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REVIEW ARTICLE

A systematic review of occupational therapy interventions in the transition from homelessness

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ABSTRACT

Background: Although systematic and scoping reviews have identified a range of interventions for persons experiencing homelessness, no known reviews have captured the range and quality of intervention studies aimed at supporting a transition from homelessness.
Objectives: To capture the range and quality of occupational therapy intervention studies aimed at supporting a transition to housing following homelessness.
Method: Using Joanna Briggs Institute (JBI) guidelines, we conducted a systematic review including a critical appraisal and narrative synthesis of experimental studies.
Results: Eleven studies were included. Critical appraisal scores ranged from 33.3 to 88.9 of a possible score of 100 (Mdn = 62.5; IQR = 33.4). The majority of studies evaluated interventions for the development of life skills ($n = 9$; 81.8%), and all were conducted in the USA. Several of the included studies were exploratory evaluation and feasibility studies, and all were quasi-experimental in design. Only three studies (27.2%) incorporated a control group. Intervention strategies included (1) integrated group and individual life skills interventions ($n = 6$); (2) group-based life skills interventions ($n = 3$); and (3) psychosocial and consultative interventions ($n = 2$).
Conclusions: Research evaluating occupational therapy interventions aimed at supporting homeless individuals as they transition to housing is in an early stage of development.
Significance: Implications for research and practice are discussed.

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Introduction

Homelessness in high-income countries continues to grow despite elaborate efforts to address this serious and preventable social problem [1–4]. Acknowledging this growing international issue, occupational therapy scholarship in the area of homelessness has been growing rapidly in the past several years in an effort to address this social justice and human rights problem. In a previous paper, our team has declared homelessness as a 'disability rights issue' due to the high prevalence of physical, cognitive, and mental health conditions experienced by homeless individuals [5]. Many individuals experiencing homelessness in high-income countries live in conditions where they have limited access to basic needs such as nutritious food, clean water, and environments in which they can maintain physical and emotional safety. The United Nations goals for sustainable development implore nations around the world to seek social justice by addressing issues of inequality and human rights violations [6]. Growth in the literature on homelessness within occupational therapy demonstrates the profession's commitment to social justice, and clear motivation to address inequality.

Research focussing on homelessness in occupational therapy has explored the occupational experiences of homeless persons [5] and occupation-based interventions in the support of people who are currently homeless [7]. Fewer studies, however, have explored these areas in relation to the transition from homelessness to being housed [8]. There is an important and promising role for occupational therapists in enabling formerly homeless individuals to sustain a tenancy, and to thrive in their housing following

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Supplemental data for this article can be accessed here.

homelessness [9,10]. Despite this potential, there is a relative paucity of literature on this topic, specifically related to the development and evaluation of intervention approaches. This is problematic as it limits research and the practice of occupational therapists who regard themselves as evidence-informed professionals [11], and who have the potential to contribute their unique skills to improve the lives of individuals as they leave homelessness [9]. Supporting individuals to leave homelessness and integrate within their communities is an important way that occupational therapists can address social inequalities, and has been identified as a priority of occupational therapy practice in this context [12].

Interventions addressing homelessness in high-income countries

A variety of strategies have been developed and implemented to support the health and housing needs of homeless individuals. The most widely recognized approaches include Housing First (HF) [13] and Critical Time Intervention (CTI) [14]. HF is an approach which emphasizes the immediate provision of housing while supports for managing mental health and substance use challenges are offered in the form of case management or assertive community treatment [13]. CTI is an intervention designed for implementation during a 'critical time' in the life of a person who has lost their housing such as a hospital admission or shelter stay, and is composed of a three-phase approach aimed at preventing on-going homelessness [15]. Although HF has been implemented and evaluated more broadly, both CTI and HF have a strong evidence base demonstrating effectiveness in reducing the number of days of homelessness [14,16,17]. Neither of these approaches, however, has consistently demonstrated effectiveness in addressing outcomes other than securing a tenancy. For instance, both have either poorly or inconsistently demonstrated effectiveness for community and social integration, reducing substance use, and amelioration of symptoms of mental illness following homelessness [18–21]. This has led scholars to question the extent to which these approaches can influence psychosocial outcomes, as such interventions have been designed primarily to enable homeless persons to secure a tenancy [14,18].

Securing a tenancy is critical to addressing the problem of homelessness in high-income countries [17]. Yet even when supported by existing approaches, those who have left homelessness frequently report feeling lonely and isolated [22], a lack of meaningful activity and boredom [9], on-going challenges with substance misuse [23] and poor community integration [19,24]. More is needed to enable thriving following homelessness for this vulnerable population. The focus of occupational therapy on optimal function and participation in a meaningful life means that the profession is optimally situated for developing and evaluating interventions targeting outcomes that are inadequately addressed by HF and CTI alone. Little is known, however, about the range and effectiveness of interventions developed by occupational therapy researchers to support a transition from homeless to housed.

Occupational therapy interventions for supporting the transition to housing

Reviews of occupational therapy approaches in the area of homelessness have been published in the existing literature. These include a systematic review of occupational therapy interventions for homeless persons published in 2011 [23], and a scoping review of occupation-based practices published in 2017 [2]. Both these studies primarily focus on strategies used during homelessness. Occupational therapists have a promising role in not only supporting individuals during homelessness but also as they transition to being housed [8,9]. Further, occupational therapy has the potential to improve existing interdisciplinary services by contributing an occupational perspective that may be used by a variety of professionals who support individuals as they leave homelessness. There are no known studies, however, exploring the range and quality of evidence for occupational therapy interventions designed to support homeless persons during this transition. There is a need both to aggregate and evaluate the quality of this literature to direct future research and practice efforts.

The current study

Occupational therapy is a promising approach for informing interventions that support thriving rather than simply sustaining a tenancy following homelessness. To support practice and to direct future research efforts, we designed this systematic review to aggregate and evaluate the quality of intervention studies by addressing the following research questions: (1) What interventions have been evaluated in existing literature that both include occupational therapists and are aimed at supporting homeless persons as they

transition to being housed? and (2) What is the quality of existing literature on this topic?

Material and methods

We conducted a systematic review using Joanna Briggs Institute (JBI) guidelines [25] to capture existing literature evaluating occupational therapy interventions for supporting the transition from homeless to housed.

Search strategy

A search strategy was developed in collaboration with an Academic Research Librarian, an author on this study (RI), which was deployed in February 2019. Following Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) Guidelines [26], we searched six databases: EMBASE, CINAHL, PsychINFO, Medline, Nursing and Allied Health and Proquest Dissertations and Theses. We translated the search strategies using each database platform's command language, controlled vocabulary, and appropriate search fields using terms related to the concept of homelessness (e.g. homeless*, houseless), combined with terms pertaining to occupational therapy (e.g. occupation*) with a Boolean 'AND'. In addition to this search, we hand searched the reference lists of all included articles to identify any additional studies not captured using our search strategy. A sample of our Medline search is provided in Supplementary Appendix.

Study selection

Using two independent raters, we conducted a title and abstract search and full text review using Covidence, a cloud-based systematic review software programme [27]. At both the title and abstract, and full-text review stages, we included: (1) levels I and II evidence for effectiveness studies according to the JBI level of evidence hierarchy (experimental and quasi-experimental designs) [28]; (2) studies evaluating an intervention that involved an occupational therapist in its delivery; (3) studies involving persons with a history of homelessness within two years of study participation; (4) studies evaluating an intervention aimed at supporting a transition to housing following homelessness; (5) studies involving participants of all ages; and (6) all years and languages. We excluded articles that were (1) not subjected to peer review; (2) conference abstracts; (3) involved participants who were homeless due to fleeing war or conflict; (4) studies involving persons living in low-income countries. Any conflicts emerging at the title and abstract and full-text review phases were resolved through discussion and consensus. When we discovered that an article had reported on the same sample in more than one publication, we selected the article that reported on either a broader sample or over a longer intervention period. If an article was deemed to be a derivative publication (i.e. a secondary analysis of an existing sample), we selected the article with the earliest date of publication.

Critical appraisal

Two independent raters conducted a critical appraisal using the JBI Critical Appraisal Checklists for Randomized Controlled Trials and Quasi-Experimental Studies [29]. We assigned a score of one to each criterion rated 'yes', and zero to items rated 'no'. When there was insufficient data in the study to determine a rating, we contacted the study authors to gather additional information to inform scoring. After rating each study independently, we compared our ratings and through discussion, arrived at a consensus score. We converted the scores on each rating form to a percentage score between 0 and 100 to facilitate comparison as the total criteria scored on each form differed based on the form used and study appraised. When a criterion was not applicable to the study that we were appraising, we calculated a percentage based on a reduced number of overall criteria. We did not exclude studies based on critical appraisal score to capture a full appreciation of the quality of existing literature on this topic in an effort to guide future research efforts. Studies were identified as 'low' quality if assigned a score of 0–24, 'low–moderate' if assigned a score of 25–49, 'moderate–high' if assigned a score of 50–74 and 'high' quality if assigned a score of 75–100.

Data extraction

Using Microsoft Excel (v.18.11), we developed a data extraction form to capture the following information for studies included in our review: study design; sample country; sample size, gender, age, race, sexual orientation, employment history, educational attainment, clinical characteristics; intervention description; and outcomes. Two independent raters extracted data using identical forms. Once data were extracted by each rater, we compared information entered, and

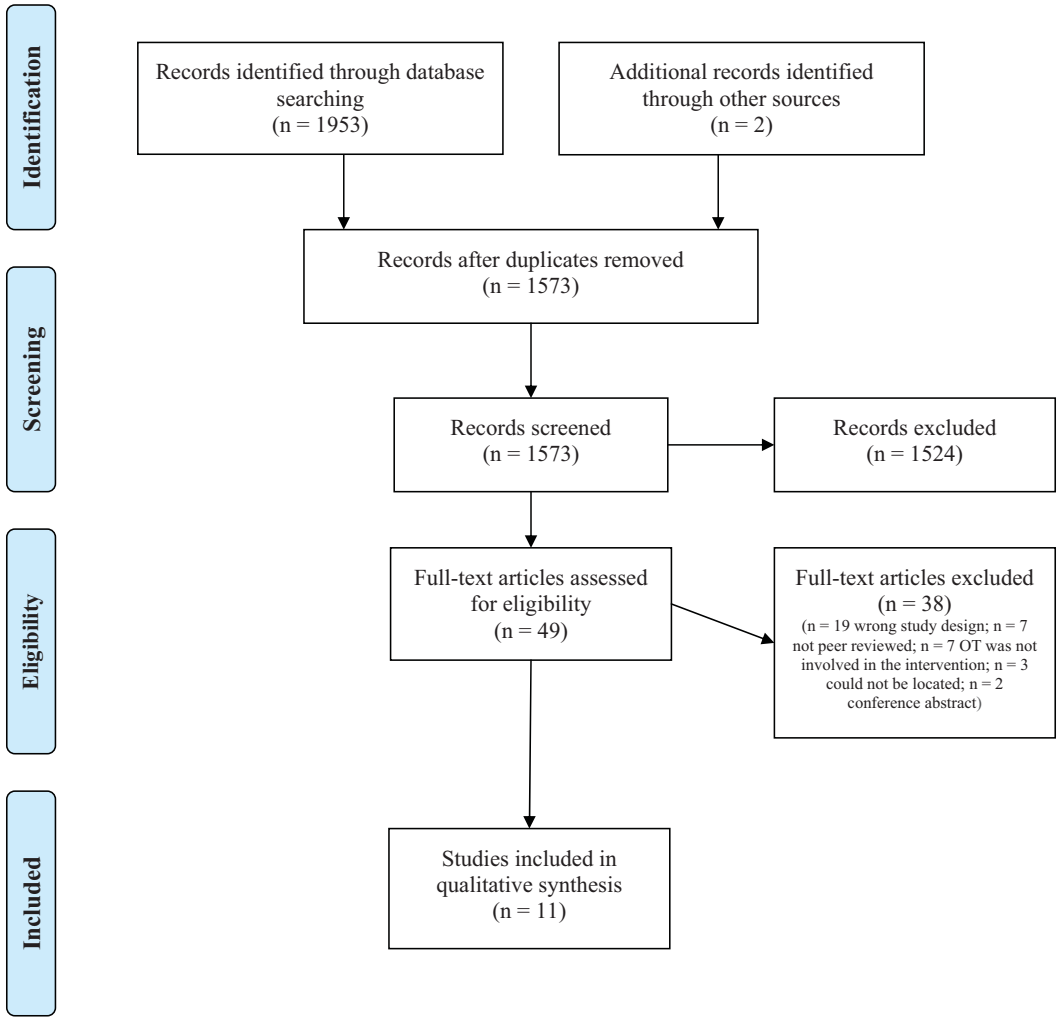

Figure 1. PRISMA flow diagram.

resolved any conflicts through discussion and consensus.

Narrative synthesis

The principal investigator categorized each article according to intervention approach and presented this categorization to two other members of the research team (L. B. and L. W.). This categorization of articles was refined through discussion and consensus. Articles grouped similarly were then described in detail in tables specific to the intervention approach. The findings of these studies were then synthesized in a narrative description, which is presented according to each intervention category in the results section of this paper.

Results

From a total of 1953 articles identified through our database and manual searches, a total of 11 studies were included in our review. See Figure 1 for our PRISMA flow diagram, which details our selection process.

Study characteristics

All of the studies included in this review were conducted in the USA between 2004 and 2018. Of 11 total studies, all were quasi-experimental in design.

Participant characteristics

Included studies represented a total of 443 participants, with samples ranging from 10 to 57. Of these, 229 participants were identified as female (51.7%), 204 as male (46%), and the gender of 10 participants (2.3%) was not specified. Race of participants included Black ($n = 176$, 39.7%), White ($n = 130$, 29.3%), Hispanic ($n = 19$, 4.3%), Indigenous ($n = 3$, 0.6%), Other ($n = 33$, 7.4%), and unspecified ($n = 73$, 16.5%). None of the studies included in this review

Table 1. Description of Included studies ($n = 11$).

Characteristic	
Participant characteristics	*n* (%)
Sample size (baseline)	443 (100)
Gender	
Female	229 (51.7)
Male	204 (46.0)
Not specified	10 (2.3)
Race	
Black	176 (39.7)
White	130 (29.3)
Hispanic	19 (4.3)
Indigenous	3 (0.6)
Asian	0 (0)
Mixed race	9 (2.0)
Other	33 (7.4)
Unspecified	73 (16.5)
LGBTQ2	Unreported in all studies
Employment	
Unemployed	166 (37.5)
Employed	10 (2.3)
Unspecified	267 (60.3)
Education	
<Secondary school	34 (7.7)
Secondary school diploma or equivalent	133 (30.0)
Some college or university	132 (29.8)
College or university completed	19 (4.3)
Unspecified	125 (28.2)
	n studies (%)
Country of publication	
USA	11 (100)

Percentage sums do not all equal 100 due to rounding.

involved those of Asian race. None identified the sexual orientation of participants. Employment status of participants was primarily unspecified ($n = 267$, 60.3%), followed by unemployed ($n = 166$, 37.5%), and employed in at least a part-time capacity ($n = 10$, 2.3%). Almost one-third of the participants had a secondary school diploma or equivalent ($n = 133$, 30.0%) or some college or university ($n = 132$, 29.8), followed by less than secondary school ($n = 34$, 7.7%), and college or university completed ($n = 19$, 4.3%). Educational status of participants was not reported for 125 participants (28.2%). See Table 1 for a summary of the characteristics of participants in the studies included in this review.

Critical appraisal

Critical appraisal scores ranged from 33.3 to 88.9 (Mdn = 62.5, IQR = 33.4). Three included studies (27.3%) represented evidence in the low–moderate quality range [30–32], five (45.5%) in the moderate-–high quality range [33–37], and three (27.3%) in the high-quality range [38–40]. Only three (27.3%) of the included studies incorporated a control group [36,38,39]. See Tables 2–4 for a summary of scores assigned to individual studies.

Narrative synthesis

Given the emerging nature of this body of literature, the lack of control group conditions in included studies, and the heterogeneity of outcomes measured, we could not proceed with a meta-analysis. Instead, we have conducted a narrative synthesis of included studies. The majority of these studies evaluated interventions aimed at developing life skills ($n = 9$, 81.8%), with some designed to be delivered in an integrated manner with both group and individual components ($n = 6$, 54.5%), and others designed to be delivered primarily in group format ($n = 3$, 27.3%). Psychosocial and consultative interventions ($n = 2$, 18.2%) included a peer support community [37] and an occupational therapy direct intervention and consultation service [38]. Each of these is discussed in detail below.

Integrated group and individual life skills interventions

A total of six studies (54.5%) evaluated life skills interventions that included both group and individual components, and were designed for delivery in an integrated manner [30–35]. See Table 2 for a summary of the characteristics of studies included in this category.

Five of the studies included in this category were conducted by the same principal investigator (Helfrich) and all evaluated the same intervention. This intervention was first developed and reported in 2006 [32], and subsequently refined over time [30–32,34]. Using psychoeducation and experiential learning, this manualized intervention was informed by the Model of Human Occupation [41], and designed to improve residential stability among formerly homeless persons. While originally involving eight 60-min sessions (four group and four individual) [32], it was expanded to include 12 sessions (six group and six individual) in the most recent publication evaluating this approach [30]. Both group and individual sessions were facilitated by an occupational therapist. Group components consisted of sessions focussing on the development of skills in (1) Room and self-care; (2) Money management; (3) Nutrition/food management; and (4) Safe community participation. These modules were offered on a rotating basis, and participants could complete them at any time in a 6-month period. Individual sessions were scheduled collaboratively between the occupational therapist and participant and were designed to reinforce what was learned in group sessions.

Table 2. Integrated individual and group life skills interventions ($n = 6$).

References	Intervention	Population	Sample size	Study design	Critical appraisal score (quality level)	Outcomes measured	Findings
Gutman et al. [35]	A 12-component intervention developed for women experiencing homelessness with a history of domestic violence	*Age:* mean age = 44, range 23–58 *Gender:* All female *Homelessness history:* sheltered, and in the transition to being housed *Clinical/Social characteristics:* mood disorder (88%); PTSD (35%); cognitive impairment (62%); substance use disorder (50%); history of abuse (54%)	$n = 26$	Quasi-experimental	55.6 (moderate–high quality)	1. *Goal attainment:* GAS [45] 2. *Acceptability:* Non-standardized, open-ended questions related to acceptability of the intervention for participants	1. *Goal attainment:* Of 26 participants, 81% of achieved their most favourable outcome according to their GAS scores pre-post intervention, and 19% achieved their expected outcome. None regressed from baseline. By programme: Domestic violence: Of 16 participants, 87.5% had achieved their most favourable outcome, and 12.5% achieved their expected outcome; Of 10 participants in the homeless programme, 70% achieved their most favourable outcome, and 30% achieved their expected outcome. 2. *Acceptability:* In terms of acceptability, 99% of participants indicated that they were satisfied with the intervention.
Helfrich and Chan [30]	A manualized intervention designed to promote housing stability in formerly homeless persons. Included six individual and six group sessions focussing on the following skills: (1) room and self-care; (2) money management; (3) nutrition management; and (4) safe community participation	*Age:* m = 43.3, SD = 9.4, range = 24–66 years *Gender:* 56% male; 44% female *Homelessness history:* residing in an SRO (44%); Emergency shelter (56%); length of stay: >1 year (52%); <1 year (48%). *Clinical/social characteristics:* affective disorder (73%); thought disorder (27%)	$n = 73$ (32 completed)	Quasi-experimental	44.4 (low–moderate quality)	1. *Self-reported meaningful activity:* Occupational Self-Assessment (OSA) [43]	1. *Self-reported meaningful activity:* Post intervention, participants rated themselves as more competent on items related to basic needs. Those in stable housing reported themselves as more competent. Across time points, 'managing finances' was a top priority related to oneself, and 'having a place to live and take care of myself' was a top priority related to one's environment
Helfrich et al. [31]	A manualized intervention designed to promote housing stability in formerly homeless persons. Included six individual and six group sessions focussing on the following skills: 1) Room and self-care; 2) Money management; 3) Nutrition management; and 4) Safe community participation. Participants had the option to attend one or more sessions, and if they missed an individual session, material was covered in individual sessions.	*Age:* m = 46.5, SD = 9.8, range = 24–68 years *Gender:* Male (n = 40; 55.6%); Female (n = 32; 44.4%) *Homelessness history:* sheltered ($n = 40$; 55.6%), SRO ($n = 32$; 44.4%). Length of stay: <1 year ($n = 34$; 7.2%; >1 year ($n = 36$; 50.0%) *Clinical/Social characteristics:* affective disorder ($n = 46$; 63.9%); psychotic disorder ($n = 18$; 25.0%); past abuse ($n = 61$; 84.7%)	$n = 72$	Quasi-experimental	33.3 (low – moderate quality)	1. *Trauma:* Impact of Event Scale Revised (IES-R) [44]	1. *Trauma:* Total and subscale scores of the IES-R decreased for most participants over the course of the intervention. For females living with abuse and those who had been homeless for <1 year, an increase in symptoms at 3 months post-intervention was observed and was highest at the point of transition to being housed
Helfrich et al. [33]	A manualized intervention designed to promote housing stability in formerly homeless persons. Included six individual and six	*Age:* m = 46; range 24–61 *Gender:* $n = 14$ female (37%); $n = 24$ male (63%) *Homelessness history:* sheltered	$n = 38$	Quasi-experimental	62.5 (moderate–high quality)	1. *Life skills:* A total of four Practical Skills Tests (PST) developed by the first author (Helfrich) including	1. *Life skills: high cognition group:* PST scores were significantly greater post-intervention for food management, money management, and safe

(*continued*)

Table 2. Continued.

References	Intervention	Population	Sample size	Study design	Critical appraisal score (quality level)	Outcomes measured	Findings
	group sessions focussing on the following skills: (1) room and self-care; (2) money management; (3) nutrition management; and (4) safe community participation. Participants had the option to attend one or more sessions, and if they missed an individual session, material was covered in individual sessions	(55%) or residing in SROs (45%) *Clinical/social characteristics:* All experienced mental illness, but diagnoses were not specified				food management, money management, room and self-care, and safe community participation	community participation. No significant improvements were observed for room care or self-care in this group. *Low cognition group:* PST scores were significantly greater in food management and safe community participation, but non-significant over time in money management and room care. Self-care PST scores significantly decreased from post-intervention to 6-month follow up
Helfrich and Fogg [34]	Intervention consisting of a total of eight sessions, with four 60-minute group sessions, and four individual sessions facilitated by an occupational therapist	*Age:* m = 46, range = 26–66 years *Gender:* male ($n = 28$; 55%); female ($n = 23$; 45%) *Homelessness history:* unsheltered (84%; Mdn = 214 days, range 2–4380); sheltered (16%) *Clinical/social characteristics:* medical conditions (65%); psychiatric conditions: mood disorder (50%); psychotic disorder (26.1%); anxiety disorder (6.5%); Substance use disorder (2.2%); co-occurring psychotic features (10%); co-occurring substance use disorder (43%)	$n = 51$	Quasi-experimental	55.6 (moderate–high quality)	1. *Life skills:* A total of four Practical Skills Tests (PST) developed by the first author (Helfrich) including food management, money management, room and self-care, and safe community participation	1. *Life skills:* PST scores for room and self-care and community participation modules improved over time. Modules for food management and money management did not reach statistical significance
Helfrich et al. [32]	A manualized intervention consisting of a total of eight sessions, with four 60-min group sessions, and four individual sessions facilitated by an occupational therapist	*Age:* range 17–55 years. Mean ages of each group: youth ($m = 19$); abused women ($m = 31.28$); adults with mental illness ($m = 45.77$) *Gender:* female ($n = 63$; 86.3%); 72% youth, 100% abused women and 61.5% adults with mental illness were female. *Homelessness history:* sheltered. Length of stay in days: Range = 1–491 days; $m = 102.3$. *Clinical/social characteristics:* mental illness: 44.5% youth, 21% abused women and 100% of the adults with mental illness. Physical health conditions: youth ($n = 0$; 0%); abused women ($n = 8$; 19.1%; adults with mental illness ($n = 9$; 69.2%)	$n = 73$ (32 completed)	Quasi-experimental	33.3 (low–moderate quality)	1. *Life skills:* Ansell-Casey Life Skills Assessment (ACLSA) [42]	1. *Life skills:* of those completing modules, 20 (62%) demonstrated an increase in mastery scores on the ACLSA, five (16%) demonstrated no difference, and seven (22%) demonstrated a decrease. All of these improvements were increases, and not statistically significant. When groups were stratified according to population (youth, mental illness, domestic violence), only the group of women experiencing domestic violence demonstrated statistically significant improvement in mastery scores post-intervention

I: intervention group; C: control group; SRO: single-room occupancy residence.

In three studies evaluating this intervention, the authors measured the impact of participation on life skills using the Ansell-Casey Life Skills Assessment (ACLSA) [42], and life skills knowledge using the Practical Skills Tests (PST). The latter measure (PST) was developed by the primary author of these studies (Helfrich) to evaluate this intervention [34]. In one study, the authors found that although there was a trend towards improvement in 'mastery of life skills' on the ACLSA, this relationship was non-significant for three groups of participants involved in the intervention (youth, adults with mental illness, and abused women) [32]. When 'life skills knowledge' was measured using the PST, participants in another study demonstrated significant improvement in knowledge of skills related to two modules (room and self-care, safe community participation). Improvement in knowledge of life skills related to the other modules (food management, money management) was not statistically significant [34]. The final study evaluated the impact of this intervention for groups of participants assessed as having either high or low cognition [33]. Post-intervention, participants in both groups demonstrated a significant increase only in knowledge of food management and safe community participation. Those in the high cognition group also demonstrated a significant increase in knowledge of money management. Room and self-care knowledge was not significantly different post-intervention for either group.

Two studies evaluated the impact of participating in this intervention on other outcomes including self-rated meaningful activities [30] using the Occupational Self-Assessment (OSA) [43], and trauma symptoms [31] using the Impact of Event Scale-Revised (IES-R) [44]. On the OSA, participants rated themselves as more competent on basic needs post-intervention, with those who had sustained their housing rating themselves as more competent [34]. In determining the impact of this intervention on trauma symptoms, the study authors found that IES-R scores decreased for most participants over the course of participating in the intervention which corresponded to an overall decrease in trauma symptoms [31].

A second integrated life-skills intervention with both group and individual sessions was designed for homeless women receiving support in a domestic violence programme [35]. The women were invited to attend group and individual sessions weekly for one hour over a 6-month period. This approach included 12 components, which were identified through a needs assessment conducted prior to the initiation of this study. Components included (1) safety planning; (2) drug and alcohol awareness; (3) safe sex practices; (4) assertiveness and advocacy skill training; (5) anger management; (6) stress management; (7) boundary establishment and limit setting; (8) vocational and educational skill training; (9) money management; (10) housing application; (11) leisure exploration; and (12) hygiene, medication routine, and nutrition. In group and individual sessions, women were encouraged to role play and receive feedback from other group members and the occupational therapist relating to real-life scenarios in their daily lives. The authors of this study used Goal Attainment Scaling (GAS) [45] to measure individualized goals identified by the women prior to participating in the intervention, as well as a measure of 'acceptability', including open-ended questions aimed at assessing participants' views of the approach. Following participation, the study authors identified that 81% of the women achieved their most favourable outcome on individualized GAS scores (i.e. goal achieved), and 19% achieved their expected outcome (i.e. no change from baseline). In terms of acceptability, 99% of participants identified that they were satisfied with the intervention.

Group-based life skills intervention

Three studies (27.3%) evaluated the effectiveness of a group-based life skills intervention for homeless persons in the transition to being housed called Supporting Many to Achieve Residential Transition (SMART) [36,39,40]. See Table 3 for a summary of the characteristics of studies included in this category.

Authors of studies evaluating SMART describe this approach as an 'apartment living program' focussing on budgeting, cleaning and laundry, medication management, and negotiating conflict with roommates and neighbours [36]. One module was presented each week to participants in a group format augmented by DVD (video) as a facilitation tool. The intervention was delivered in two-hour sessions over a 6-week period including the following modules: (1) preparing for the housing interview and application process; (2) managing an apartment; (3) being a good tenant and neighbour; (4) living optimally in the community; (5) managing money; and (6) maintaining health and wellness. To maintain consistency across facilitators, the programme has been manualized and includes instructor resources, practice activities, and fidelity checklists [36].

SMART was evaluated in the studies included in this review on a variety of outcomes including individualized goal attainment using GAS [45], occupational performance using the Canadian Occupational Performance Measure (COPM) [46], social skills using the Interpersonal Skills Scale (ISS) [47], quality of life using the Manchester Short Assessment of Quality of Life Scale (MANSA) [48], housing status and community functioning, and satisfaction with the intervention. In evaluating the impact of SMART on GAS, participation was associated with significant improvements post-intervention in two studies [39,40]. Two studies identified significant improvements in quality of life, with MANSA scores increasing significantly post-intervention with large effect sizes: ($d = -1.34$) [36]; and ($d = 1.30$) [39]. In one study, COPM performance and satisfaction scores were measured pre- and post-intervention, and were found to have significantly increased with large effect sizes on both subtests (performance: $d = -1.86$; satisfaction: $d = -1.85$) [36]. Social skills were also found to increase following participation in SMART as measured by the ISS, also with a large effect size ($d = -2.98$) [36]. In one study, housing status and community functioning was assessed *via* interviews with SMART participants' case managers [40]. The authors reported that three months post-intervention, four of six participants receiving SMART had been housed, and one had secured employment. At 6-months post-intervention, the same participants had sustained their housing for $3-5$ months. Finally, two of the studies included in this review measured participant satisfaction with SMART [36,40]. Participants reported a high degree of satisfaction with the intervention, indicating on a 3-point Likert scale developed by the study authors that that they found the modules to be personally relevant, interesting and engaging, easy to understand, and provided sufficient opportunities for practice [36,40].

Psychosocial and consultative interventions

Two studies (18.2%) evaluated psychosocial and consultative interventions aimed at supporting homeless persons as they made the transition from homeless to housed. These included a peer support community [37] and an occupational therapy individual intervention and consultation service [38]. See Table 4 for a summary of the characteristics of studies included in this category.

The peer support community (PSC) intervention was facilitated with individuals living in an abstinence-based permanent supportive housing programme for individuals living with substance use disorders following homelessness [37]. The approach was led by an occupational therapist, who began by educating residents about peer support, and the value of a PSC. Following this, residents were invited to express interest in taking a peer leadership role. Group sessions aimed at developing leadership and communication skills were facilitated. The group was then supported to develop mission statements, and collaborate on rules of conduct, community purpose, and self-identified goals. After 10-weeks of supporting the community develop, the occupational therapist withdrew from the community to enable the PSC to function independently. The study authors measured quality of life using the Quality of Life Rating Scales (QOLR) [49], social support using the Medical Outcomes Study Social Support Survey (MOS-SSS) [50], motivation using the Volitional Questionnaire (VQ) [51], and frequency of substance use relapse. Significant improvements were observed in social support and substance use relapse post-intervention, with an increase in all three subtests of the MOS-SSS with moderate to large effect sizes (emotional/informational support: $r = 0.628$; affectionate support: $r = 0.493$; tangible support: $r = 0.494$), and a significant reduction in the chance of substance use relapse to 7% from 24% measured in the year prior to implementing the PSC [37]. Quality of life and motivation scores were not statistically different post-intervention.

The second study evaluated the impact of an occupational therapy direct intervention and consultation service on goal attainment and housing status [38]. The occupational therapist completed an initial assessment composed of a cognitive assessment and the COPM [46]. Following this, participants in the experimental condition were provided with on-going case management and both the participant and case manager were provided with access to an occupational therapist consultant. Regular meetings occurred between the occupational therapist and case managers, who on request, were provided with information about health conditions and helpful intervention strategies. The occupational therapist delivered weekly activity-based groups and provided information to case managers regarding the progress of participants in group sessions. Groups included diabetes education, life skills management, exercise, relaxation, crafts, gardening, and therapeutic horseback riding. The occupational therapist was also approached by the programme manager to provide group leadership skills training to case managers. Six-months post-

Table 3. Group-based life skills intervention (supporting many to achiever residential transition (SMART) ($n = 3$).

References	Population	Sample size	Study design	Critical appraisal score (quality level)	Outcomes measured	Findings
Gutman et al. [36]	*Age:* 36–62 (M = 51.87, SD = 8.75) *Gender:* male = 10 (63.6%); female = 6 (36.3%) *Homelessness history:* recently housed, and living in transitional supportive housing *Clinical/social characteristics:* those completing the intervention reported the following: Schizophrenia $n = 7$ (43.7%); Schizoaffective disorder $n = 5$ (31.2%); bipolar disorder $n = 2$ (12.5%); depression $n = 2$ (12.5%)	$n = 22$ (16 completed)	Quasi-experimental	66.7 (moderate–high quality)	1. *Occupational performance:* COPM (Law et al. [46]) 2. *Social skills:* Interpersonal Skills Scale (ISS) [47] 3. *Quality of life:* Manchester Short Assessment of Quality of Life Scale (MANSA) [48] 4. *Satisfaction with the intervention:* Likert scale (3-point ranging from 'disagree' to 'agree') items were developed by the researchers consisting of 10 items delivered in relation to each of six modules delivered	1. *Occupational performance:* COPM performance and satisfaction scores significantly improved post intervention with large effect sizes (performance: $d = -1.86$; satisfaction: $d = -1.85$). Mean performance change scores were 2.29, SD = 0.74. A score difference of >2 represents a clinically significant change (Law et al. [52]). 2. *Social skills:* statistically significant increases on the ISS pre-post intervention were observed with a large effect size ($d = -2.98$). 3. *Quality of life:* MANSA scores improved, with a large effect size ($d = 1.34$), pre–post intervention. 4. *Satisfaction with the intervention:* participants reported high degrees of satisfaction ranging from 90-100% that modules were personally relevant, easy to understand, and adequate opportunities for practice were provided
Gutman and Raphael-Greenfield [39]	*Age:* intervention group: 29–59 ($M = 43.4$, SD = 10.16); control group: 30–60 ($M = 45.3$, SD = 9.79) *Gender:* all male *Homelessness history:* sheltered and in the transition to being housed *Clinical/social characteristics:* intervention group: Schizophrenia ($n = 4$; 57.1%); Depression ($n = 2$; 25%); bipolar disorder ($n = 1$; 14.3%). Control group: Schizophrenia ($n = 4$; 50%); depression ($n = 2$; 25%); bipolar disorder ($n = 2$; 25%)	$n = 15$ (I = 7; C = 8)	Quasi-experimental	77.8 (high quality)	1. *Goal attainment:* GAS [45] 2. *Quality of life:* MANSA [48]	1. *Goal attainment:* GAS scores significantly improved post intervention. At a 6-month follow-up, 57.14% of participants in the intervention group had made the transition to supportive housing, with only 25% of the control group having made the same transition. 2. *Quality of life:* a statistically significant difference in quality of life with a large effect size ($d = 1.30$) between intervention and control groups post-intervention was observed, with the intervention group reporting higher scores on the MANSA
Gutman et al. [40]	*Age:* $m = 47.83$, SD = 15.56 *Gender:* all male *Homelessness history:* sheltered. Time in shelter: completers ($m = 9.8$ months, SD = 2.56 months); non-completers ($m = 9.75$ months; SD = 2.06 months) *Clinical/social characteristics: completers:* dementia ($n = 1$); major depressive disorder ($n = 2$); bipolar disorder ($n = 2$); social phobia ($n = 1$); Schizoaffective disorder ($n = 1$);	$n = 6$ (completers), $n = 4$ (non-completers)	Quasi-experimental	88.9 (high quality)	1. *Goal attainment:* GAS [45] 2. *Satisfaction with the intervention:* survey questions developed by the study authors included 5–6 questions (measured on a 3-point Likert scale) were delivered on three occasions, and asked participants to indicate the extent to which modules helped them to understand aspects of the housing transition and maintenance process.	1. *Goal attainment:* a total of 6 of 10 participants completed the intervention and attained GAS scores that were greater than expected at baseline. There was a significant difference between the intervention and control groups on GAS scores (large effect size) with the intervention group reaching more favourable outcomes. 2. *Satisfaction with the intervention:* all six intervention group participants indicated that modules enabled them to understand daily living skills aimed at preparing them for the

(*continued*)

Table 3. Continued.

References	Population	Sample size	Study design	Critical appraisal score (quality level)	Outcomes measured	Findings
	obsessive compulsive disorder ($n = 1$); Schizophrenia ($n = 2$); substance use history ($n = 6$); Asthma ($n = 1$); chronic back pain ($n = 1$); multiple falls ($n = 1$); seasonal allergies ($n = 1$). *Non-completers:* major depressive disorder ($n = 2$); Schizoaffective disorder ($n = 1$); Schizophrenia ($n = 1$); substance use history ($n = 3$); chronic back pain ($n = 2$); respiratory disease ($n = 1$)				Participants were also asked to provide qualitative feedback on these surveys. 3. *Housing status and community functioning*: assessed by interviewing case managers supporting participants to determine whether participants had obtained housing, and level of function in community living	transition from homelessness. All agreed that the modules were easy to understand, were interesting, and engaging. 3. *Housing status and community functioning*: at 3-months post-intervention, case managers reported that four of six intervention group participants had been housed in supportive housing. One had obtained employment in a bakery. At 6-months post-intervention, these participants had sustained their housing for 3–5 months

I: intervention group; C: control group; SRO: single-room occupancy residence.

intervention, the study authors reported statistically significant gains in GAS scores for those in the experimental condition when compared with controls. After 1 year in the study, the housing status of those participating in this intervention improved over controls, but this relationship was non-significant [38].

Discussion

We conducted this study to identify the range and quality of literature evaluating occupational therapy interventions for supporting the transition to housing among individuals leaving homelessness. We identified a total of 11 experimental studies of moderate quality representing a total of 443 participants. All of the included studies were conducted in the USA and published between 2004 and 2018. All were quasi-experimental studies, and the majority were pre–post evaluation studies with no control group. Of those that included a control group, sample sizes were very small. Due to the lack of control group conditions and heterogeneity in study outcomes, we were unable to conduct a meta-analysis. Of the studies included, the vast majority (81.8%) focussed on assisting homeless persons to develop life skills in the transition to housing. The recency, number of studies identified, and nature of the studies included in this review suggest that this body of literature is in a very early stage of development. To our knowledge, this is the only systematic review of occupational therapy interventions designed to support individuals as they transition from homeless to housed.

In conducting this review, we were surprised at the homogeneity of this body of literature. All of the included studies were conducted in the USA. Given that many studies in the occupational therapy literature on homelessness have been conducted in several high-income countries internationally [5,7,53], we anticipated finding intervention studies conducted in a range of countries. Clearly, the findings of this review suggest otherwise. This is problematic, as the studies included in this review represent a narrow sociocultural context, and the findings of these studies cannot be reliably generalized to those living in countries outside of the USA. Those conducting research in other countries are encouraged to develop, implement, and evaluate interventions in their own unique contexts. Further, interventions identified in this review should be evaluated in countries other than the USA to determine whether outcomes are similar or different. This will improve the utility of these interventions in nations outside of the USA and help

Table 4. Psychosocial and consultative interventions ($n = 2$).

References	Intervention	Population	Sample size	Study design	Critical appraisal score (quality level)	Outcomes measured	Findings
Boisvert [37]	*Peer support community with occupational therapy facilitation*	*Age:* 19–62 *Gender:* not stated *Homelessness history:* recently housed in permanent supportive housing following chronic homelessness *Clinical/social characteristics:* substance use disorder ($n = 3$ had co-occurring mental illness in the Time 1 sample)	$n = 10$	Quasi-experimental	66.7 (moderate–high quality)	1. *Quality of life:* Quality of Life Rating Scales (QOLR) [49] 2. *Social support:* Medical Outcomes Study Social Support Survey (MOS-SSS) [50] 3. *Motivation:* Volitional Questionnaire (VQ) [51] 4. *Substance use relapse:* frequency of reported relapse into substance use was measured by the permanent supportive housing (PSH) programme	1. *Quality of life:* improvements on the QOLR were observed but were non-significant. 2. *Social support:* significant differences post intervention on all subtests of the MOS-SSS with moderate to large effect sizes: Emotional/Informational Support ($r = 0.628$), Tangible Support ($r = 0.493$) and Affectionate Support ($r = 0.494$). 3. *Motivation:* there were no observable differences pre–post-test on the VQ. 4. *Substance use relapse:* in the year prior to implementing the peer support community, PSH residents had a 24% chance of relapsing, and only 7% after participating in the intervention
Chapleau et al. [38]	*Occupational therapy direct intervention and consultation model*	*Age:* Mean age: I = 47.31 (SD = 12.34); C = 45.53 (SD = 9.21) *Gender:* $M = 14$, 63.6%; female = 8, 36.3% *Homelessness history:* recently housed *Clinical/social characteristics:* control group: Schizophrenia (58%); depressive or bipolar disorders (27%); active substance use (24%); history of substance use (88%). Experimental group: Schizophrenia (48%); depressive or bipolar disorders (25%); active substance use (12%); history of substance use (67%).	$n = 57$ (I = 29; C = 28)	Quasi-experimental	77.7 (high quality)	1. *Goal attainment:* Goal Attainment Scaling (GAS) [45] 2. *Housing status:* researchers, in collaboration with a veteran case manager, developed a categorical scale representing a continuum of housing models with '1' (incarceration) as the least desirable, and '13' (independent) representing the most desirable housing outcome	1. *Goal attainment:* at 6-months, participants in the intervention group demonstrated significantly greater gains in GAS than those in the control group. 2. *Housing status:* both intervention and control groups' housing status improved over the one-year course of the study, with greater, non-significant gains in housing status for the intervention group over the control group

I: intervention group; C: control group.

to inform necessary modifications needed to suit a range of sociocultural contexts.

Nearly all of the studies included in this review focussed on the development of life skills in the transition to being housed, and most were conducted by the same two principal investigators (Helfrich; Gutman). It makes sense that the focus of occupational therapy interventions might be dedicated to life skills given the profession's focus on supporting individuals to function optimally in activities in their daily lives despite health or social challenges [54]. This is an important focus in the support of homeless persons as individuals who have been homeless for long periods often report losing their ability to perform activities associated with being housed, and express concern about their ability to return to these activities upon securing a tenancy [55]. Life skills interventions, however, may not be the appropriate choice for some individuals who've experienced homelessness, as some participants in previous research report that they relearn independent living skills on their own in a relatively short period of time after securing a tenancy simply due to being in an environment in which performance of these skills becomes necessary [9]. What does persist as a problem for some is a lack of opportunities to participate in activities that are meaningful [9], resulting in profound boredom that has been associated with serious, negative impacts on mental well-being [56,57]. This is not to suggest that a focus on independent living skills is unimportant as many individuals who have experienced homelessness may have never learned these skills or may struggle to perform them due to the presence of a mental health or cognitive disorder. Instead, we intend to highlight that developing interventions to support formerly homeless persons to participate in activities that are meaningful is *equally* important and may support tenancy sustainment following homelessness. Existing interdisciplinary approaches, including HF and CTI have demonstrated poor or mixed findings for addressing key outcomes including community integration, substance use, and symptoms of mental illness [18,21,58]. There is a close relationship between engagement in meaningful activity and mental well-being, substance use and belonging for individuals experiencing homelessness [57], suggesting that employing strategies that address barriers to participation in meaningful activity may effectively target these outcomes.

Only two of the 11 studies included in this review incorporated a focus on engagement in meaningful activity [37,38]. In one of these studies, the intervention involved a range of activity-based groups in which those transitioning to housing could be involved [38]. Although housing status improved over time, and those participating in the intervention were more likely to experience improvements in their GAS scores than controls, other relevant psychosocial outcomes were not measured. Another intervention included in this review provided opportunities to develop a meaningful life role as a peer support leader in a programme for formerly homeless adults in substance use recovery [37]. In this study, the authors found that participating in the intervention was associated with improvements in social support and decreased substance use relapse, yet the sample size was very small ($n = 10$), and there was no control group condition. None of the studies included in this review measured meaningful activity engagement as an outcome of interest or attempted to identify any associations between this construct and other indices of psychosocial well-being. Overcoming barriers to inclusion in mainstream society, including the stigma of homelessness [59], is a complex problem for which an occupational therapy lens may be useful. Researchers and practitioners are encouraged to consider ways of incorporating approaches that help homeless persons engage in meaningful activity following homelessness as they develop and evaluate intervention approaches. Standardized measures of meaningful activity engagement (such as the Engagement in Meaningful Activities Survey [60]) and measures of boredom (such as the Multidimensional State Boredom Scale [61]) may be useful tools for evaluating the effectiveness of these strategies.

Life skills interventions identified in this review included those which integrated group and individual components [30–35], and a group-based intervention called SMART [36,39,40]. One of the integrated interventions was evaluated in five studies included in this review [30–34], and demonstrated mixed findings primarily for improving knowledge and confidence in independent living skills and also in the reduction of trauma symptoms [31]. Due to the lack of a control group, however, we can conclude little about whether outcomes identified were attributable to the intervention or to time and environmental factors alone. Although outcomes related to another integrated life skills intervention for homeless women receiving support in a domestic violence programme were encouraging [35], this study also lacked a control group. With respect to group-based interventions, the only intervention included in this category was SMART,

which demonstrated more encouraging findings for a variety of key outcomes pertinent to supporting those leaving homelessness including goal attainment, performance and satisfaction in daily activities, social skills, quality of life, and housing and community functioning [36,39,40]. These studies all demonstrated impressive findings, and the incorporation of control conditions in two of these studies [39,40] meant that outcomes could be more clearly attributed to the effects of the intervention. Although findings of these studies are promising, sample sizes were very small, and therefore, findings should be interpreted with caution.

One major gap in this body of literature was the lack of interventions aimed at engaging individuals leaving homelessness in employment. Given that the profession of occupational therapy and its scholarship are built on the underlying premise that human activities are inherently related to wellbeing [54], and employment is a substantial activity in which adults engage, the absence of employment-related interventions from this body of literature appears to be an oversight. Only one of the studies included in this review involved any component that was employment related [35]. This was a module delivered in the context of an integrated individual and group life skills intervention for women with histories of domestic violence and possible traumatic brain injury. The lack of attention to employment in interventions developed by occupational therapists for individuals making the transition to housing is puzzling given that being employed has the potential to both improve community and social integration, while simultaneously alleviating poverty. As poverty is a common cause of homelessness [2], improving one's income through employment is an important homelessness prevention strategy. There are a variety of interventions that have demonstrated effectiveness in the interdisciplinary literature for employment and other indices of psychosocial wellbeing among homeless persons including social enterprise (SE) [62,63], individual placement and support (IPS) [64], and work-related cognitive behavioural therapy (WCBT) [65]. Although the body of literature exploring employment interventions for homeless persons is relatively small [66], occupational therapy researchers have unique knowledge to contribute. Future occupational therapy research aimed at developing interventions to support homeless persons as they transition to housing may consider incorporating employment engagement strategies given the promise of employment in preventing on-going homelessness.

Limitations

There are several limitations of this study and the body of literature it represents. Many of the studies included in this review were primarily exploratory evaluation and feasibility studies meant to provide a foundation for future occupational therapy intervention research in the support of individuals leaving homelessness. Due to the nature of these studies, there are several methodological limitations that limit generalizability to the population of individuals leaving homelessness. Sample sizes were small, and only three of the included studies involved a control group. In the future, researchers are encouraged to evaluate interventions identified in this review, as well as other interventions using more robust research methods. We acknowledge that there are limitations to conducting research with homeless persons given inherent challenges associated with recruitment and retention in intervention studies with this population [67]. Researchers interested in conducting future intervention research with this population should be aware of these challenges and incorporate strategies to enhance retention and compensate for attrition including recruiting large baseline sample sizes and by incorporating intent-to-treat analyses. Future research should focus on increasing sample sizes, including control groups, and incorporating the use of randomized control trial designs where possible to improve both the reliability and validity of study findings. The fact that all of the included studies were conducted in the USA limits generalizability of the findings of this review to that context. Future intervention research should be conducted in other geographic contexts to improve generalizability. As the race of most participants included in this study was primarily Black and White, the findings of this review are limited to these races. Individuals representing races other than Black and White should be included in future occupational therapy research in this area. Similarly, the sexual orientation of participants included in this review was unspecified in all included studies. This is problematic, as individuals identifying as LGBTQ2+ are overrepresented in statistics on homelessness and sexual orientation is known to influence experiences of homelessness [68]. Sexual orientation may influence the relevance and effectiveness of interventions for this population, and we can conclude little about the effectiveness of interventions included in this review for this population. Finally, although our search was comprehensive and rigorous, we recognize that there is a possibility that may not have captured all available evidence on this topic.

Conclusion

There is an important role for occupational therapy in designing and evaluating strategies to help individuals to thrive following homelessness. Existing interdisciplinary interventions have focussed primarily on tenancy sustainment for homeless persons. Although sustaining a tenancy is a critical outcome in the support of individuals who are leaving homelessness, there are opportunities to support individuals to thrive once housed. Improving one's ability to function effectively in the performance of life skills following homelessness, as well as addressing barriers to engagement in meaningful activity have the potential to promote thriving following homelessness. Few occupational therapy interventions, however, have been reported and evaluated in existing literature. We recommend that interventions developed and evaluated in future research include a balance of both developing life skills and engagement in meaningful activity. Researchers may consider incorporating measures of meaningful activity engagement in the evaluation of interventions and identify associations between this engagement and indices of psychosocial well-being. Where possible, future research designs should incorporate control groups and larger sample sizes to improve reliability and validity of study findings. Further, future research should be conducted in a range of sociocultural and geographic contexts.

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