s (2015) study, and underreporting was evidenced in Tsemberis et al.'s (2004) research.

In addition to the main limitations identified, some of the strengths described in the reviewed literature should be emphasised. The use of the logic model in Baxter et al.'s (2019) review allowed for testing of the theoretical impact that HF had on health when housing stability was analysed as the mediator. Large, multisite sample populations with 2-year longitudinal data and comprehensive participant follow-up strengthened Aquin et al.'s (2017) and Urbanoski et al.'s (2018) research findings. Finally, the wide range of health outcomes (depression, anxiety, stress, substance use, physical health, mental health, well-being and QoL) examined in the same study (Driscoll et al., 2018; Siegel et al., 2006; Urbanoski et al., 2018) was a notable strength demonstrated in the reviewed literature.

4.4 | Strengths and limitations of this systematic review

The main strengths of this systematic review are the comprehensive searches conducted in multidisciplinary databases to include all relevant studies, plus the strict use of well-defined guidelines including PRISMA-P 2015 statement and checklist (Moher et al., 2015) and the updated guideline for PRISMA 2020 statement (Page et al., 2020). Additionally, the PICOS design framework (Schardt et al., 2007) used to formulate the review criteria, plus the use of recognised, standardised tools (RoB 2 [Sterne et al., 2019]; ROBINS-I [Sterne et al., 2016]) by two reviewers to assess the risk of bias in each included study, minimised any potential biases and allowed for a transparent process (MacLure et al., 2016). However, this systematic review did not consider non-peer-reviewed data that may have potentially provided further insights into the effects of housing on the health of homeless people.

4.5 | Implications for future research

Based on the key issues and identified limitations mentioned above, adopting PSH (especially HF) in other nations may require caution. As most of the data included in this review are from the United States and Canada, research findings may not be easily generalised to other nations. According to the HF principles, the participants are selected based on complex health needs such as mental illness or substance use (Tsemberis, 2011). Therefore, this may limit the generalisation of these review findings to homeless people with other complex health needs (physical) or to homeless people without complex health needs. For primary research, a defined report of the housing model should be a starting point to ensure an identifiable and replicable model of intervention. Perhaps incorporating more detailed, quantitative standards of housing before and after individuals are placed may produce more robust evidence (Evans et al., 2000). Future studies may also consider longer observation periods so that information on long-term health effects may be collected. Finally, self-reported health is an important indicator and strongly associated with mortality (DeSalvo et al., 2006). However, beyond the scale of self-reporting, future research might use a more objective and comprehensive assessment of health. For example, the use of biomarker data can provide an 'objective indication of medical state that can be measured accurately and reproducibly' (Strimbu & Tavel, 2010, p. 1).

5 | CONCLUSION

This systematic review identified three systematic reviews and 24 individual studies that assessed the impact of housing on the physical and mental health of homeless people. With a few exceptions to HIV/AIDS, anxiety and depression, research to date has not comprehensively assessed the effectiveness of housing on physical and mental health outcomes for people with experience of homelessness. Although HF was found to reduce the number of days spent homeless for people with severe mental illness, and the permanent supportive housing and social housing models showed some benefits for homeless individuals' anxiety and depressive states, this did not translate into significant improvements in mental (or physical) health status in most of the reviewed studies. The lack of objective assessments of the impact of housing on the anxiety and depression of homeless people represents a significant gap in the literature, especially when anxiety and depression are two of the most common mental health problems in homeless populations (ABS, 2008; Fazel et al., 2008), and significant contributors to the overall global burden of disease (Ferrari et al., 2013; Friedrich, 2017; Vos et al., 2017). Perhaps the use of biomarker data as an objective measure for assessing physical and mental health changes before and after homeless people are housed could better inform future research studies.

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CONFLICT OF INTEREST

The authors reported no potential conflict of interest.

AUTHOR CONTRIBUTIONS

CFS proposed the need for this review. HO drafted the manuscript, planned and conducted the search, screening, selection, data extraction and data analysis stages. CFS checked the search, screening

and selection process, checked data extracted and analysed for risk of bias. All authors read, revised and approved the manuscript. CFS gave the final approval of the version to be published. HO agreed to be guarantor of the review.

Data Availability Statement

The data (risk of bias assessments) that support the findings of this review are available from the corresponding author, (HO), upon reasonable request.

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SUPPORTING INFORMATION

Additional supporting information may be found online in the Supporting Information section.

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APPENDIX 1

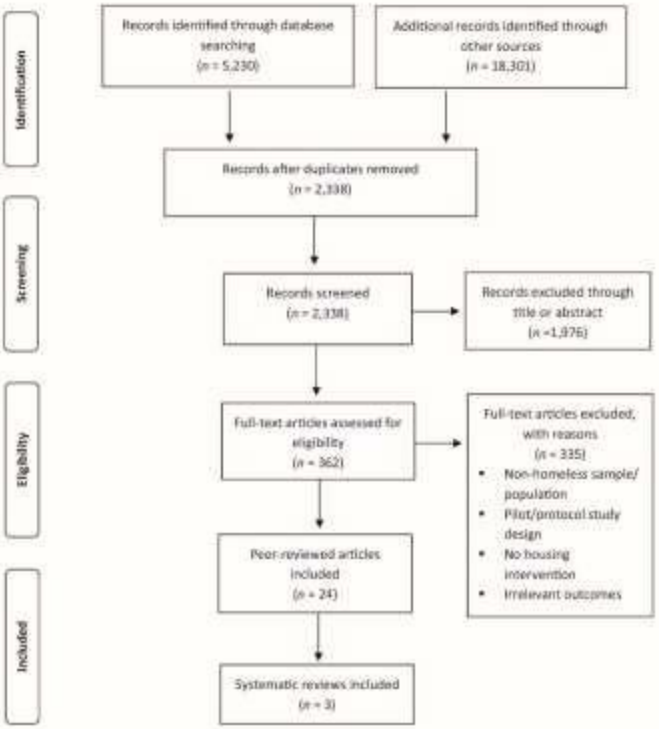

FIGURE A1 PRISMA flow diagram outlining the systematic review search, screening, and selection process. Note: Adapted from Moher, D., Liberati, A., Tetzlaff, J., Altman, D.G., & The PRISMA Group. (2009). Preferred Reporting Items for Systematic Reviews and Meta-Analyses: The PRISMA Statement. *PLoS Medicine*, *6*(7), e1000097. https://doi.org/10.1371/journal.pmed.1000097

APPENDIX 2

TABLE A3 Detailed summaries of the 24 studies included in this review

Author(s) Year	Study location; journal	Study focus	Study sample; size; design	Housing method(s)	Health outcomes; measures	Main findings
Tsemberis et al. (2004)	NY; USA; AJPH	Investigate the effectiveness of HF and COC models	Chronically homeless and mentally ill persons; (*N* = 225); QQM	HF; COC	CC and RS; SU (DAFBC); SA (TSI); PSx (CSI)	CC: significant time group status effect ($p < .001$). RS: COC group significantly faster decreases in homeless status and increases in stably-housed status than HF ($p < .001$). SU: no significant differences in either group for alcohol ($P = .35$) or drug use ($P = .42$). SA: significant differences at 6, 18, 24 months ($p < .025$); and 12 months ($p < .05$). PSx: no significant differences between COC and HF groups ($P = .35$)
Karim et al. (2006)	UK; USP	Assess MH and PD before and after housing	Homeless families; (*N* = 61); Four-month follow-up (*n* = 35); QQM	Hostel and Community Rehousing	MH (HADS); Child behavioural problems (ECBI); Clinical and psychosocial (HoNOSCA); PD (PDHS)	No significant change on HADS ($P = .58$), ECBI ($P = .20$), or PDHS ($p = .05$). Children rehoused showed no significant changes on ECBI or HoNOSCA scores. Rehoused family's (59%) perceived improvement in MH, 18% described the continuation of MH problems, compared to 54% still in hostels
Siegel et al. (2006)	NY; USA; PS	Compare SH and CR with housing satisfaction and wellbeing	Persons with a history of homelessness and mental illness; (*N* = 157); Quasi	SH: live alone, studio apartment with ACT; CR: renovated residential hotel in a studio apartment with onsite support	Days in initial placement (self-report); Housing satisfaction (autonomy/social); Clinical outcomes: ED, crisis service use (BASIS 3); Wellbeing (SIS, UCLA Loneliness Scale 3, Overall Choice and Empowerment Scale (LQoL)	Tenants still in initial placement at 12-18 months: SH (72-87%; 64-80%); CR (62-71%; 37-71%). Participants in SH have fewer thought disorders, SA, and extensive histories of hospitalisation. Tenure in housing did not differ by housing type. Higher depression/anxiety scores at entry had sustained impact for study persons in both housing models: less housing satisfaction, greater use of crisis services, more isolation, less community integration, empowerment, poorer QoL
Buchanan et al. (2009)	CHI; USA; AJPH	Health benefits of PSH for homeless persons hospitalised with a chronic medical illness	Homeless persons hospitalised with a chronic medical illness; (*N* = 105); QQM	PSH without time limits combined with the CHHP model	HIV Clinical Health: Primary: Survival with intact immunity, alive 12 months after enrollment with a CD4 count of ^= 200 and viral load –100000. Secondary - CD4 counts, viral loads, patients with undetectable viral loads	Outcomes for 94 of 105 participants (90%): Of 54 interventions participants, 35 (65%) reached permanent housing in programme housing agencies. After one year, 55% of the intervention and 34% of the usual care groups were alive and had intact immunity ($P = .04$). Seventeen intervention (36%) and nine usual care (19%) participants had undetectable viral loads ($P = .051$). Median viral loads were 0.89 lower in the intervention group ($P = .03$). There were no statistical differences in CD4 counts
Collard et al. (2014)	ATL; USA; JE-BSW	Length of residency in SH and subjective wellbeing	Low-income adults in recovery from addiction; (*N* = 103); QQM	SH: Remington House (*n* = 35); Darmouth House (*n* = 35); Non-SH (*n* = 33)	Subjective wellbeing; Sobriety (duration); Self-efficacy (GESS-R/DTCQ-8); Employment (employed/unemployed rate)	Significant findings for SH and sobriety. The difference in means for duration of sobriety for participants in group 1; $M = 18.30$, $SD = 17.04$, Group 2: $M = 14.10$, $SD = 9.11$, and Group 3; $M = 7.39$, $SD = 3.54$; $F = 7.80$, $P = .001$. SH and self-efficacy not supported, and χ^2 square revealed a significant difference ($P = .000$, $p < .05$) in means for SH and employment

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TABLE A3 (Continued)

Author(s) Year	Study location; journal	Study focus	Study sample; size; design	Housing method(s)	Health outcomes; measures	Main findings
Kirst et al. (2014)	TOR; CAN; BMJO	Housing and hope for recovery	Homeless adults with mental illness; (*N* = 60); HF (*n* = 36) or TAU (*n* = 24)	HN: HF + ACT; MN: HF + ICM; or TAU	Hope/optimism for future recovery; Hope and personal goal-setting; Independence and control; Health and wellbeing; Relationship rebuilding	Hope/optimism for recovery in future displayed in goalsetting, rebuilding self-esteem and finding meaning through relationships and symbolism ("door-key"). Perspectives on hopes to regain control over their lives and sense of independence would facilitate achieving self-acceptance, rebuilding and developing new relationships, as well as help to reclaim their lives in the community
Stergiopoulos et al. (2014)	TOR; CAN; BioMed Central	HF and early trajectories of health and social functioning	Homeless adults or precariously housed persons with serious mental disorder with or without a concurrent SU problem; (*N* = 301)	HN: HF + ACT; MN: HF + ICM	Physical community integration (CIS-physical subscale); Psychological community integration (CIS-psychological subscale); MH (MCSI); SU (GAIN-SS); CF (MCAS); QoL (QoLI-20)	Almost two-thirds of participants followed the expected trajectory of improvement for physical (60%) and psychological (62%) community integration. Remainder experienced a decrease in their physical (40%) and psychological (38%) community integration from initial assessment to 6 months following. Additionally, almost 30% of participants reported increased MH symptom severity and more than 28% experienced increased problems due to SU from baseline to six-months. Improvement in CF and QoL 67% and 66%, respectively. 33% decrease in CF and 34% a decrease in QoL at the 6-month interview. Participant isolation was a prominent theme among participants and service providers
Aubry et al. (2015)	MONC, MON, TOR, VAN, WPG; CAN; PS	Report one-year findings from AHCS Study	Homeless adults; HF (*n* = 469), TAU (*n* = 481); QQM	HF + ACT or TAU	Primary: Housing (RTLFB, QoLI-20); Secondary: PSx (CSI); SU (GAIN-SS); CF (MCAS)	One-year follow-up: 73% of HF participants and 31% of TAU participants resided in stable housing ($p < .001$, odds ratio=6.35, covariate-adjusted difference =42%, 95% CI =36-48%). Improvement in QoL was significantly greater for HF participants compared with TAU participants ($p < .001$, d=.31, CI=.16-.46). HF participants also showed greater improvements in CF compared with TAU participants (P = .003, d=.25, CI=.09-.41)
Brown et al. (2015)	BS, MA; USA; AJPH	Examine housing and health status, geriatric conditions and decreased use of acute care	Older homeless adults with geriatric conditions; (*N* = 250); QQM	Housing status: Currently living in own place that was not part of a transitional housing programme or homeless shelter	Primary: Number of KADLs; Number of IADLs; Depressive symptoms (PHQ-9); Symptoms of urinary incontinence. Secondary: Acute care utilisation; General health; Medical and psychiatric comorbidities: Health-related behaviours; Geriatric conditions	At 12-month follow-up, 41% of participants obtained housing and had fewer depressive symptoms and lower acute care utilisation than participants who remained homeless at follow-up (unadjusted mean PHQ-9 score =6.0 [housed] vs 7.6 [homeless]; P = .02). Other measures of health status did not differ by housing status. Participants who obtained housing had a lower rate of acute care use, with an adjusted annualised rate of acute care visits of 2.5 per year (95% CI=1.8,3.3) among participants who obtained housing and 5.3 per year (95% CI=3.9,6.2) among participants who remained homeless
Kirst et al. (2015)	TOR; CAN; DAD	Investigate the effect of HF on SU	Homeless adults with mental illness; (*N* = 575) HF (*n* = 301) TAU (*n* = 274)	HF + ACT, ICM, or ER-ICM	SU (GAIN-SS, ASI)	Reductions in overall SU with significance at 24 months (IRR=0.80; CI:0.66, 0.97; $p < 0.05$). Significant treatment by time interaction, with the HF having experienced less SU at 12 months (IRR=0.74; CI: 0.58,0.94; $p < 0.05$) than TAU participants, but not at 24 months. Differences in SU patterns between the HF and TAU: more TAU participants used opiates, and a general decrease in the amount of money spent on drugs was observed at 18 months (β = −102.13; CI=−199.34, −4.92; $p < 0.05$)

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TABLE A3 (Continued)

Author(s) Year	Study location; journal	Study focus	Study sample: size; design	Housing method(s)	Health outcomes; measures	Main findings
Somers et al. (2015)	VAN; CAN; Addiction	Examine the effect of HF on DSU	Mentally ill homeless adults; (*N* = 497; HN *n* = 297; or MN *n* = 200) (HN-ACT *n* = 90; HF-CONG *n* = 107; HN-TAU *n* = 100; or MN-ICM *n* = 100; MN-TAU *n* = 100)	HF + ACT, ICM or CONG; TAU	DSU (MAP)	Compared with HN (TAU), neither CONG (AOR=0.73, 95% CI=0.39-1.37) nor ACT (AOR =1.22, 95% CI=0.61-2.45) differed on DSU at 24 months, and MN (TAU) did not differ from ICM (AOR=0.78, 95% CI=0.37-1.63). No differences at 12 months, when analyses were restricted to participants who indicated SU at baseline, or when considering the duration of stable housing. No evidence of a difference in effectiveness between HF and TAU on DSU
Whittaker et al. (2015)	AUS; DAR	Assess the effect of housing status and SU in PWID	PWID; (*N* = 923); QQM	Housing status: "Homeless" or "Stably housed"	SU (SF-12)	Almost one-quarter (23%) reported that they were homeless. Homeless PWID were significantly more likely to be unemployed (AOR=2.83, 95% CI=1.26, 6.34), injecting in public (AOR=2.01, 95% CI=1.38, 3.18), have poorer MH (AOR=0.98, 95% CI=0.97, 1.00), report schizophrenia (AOR=2.31, 95% CI=1.16, 4.60) and have a prison history (AOR=1.53, 95% CI=1.05, 2.21) than stably housed PWID. Homeless PWID had poorer self-reported MH and were more than twice as likely to report schizophrenia: Rate of schizophrenia among homeless PWID was 18 times that of the general population (0.5%)
Aubry et al. (2016)	MONC, MON, TOR, VAN, WPG; CAN; PS	Report two-year findings from AHCS study	HN adults with severe mental illness; (*N* = 950) HF + ACT (*n* = 469) or TAU (*n* = 481)	HF +ACT; TAU	Primary: Housing stability (RTLFB); QoL (QoLI-20); Secondary: PSx (CSI); SU (GAIN-SS); CF (MCAS)	HF participants spent more time in stable housing than TAU participants (71% versus 29%, AAD=42%, $p < .01$).Compared with TAU participants, HF participants entered housing more quickly (73 versus 220 days, AAD=146.4, $p < .001$), had longer housing tenures at the study end-point (281 versus 115 days, AAD=161.8, $p < .01$), and rated the quality of their housing more positively (ASMD=.17, $p < .01$). HF participants reported higher QoL (ASMD=.15, $p < .01$) and had better CF (ASMD=.18, $p < .01$) over two years. HF participants showed more significant gains in CF and QoL in the first year, and at the end of the second year, attenuated differences between groups. No intervention effect on MH symptoms or SU problems
Collins et al. (2016)	WASH; USA; SLTB	Assess the impact of HF on suicidality	Homeless adults with alcohol problems; (*N* = 134); QQM	HF; immediate; permanent; low-barrier or TAU	Suicidal ideation; intent; plans; prior attempts	Suicidal ideation was significant (W^2 1, *N* = 85, 4.84, *P* = .03). Time was a significant predictor (time IRR=.57, *SE* = .15, *p* = .03), indicating participants' level of suicidal ideation decreased by 43% from baseline to 2-year follow-up. Suicidality as interfering with daily life declined by 67% from baseline across 2-year follow-up (time OR=.33, *SE* = .09, *p* < .001). Suicidal intent was also significant (W^2 1, *N* = 85, 3.96, *P* = .047). Participants reporting some intention to act on their ideation decreased by 55% from baseline across 2-year follow-up (time OR=.45, *SE* = .18, *P* = .046)
O'Campo et al. (2016)	TOR; CAN; BMJO	Examine the effect of HF and contact with the justice system, healthcare usage and health outcomes	Homeless adults with mental illness; (*N* = 197) HF + ACT (*n* = 97), TAU (*n* = 100); QQM	HF + ACT or TAU	Primary: Housing stability (RTLFB); Secondary: QoL (EQ-5D); Functional ability (MCAS); Exploratory: community integration; MH; SU; justice and healthcare use	Primary: HF (ACT) group spent more time stably housed compared to the TAU group with a mean difference between groups of 45.8% (95% CI=37.1% to 54.4%, $p < .0001$). Secondary: QoL living subscale, a significant mean change from baseline was detected at 6 months (0.94, 95% CI+0.20-1.68, *P* = .013). QoL global at18 months (0.61, 95% CI=−0.01-1.23, *P* = .055). No differences between HF (ACT) and TAU groups for health service usage, community integration and substance use

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TABLE A3 (Continued)

Author(s) Year	Study location; journal	Study focus	Study sample; size; design	Housing method(s)	Health outcomes; measures	Main findings
Aquin et al. (2017)	MONC, MON, TOR, VAN, WPG: CAN; CJOP	Investigate the effect of HF on suicidal ideation and attempts	Homeless adults with mental illness; (*N* = 2255) HF (*n* = 1265), TAU (*n* = 990); QQM	HF or TAU	Suicidal ideation (MCSI); Suicidal attempts (MINI 6.0)	Decreased past-month suicidal ideation [estimate = −.57, *SE* = .05, *p* < .001], with no effect of treatment group: HF vs. TAU (estimate = −.04, *SE* = .06, *P* = .51). No effect of treatment status (estimate = −.10, *SE* = .16, *P* = .52) on prevalence of suicide attempts: HF = 11.9%, TAU = 0.5%) during 2-year follow-up period
Driscoll et al. (2018)	AK: USA; JSDH	Examine the impact of HF on service costs and QoL	Homeless adults; (*N* = 94), 12-18-month follow-up (*n* = 68); QQM	Two HF facilities (converted hotels with 45 studio apartments and case management provided onsite)	PH: PTSD, high blood pressure, depression/bipolar, seizures, acute/chronic pain; MH: grief, anxiety; SA: daily/weekly consumption; Emergency services: police, fire, community, shelter; Legal services: correctional facilities; Health care services: emergency room, inpatient/outpatient services, detox	30-day prevalence of most health problems diminished from baseline to 12-18-month follow-up, but declines were only statistically significant for lice/bed bug complaints (*P* = .033). Significant reductions at follow-up in number of physical exams (from 76.6 to 53.6%), emergency room visits (from 60.9 to 42.9%), MRI/CT scans (from 43.8 to 30.4%). At follow-up, daily drinking declined to 31%, with 43% of tenants reported drinking less frequently, while only 14% reported drinking more often. HF was effective at enhancing security, access to health care services, supportive staff, and social connections. Significant improvements in medication adherence and increase in outpatient medical service use
Urbanoski et al. (2018)	MONC, MON, TOR, VAN, WPG: CAN; Addiction	Assess the effect of HF on SUD	Homeless adults with comorbid SUD; (*N* = 2154); QQM	HF + ACT; HF + ICM; TAU	Primary: housing stability (days housed (RTLFB); CF (MCAS) Secondary: General health (QoLI-20); MH (CSI)	During the 24 months, people with SUD spent less time in stable housing in both HF and TAU. The effect of HF did not vary significantly by SUD status (OR = 1.17, 95% CI = 0.77, 1.76). CF of HF over TAU did not vary by SUD status (β = .75, 95% CI = 0.36, 1.87). QoL increased in all groups. No significant changes in the effect of the intervention between those with and without SUD (β = .01, 95% CI = 0.03, 0.02). MH symptoms decreased for all participants during the study period. However, no significance of HF over TAU, and no differential effect of the intervention-associated SUD status (β = 0.43, 95% CI = 0.99, 1.86)
Hall et al. (2019)	NY: USA; Aids and Behaviour	Assess SH, incarceration, and health service use on markers of HIV infection for PLWH, mental illness or SUD	Chronically homeless HIV persons; (*N* = 696), SH (*n* = 333) Not placed (*n* = 268); Quant	Housing Status: New York III program: Not placed: Other SH Incarceration; ED visit; PH/MH; SUD Hospitalisation: PH/MH Inpatient/Outpatient SUD Treatment	Survivor time without AIDS; Achievement of undetectable viral load; Maintenance of viral suppression	Persons not placed in SH had a higher risk of death or AIDS diagnosis at the study endpoint than NY III tenants (AHR 1.84 [1.40, 2.44], *p* < .001). Incarceration (AHR 0.70 [0.54, 0.90], *P* = .006) and outpatient SUD treatment (AHR 0.71 [0.57, 0.89], *P* = .003) associated with lower risk of survivor time until death or AIDS diagnosis. Hospitalisation with a PH diagnosis associated with a greater risk of death or AIDS diagnosis (AHR 1.53 [1.20, 1.96], *P* = .001). Overall, 60% of NY III tenants, 52% of not placed persons, and 62% of other SH tenants achieved undetectable viral load during the follow-up period, and outpatient SUD/MH/ED care for SUD/PH had longer periods of suppression

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Author(s) Year	Study location; journal	Study focus	Study sample; size; design	Housing method(s)	Health outcomes; measures	Main findings
Schick et al. (2019)	HOU: TEX; AJPH	Investigate the impact of collaborative care on HR-QoL of individuals in PSH	Formerly chronically homeless persons; (N = 323); Natural-Quant	Intervention group: Partnering FQHC case management with a nurse and HER; Comparison Group: No FQHC or HER (no single coordinated plan of care)	HR-QoL (SF-36v2 with MCS and PCS); Depression (PHQ-9); ED use (for intervention group only)	No differences between the groups at 6 months At 18 and 30 months, significant increase in MCS ($p < .01$) and PCS scores ($p < .01$) with a slower rate of deceleration over time for both MCS ($p < .05$) and PCS scores ($p < .05$). Group status was related to a linear decrease in PHQ-9 scores ($p < .01$), with intervention group reporting greater reductions in PHQ-9 scores over time relative to the comparison group. Intervention group ED use decreased by 70%. Overall, participants in the intervention group with a single, coordinated plan of care reported greater improvements in HR-QoL and a decrease in depressive symptoms relative to the comparison group
Sharpley et al. (2019)	NSW: AUS; JSDH	Assess the effect of housing transition upon participants' self-reported levels of anxiety	Previously homeless persons - Residents of Homes North Community Housing; (N = 71); Retrospective pre-test - Quant	Social housing	Anxiety (GAD-7)	Subgroups of participants who showed: (a) no change, (b) an increase, and (c) a decrease in GAD-7 scores. a) 52.9% of participants had same score before being housed and currently b) 11 participants (15.5%) reported increase in GAD-7 score ($M = 2.72$, $SD = 0.82$) before being housed and ($M = 8.63$, $SD = 2.02$) after being housed c) 22 participants (31.0%) reported a decrease in GAD-7 score ($M = 7.52$, $SD = 1.38$) before being housed and ($M = 6.67$, $SD = 1.47$) after being housed. Post-hoc tests showed significant difference between pre-housing GAD-7 scores for "increase" and "decrease" subgroups (Mean difference = 9.79, $SE = 2.32$, $p < .001$) but not for their after-housing GAD-7 scores (Mean difference = 1.97, $SE = 2.54$, $P = .720$)
Tsai et al. (2019)	CHATT: TN; CHI: IL; COLS: OH; DEN: CO; FTL: FL; LA: CA; MTZ: CA; NY: NY; PHL: PA; PDX: OR; SF: CA; JGIM	Examine the associations between changes in physical health, housing status, and trust in primary care providers	Chronically homeless adults: (N = 756); 3 months (n = 682) 6 months (n = 649) 9 months (n = 618) 12 months (n = 583); Observational/Quant	CICH: Provision of PSH to participants with clinical supports and increased access to integrated mental health and primary care services	Days housed; PH status (SF-12, HR-QoL); Number of medical conditions; Number of treated medical conditions; Relationship with medical provider; MH status (BSI-Psychoticism, Depression, Anxiety subscales)	Participants had significant improvements in housing outcomes over time, with increased nights in their housing. Substantial reductions in the number of medical problems reported and increases in the number of preventive procedures they received. No significant changes in trust in primary care providers, therapeutic alliance with MH providers, SF-12 HR-QoL PC5 scores, or the number of medical problems treated. Longitudinal analysis revealed increases in the number of days in own housing were not significantly associated with improvement in SF-12 HR-QoL PCS ($p < .001$), number of medical problems ($p < -.003$), number of medical issues treated ($p < -.002$), or the amount of preventive procedures received ($p < -.001$). Changes in trust in the primary care provider significantly associated with an increase in the number of medical problems reported. Change in therapeutic alliance with MH providers significantly related to an increased number of preventive procedures ($p < .01$)

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TABLE A3 (Continued)

Author(s) Year	Study location; journal	Study focus	Study sample; size; design	Housing method(s)	Health outcomes; measures	Main findings
Kerman et al. (2020)	MONC, MON, TOR, VAN, WPG: CAN; APMHMHSR	Examine how effective HF is in improving housing stability, behavioural health and functioning, and reducing use of hospital services	Homeless adults with mental illness; (*N* = 2,111); QQM	HN: HF + ACT, MN: HF + ICM, TAU	Housing stability (RTFLB; Behavioural health and functioning (CSI, GAIN-SPS, MCAS); Service use (HSJSU, RTFLB); Frequency of ED use (FEDU/NFEDU)	FEDU in HF spent 66.4% (95% CI 63.5% to 69.2%) of their nights in stable housing post-randomisation. FEDU in TAU were stably housed 34.7% (95% CI 31.5% to 37.8%) of the time. An interaction effect was found in the LMM predicting housing stability between intervention and ED use ($p < .001$). FEDU in HF had lower housing stability rates from the 15-month time point onwards compared to NFEDU in TAU ($p \leq .01$), no significant differences between groups. CF and SU showed significant main effects of time ($p < .001$) and interaction effects between intervention and ED use ($P = 0.02$, $p < .001$). All groups improved in severity and frequency of mental health symptoms over 24 months ($d = 0.43$; $p < .001$); however, FEDU reported more severe and frequent symptoms than NFEDU ($d = 0.32$; $p < .001$)
Spector et al. (2020)	CHEIL; QoLR	Understand the factors associated with HR-QoL and PSH	Chronically homeless adults currently in PSH; (*N* = 855); Quant	PSH: fixed-site (single building) or scattered-site (with rent vouchers. Service model: LICM, ICM, ACT or behavioural health	HR-QoL (SF-36, PCS/MCS); Individual/Environmental characteristics; Housing satisfaction (SAMHSA-HSS); Perceived access to healthcare (ACS)	Mean scores for PCS and MCS were 39.4 and 46.1, (out of 100) with higher scores indicating better physical and mental HR-QoL. Those in fixed-site housing reported significantly higher mental wellbeing than those in scattered-site (47.5 vs. 44.2; $p < .001$). No difference in PCS scores by PSH. For service models, significant differences in both the unadjusted PCS and MCS scores ($p < .001$). PCS and MCS highest among those receiving LICM. Older age and being on disability associated with worse PCS. PLWH had better PCS than their counterparts. Being in PSH for longer durations associated with better MCS. Those with more depressive symptoms associated with worse PCS and MCS. Overall, PSH service intensity not significantly associated with physical or mental health

Abbreviations: ACS, Access to Care Scale; ACT, assertive community treatment; ADL, activities of daily living; AHCS, At Home Chez Soi study; AJPH, American Journal of Public Health; AK, Alaska; APMHMHSR, Administration and Policy in Mental Health and Mental Health Services Research; ASI, Addiction Severity Index; ATL, Atlanta; AUS, Australia; BASIS-32, Behaviour and Symptom Identification Scale – 32; BMJO, British Medical Journal Open; BS, Boston; BSI, Brief Symptom Inventory; CA, California; CA, Canada; CC, Consumer Choice; CD4, cluster of differentiation 4; CF, community functioning; CHATT, Chattanooga; CHHP, Chicago housing for health partnership; CHI, Chicago; CICH, Collaborative Initiative to End Chronic Homelessness; CIS, Community Integration Scale; CJOP, Canadian Journal of Psychiatry; CO, Colorado; COC, Continuum of Care model; COLS, Columbus; CONG, congregate housing; CR, community residence; CSI, Colorado Symptom Index; DAD, Drug and Alcohol Dependence; DAFBC, Drug and Alcohol Follow-Back Calendar; DAR, Drug and Alcohol Review; DEN, Denver; DSU, Daily Substance Use; ECBI, Eyberg Child Behaviour Inventory; ED, emergency department; EHR, electronic health record; ER-ICM, Ethno Racial-Intensive Case Management; FEDU, frequent emergency department user; FL, Florida; FQHC, Federally qualified health centres; FTL, Fort Lauderdale; GAD-7, Generalised Anxiety Disorder-7; GAIN-SPS, Global Appraisal of Individual Needs–Substance Problem Scale; GAIN-SS, Global Assessment of Individual Need – Short Screener; HADS, Hospital Anxiety and Depression Scale; HF, Housing First; HIV, human immunodeficiency virus; HN, high needs; HoNOSCA, Health of the Nation Outcome Scale for Children and Adolescents; HOU, Houston; HR-QoL, health-related quality of life; HSJSU, Health, Social, and Justice Service Use Inventory; IADL, Instrumental Activities of Daily Living; ICM, intensive case management; IJSP, International Journal of Social Psychiatry; JDD, Journal of Dual Diagnosis; JE-BSW, Journal of Evidence-Based Social Work; JGIM, Journal of General Internal Medicine; JSDH, Journal of Social Distress and the Homeless; KADL, Katz Activities of Daily Living; LA, Los Angeles; LICM, low-intensity case management; MA, Massachusetts; MAP, Maudsley Addiction Profile; MCAS, Multnomah Community Ability Scale; MCS, mental component summary; MCSI, Modified Colorado Symptom Index; MH, mental health; MINI 6.0, Mini International Neuropsychiatric Interview 6.0; MN, moderate needs; MON, Montreal; MONC, Moncton; MTZ, Martinez; NFEDU, non-frequent emergency department user; NSW, New South Wales; NY, New York; OH, Ohio; OR, Oregon; PA, Pennsylvania; PCS, physical component summary; PD, parenting difficulties, PDHS, Parenting Daily Hassles Scale; PDX, Portland; PH, physical health; PHL, Philadelphia; PLWH, people living with HIV; PS, psychiatric services; PSH, permanent, supportive housing; PSx, psychiatric symptoms, PTSD, Post-traumatic stress disorder; PWID, people who inject drugs; QoLEQ-5D, European Quality of Life-5D; QoLI-20, Quality of Life Interview-20; QoLR, Quality of Life Research; QQM, qualitative and quantitative methods; Quant, quantitative; Quasi, quasi-experimental; RS, residential stability; RTLFB, Residential Time-Line Follow-Back Inventory; SA, substance abuse; SAMHSA-HSS, Substance Abuse and Mental Health Services Administration - Housing Satisfaction Scale; SF, San Francisco; SF-12, Short Form-12 Health Survey; SF-36 Short Form-36 Health Survey; SF-36v2 Short Form Version 2 Health Survey; SH, supported housing, SIS, Social Integration Scale, SLTB, Suicide and Life-Threatening Behaviour; SS, social services; SU, substance use; SUD, substance use disorder; TAU, treatment as usual; TEX, Texas; TOR, Toronto; TSI, Treatment Services Inventory; UK, United Kingdom; USA, United States of America, VAN, Vancouver; WASH, Washington; WPG, Winnipeg.

APPENDIX 3

TABLE A5 Overview of Types Of Housing (Intervention Models and Support Services) identified in the 24 included studies

Type of housing/intervention (model)	Authors/year of study	Description of housing model & service interventions
Permanent supportive housing Pathways/Housing First (HF)	Tsemberis et al. (2004) Collins et al. (2016) Driscoll et al. (2018)	HF was developed by Pathways to Housing in New York City in response to the needs of "chronically" homeless people with mental health and substance use problems. Traditionally known as Treatment First (TF) or Continuum of Care (COC), individuals are required to remain sober, abstain from substance use, and participate in mental health treatment to display "housing readiness". Residency is dependent on sobriety and treatment compliance. Contemporary HF models provide homeless people with immediate access to subsidised housing with access to support services regardless of past housing history or co-occurring behavioural health issues. Support services include a combination of rent supplements that cover individuals' housing costs, assertive community treatment (ACT): a community-based, multidisciplinary team that is always available for help, or intensive case management (ICM) that includes one-on-one support
At Home/Chez Soi (AHCS)	Kirst et al. (2014) Stergiopoulos et al. (2014) Kirst et al. (2015) Aubry et al. (2015) Somers et al. (2015) Aubry et al. (2016) O'Campo et al. (2016) Aquin et al. (2017) Urbanoski et al. (2018) Kerman et al. (2020)	The AHCS project was initiated by the Mental Health Commission of Canada in 2009 across five cities (Moncton, Montreal, Toronto, Winnipeg, and Vancouver) to assess the effectiveness of HF in the Canadian context (Goering et al., 2011). Homeless Adults diagnosed with mental health disorders were recruited by local agencies and randomised into HF (n = 1265) (ACT/ICM) and treatment as usual (TAU) (n = 990) groups. HF participants were provided with a private housing unit and case management support services were obtained. The TAU participants maintained access to existing community supports (Goering et al., 2011)
Chicago Housing for Health Partnership (CHHP)	Buchanan et al. (2009)	CHHP was developed to meet the need for housing people with chronic illnesses who were being discharged from a hospital. As part of this model, eight non-profit organisations with a CHHP case manager were hired to provide housing referrals to intervention participants and to provide ICM to help participants live more stable and productive lives
New York/New York III (NY III)	Hall et al. (2019)	NY III was initiated by New York City and New York State to provide single- and scatter-site assisted living for chronically homeless HIV-positive individuals with concurrent serious mental illness (SMI) or substance use disorder (SUD). NY III participants had leases with obligations and rights of general tenancy. Participants paid no more than 30% of their income for rent and utilities. Housing agencies were expected to assess participants' connections to HIV care in each case through in-person case management so that they could receive government benefits and access to SUD, mental health and primary care services primary
Collaborative Initiative to Help End Chronic Homelessness (CIHC)	Tsai et al. (2019)	CIHC was a demonstration programme implemented by the US Interagency Council on Homelessness from 2004 to 2009. Eleven sites participated in CICH, providing permanent housing, primary health care and mental health services for chronically homeless adults
Federally Qualified Health Centres (FQHC) collaborative care model	Schick et al. (2019)	FQHC is a permanent housing and on-site integrated care team programme, that includes clinical case managers, community health workers or on-site registered nurses who assess and coordinate immediate health care needs
Affordable housing	Brown et al. (2015) Spector et al. (2020)	Fixed- or scattered- sites of affordable housing with housing assistance programmes that include rental assistance, housing subsidies, and ICM
Supported housing	Collard et al. (2014)	Various rental apartments in the city of Atlanta where participants pay rent based on their household income each month
Transitional housing Overnight shelters	Buchanan et al. (2009) Collard et al. (2014)	Participants in intervention groups reside in transitional housing during the study period and are provided with a case manager who supports them towards permanent supportive housing
Boarding houses & Hostels	Tsemberis et al. (2004) Karim et al. (2006) Whittaker et al. (2015)	

(Continues)

TABLE A5 (Continued)

Type of housing/intervention (model)	Authors/year of study	Description of housing model & service interventions
Respite care centre	Buchanan et al. (2009)	
Social housing	Sharpley et al. (2019)	Includes short or long-term rental housing operated by Homes North, a non-government organisation in the New England Region of New South Wales (NSW), Australia
Community housing	Siegal et al. (2006) Collard et al. (2014)	Includes single or shared rooms, or studios with shared dining, meeting, and service spaces designed to serve participants with mental illness and SUD. The method of one study (Siegal et al., 2006) resembled the COC model under which residents were assigned a case manager and required to attend an ongoing rehabilitation programme. Sobriety was closely monitored, and the loss of sobriety resulted in mandatory treatment or expulsion from the community residence